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Economic Impact of Trade Agreements Implemented under Trade Authorities Procedures, 2021 Report

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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 U.S. House of Representatives Committee on Ways and Means and the U.S. Senate Committee on Finance, one in 2016 and a second not later than mid-2021, on the economic impact of trade agreements implemented under trade authorities procedures since 1984. This report is in response to the request for the second 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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Abbreviations and Acronyms

Terms	Definitions
ACC	American Chemistry Council
ASM	Annual Survey of Manufacturers
BEA	Bureau of Economic Analysis (USDOC)
BIT or BITs	U.S. bilateral investment treaty (or treaties)
CAFTA-DR	Dominican Republic-Central America-United States Free Trade Agreement
CBERA	Caribbean Basin Economic Recovery Act
CBI	U.S. Caribbean Basin Initiative
Census	U.S. Census Bureau (USDOC)
CGE	computable general equilibrium
CGTA	Center for Global Trade and Analysis (Purdue University)
CNIF	customs net export file
CPS	Current Population Survey (U.S. Census Bureau)
CRS	U.S. Congressional Research Service
CVD	countervailing duty
DSB	Dispute Settlement Body
DSU	Dispute Settlement Understanding (WTO)
DTAs	Deep Trade Agreements dataset (World Bank)
EDIS	Electronic Document Information System (USITC)
ERS	Economic Research Service (USDA)
EUR	euro
EU	European Union
FAS	Foreign Agriculture Service (USDA)
FCA	Fiat Chrysler Automobiles
FDI	foreign direct investment
FTA	free trade agreement
FTE	full-time equivalent
FTZs	Foreign Trade Zones
GATS	General Agreement on Trade in Services
GATT	General Agreement on Tariffs and Trade
GDP	gross domestic product
GPA	Government Procurement Agreement (WTO)
GRPs	good regulatory practices
GTAP	Global Trade Analysis Project (Purdue University)
GSP	Generalized System of Preferences
HS	Harmonized Commodity Description and Coding System
HTS	Harmonized Tariff Schedule of the United States
ICT	information and communication technology
ILO	International Labour Organization
IPRs	intellectual property rights
ISDS	investor-state dispute settlement
IT	information technology
ITA	Information Technology Agreement
ITAC	Industry Trade Advisory Committee
ITPD-E	International Trade and Production Database for Estimation
KORUS	United States-Korea Free Trade Agreement
MEA	multilateral environmental agreement
MFN	most-favored nation
NAAEC	North American Agreement on Environmental Cooperation

Terms	Definitions
NAALC	North American Agreement on Labor Cooperation
NAFTA	North American Free Trade Agreement
NAICS	North American Industry Classification System
NTR	normal trade relations
NTMs	nontariff measures
OECD	Organisation for Economic Co-operation and Development
PE	partial equilibrium
PTPA	United States-Peru Trade Promotion Agreement
ROOs	rules of origin
RTA	reciprocal trade agreement
RVC	regional value content
SMA	Steel Manufacturers Association
SOCMA	Society of Chemical Manufacturers and Affiliates
SPS	sanitary and phytosanitary
SPS Agreement	Agreement on the Application of Sanitary and Phytosanitary Measures (WTO)
TBTs	technical barriers to trade
TBT Agreement	Agreement on Technical Barriers to Trade (WTO)
TFA	Trade Facilitation Agreement (WTO)
TIVA	Trade in Value Added (database)
TPA	Trade Promotion Authority
TPA 2015	Bipartisan Congressional Trade Priorities and Accountability Act of 2015
TPLs	Tariff Preference Levels
TPU	trade policy uncertainty
TRIMs Agreement	Agreement on Trade-Related Investment Measures (WTO)
TRIPS	Agreement on Trade-Related Aspects of Intellectual Property Rights (WTO)
TRQs	tariff-rate quotas
U.S.C.	United States Code
URAs	Uruguay Round Agreements (WTO)
URAA	Uruguay Round Agreements Act
USAGE	United States Applied General Equilibrium model
USDA	U.S. Department of Agriculture
USDOC	U.S. Department of Commerce
USDOL or DOL	U.S. Department of Labor
USDOT	U.S. Department of Transportation
USITC	U.S. International Trade Commission
USITC 2016	<i>Economic Impact of Trade Agreements Implemented Under Trade Authorities Procedures, 2016 Report</i>
USMCA	United States-Mexico-Canada Agreement
USTR	Office of the U.S. Trade Representative
WHO	World Health Organization
WITS	World Integrated Trade Solution (World Bank)
WTO	World Trade Organization

Executive Summary

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) submit two reports 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 trade agreements with respect to which Congress has enacted an implementing bill under trade authorities procedures since January 1, 1984.¹ The trade agreements covered include the multilateral Uruguay Round Agreements as well as 16 U.S. bilateral and regional trade agreements.² As required, the Commission submitted the first of the two reports on June 29, 2016. Section 105(f)(2) requires that the Commission submit the second report not later than five years after the first one. This report is the second 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 representatives from industry, labor, government, non-governmental organizations, and academia, and a public hearing held by the Commission. The Commission also used several qualitative and quantitative approaches to assess the impact of trade agreements on U.S. industries including workers.

¹ Use of these procedures, also referred to as “fast track,” requires the President, after entering into an agreement no later than the date specified in the procedures, to submit formally the draft agreement, the implementing legislation, and a statement of administrative action to Congress. The trade promotion procedures then apply, with the Majority leaders of the House and Senate to introduce the bill on the date received, or on the first day thereafter that the House and Senate are in session, and with Congressional committees with jurisdiction to report out bills in a certain number of legislative days and with a maximum overall period of 90 legislative days for Congressional consideration of the implementing bill from the date of introduction. Once the bill has been introduced, no amendments are permitted either in Committee or floor action, and a straight “up or down” vote is required. The practice has been for the draft implementing bill and statement of administrative action to be developed by the President in close collaboration with the Committees of jurisdiction in both Houses of Congress. Staff of H. Comm. on Ways and Means, 111th Cong., Overview and Compilation of U.S. Trade Statutes, Part 1, 299–300 (Comm. Print 2010). For the most recent procedures, see the Bipartisan Congressional Trade Priorities and Accountability Act of 2015, sections 103–111 (19 U.S.C. 4202–4210). The President’s authority to enter into agreements under the 2015 Act ends on June 30, 2021.

² In chronological order, this encompasses U.S. bilateral agreements with Israel and Canada; the North American Free Trade Agreement (NAFTA); the Uruguay Round Agreements (URAs); U.S. bilateral agreements with Jordan, Singapore, Chile, Australia, Morocco, and Bahrain; a U.S. regional trade agreement with the Dominican Republic, El Salvador, Honduras, Nicaragua, Guatemala, and Costa Rica (CAFTA-DR); five more U.S. bilateral agreements, with Oman, Peru, Korea (KORUS), Colombia, and Panama; and the United States-Mexico-Canada Agreement (USMCA). The URAs include the Agreement Establishing the World Trade Organization (WTO) and its several annexes containing the WTO agreements discussed in more detail in chapter 2 among others. This report does not address other trade agreements that did not require implementing legislation (e.g., agreements regarding tariff barriers implemented by the President under trade agreements authority, such as the 2019 U.S.-Japan Trade Agreement). Permanent normal trade relations (NTR) status for China is not covered by this report because it was provided under other authority and not under an implementing bill under trade authorities procedures. Note: in this report, all references to “Korea” are understood to be to the Republic of Korea (South Korea).

Provisions of the Trade Agreements

Over time, U.S. free trade agreements (FTAs) have expanded in depth and breadth, a trend that is consistent with the expansion of Congress's negotiating priorities in its trade promotion authority (TPA) legislation. Many stakeholders support increasingly detailed and prescriptive FTA requirements, stating that they help level the playing field when other markets are less open than those of the United States; foster a more transparent and rules-based system; and address new challenges as technology and circumstances evolve. Other stakeholders, however, state that U.S. FTAs often serve the interests of multinational corporations at the expense of American workers—for example, by promoting trade liberalization and investor protections while failing to adequately protect worker rights and the environment.

FTA provisions generally focus on expanding and accelerating market access opportunities and reducing tariff and nontariff barriers to trade across all industry sectors. In this report, industry is broken down into six main sectors: agriculture, manufactured goods, natural resources, chemicals, textiles and apparel, and services. Cross-sectoral provisions in FTAs focus on strengthening rules and reducing nontariff barriers. These provisions address issues such as customs administration and trade facilitation, technical barriers to trade, government procurement, investment, electronic commerce and digital trade, intellectual property, labor, environment, regulatory practices, and state-to-state dispute settlement. Evolving approaches to rule of origin (ROO) requirements in FTAs also have played a prominent role in diverse industry sectors, including manufactured goods, textiles and apparel, and chemicals.

Two events mark an important shift in the evolution of FTA provisions. The first is the 2007 Bipartisan Trade Deal between Congress and the Executive Branch (also known as the May 10th Agreement), which required modifications to FTAs with Panama, Peru, Colombia, and Korea. Among other things, these changes strengthened labor and environmental provisions and cut back on pharmaceutical intellectual property rights (IPR) requirements, with the goal of improving access to medicines. The second event was revisions made to the United States-Mexico-Canada Agreement (USMCA) in 2019, again resulting from negotiations between Congress and the Executive Branch. Like those of the May 10th Agreement, these modifications reflected more extensive requirements in the areas of labor, environment, and enforcement, while limiting pharmaceutical IPR protections.

Economic Analysis of the Impacts

In preparing its assessment for this report, the Commission examined the economy-wide effects of all U.S. trade agreements, effects of specific provisions in U.S. trade agreements on trade in different sectors, and effects of specific U.S. trade agreements on select sectors of the U.S. economy. The Commission's models rely mostly on econometric techniques to estimate the historical relationship between economic outcomes (including trade in goods and services, investment, and foreign affiliate sales) and the U.S. trade agreements, while controlling for other economic factors.

The Commission's quantitative estimates encompass many U.S. trade agreements and different types of economic outcomes, but they are not comprehensive. Due to limits on available data and analytic

techniques, these estimates do not capture all of the economic costs or benefits of U.S. trade agreements.³

Impacts on the U.S. Economy as a Whole

The Commission estimates that, to the extent quantifiable, the agreements have had a small but positive effect on the U.S. economy. In 2017 (the base year), they led to an estimated increase in U.S. real GDP of \$88.8 billion (0.5 percent) and in aggregate U.S. employment of 485,000 full-time equivalent (FTE) jobs (0.3 percent), based on a model that assumes the economy is at its long-run full employment level. U.S. trade agreements have also had a positive effect on U.S. imports and exports as well, especially with U.S. FTA partners. The Commission also finds, however, that the gains in jobs were not distributed evenly, with the biggest gains in employment estimated for college-educated male workers.⁴ Table ES.1 summarizes the key findings from the Commission's economy-wide analysis.

Table ES.1 Estimates from the Commission's economic modeling of the economy-wide effects of U.S. trade agreements

The Commission's estimates for the U.S. economy are reported using 2017 as the base year. FTE = full-time equivalent.

Type of economic impact	Findings
Effects on U.S. output	Real GDP increased by \$88.8 billion (0.5 percent).
Effects on U.S. income	Real income increased by \$98.3 billion (0.6 percent).
Effects on U.S. trade	Exports increased by \$37.4 billion (1.6 percent) and imports increased by \$95.2 billion (3.4 percent).
Effects on U.S. labor market	Employment increased by 485,000 workers (0.3 percent), and real wages increased by 0.3 percent.
Distributional effects	College-educated men saw the largest gains (190,000 FTE jobs), followed by college-educated women (150,000 FTE jobs). Gains were concentrated in management, business, and science occupations and services and technician occupations. Some industries in the manufacturing sectors lost a substantial number of jobs, while industries in services sectors experienced job gains.

Source: USITC estimates.

Note: Real income is computed as a welfare measure that includes consumers' purchasing power. Estimated economy-wide effects represent changes relative to the levels of economic outcomes that would have existed absent the bilateral U.S. agreements.

³ For example, an economic benefit not captured includes the increased innovation as a result of strong IPR protections in agreements, nor does our analysis capture the costs to consumers that result from strong IPR protections. Similarly, economic costs not captured include the costs of employment transitions between sectors and the costs of temporary unemployment. In addition, these models do not attempt to assess the relative importance of other determinants of trade, investment, and the other economic outcomes; instead, they aim to isolate the incremental impact of the trade agreements.

⁴ As explained further below (see footnote 425 in chapter 3) and in additional views, Chair Kearns notes that the assumptions of the economy-wide model and its focus on efficiency gains do not account for the full range of impacts of trade agreements on U.S. workers.

Impact of Certain Provisions and Specific U.S. Agreements

In addition to economy-wide estimates, the Commission developed other estimates of certain provisions and specific U.S. agreements:

Services provisions. The Commission finds that reciprocal trade agreements (RTAs) with services provisions that take a “full liberalization approach”, follow the U.S. approach to market access, and cover a full set of other substantive disciplines significantly increase cross-border trade in services for a number of key services sectors.⁵

Extra intellectual property protections. The effects of IPR provisions in RTAs that go beyond the requirements of the WTO’s Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS)—known as TRIPS-plus provisions—are ambiguous. Although the literature suggests that TRIPS has spurred trade in IPR-intensive sectors, the additional effects of TRIPS-plus provisions are difficult to disentangle from those of other provisions. RTAs with TRIPS-plus provisions typically include substantial tariff and nontariff commitments. These other commitments may be driving the positive effects of RTAs with TRIPS-plus provisions on trade in IPR-intensive and non-IPR-intensive sectors.

Digital trade provisions and services trade. The Commission estimates the impact of including provisions governing trade in digital products and services in the U.S. trade agreements. The inclusion of these provisions has a positive effect on services trade, and the positive effect increases in sectors that are more digitally intensive.

From preference program to FTA. The Commission examines the impact of transitioning from a unilateral trade preference program to a free trade agreement using U.S. trade with Colombia as an example. The Commission estimates that the United States-Colombia Trade Promotion Agreement increased certainty in trade conditions for Colombian firms, leading to a rise in the number of varieties imported by the United States from Colombia.

U.S. trucking industry and the KORUS modification. The Commission estimates the impact of the 2018 modification to the United States-Korea Free Trade Agreement (KORUS) on the U.S. light truck industry. In the absence of the modification, light trucks exported from Korea would have gained duty-free access to the U.S. market beginning in 2021. The Commission finds that the modification to KORUS led to small increases in the number of U.S. trucks sold to Korea and in the profitability of U.S.-based truck producers.

Case Studies

This report contains seven case studies that analyze the economic effects on the United States of U.S. multilateral, regional, and bilateral trade agreements. These case studies illustrate the varied effects

⁵ Throughout this report, reciprocal trade agreement (RTA) refers to an agreement between two or more partners to liberalize tariffs and services, including free trade areas, customs unions, and economic integration agreements on services. U.S. free trade agreements (FTAs), which include trade promotion agreements, are RTAs, as are similar foreign agreements that do not include the United States. This report uses the terms “U.S. trade agreement” or “U.S. FTA” to refer to RTAs that include the United States as a party.

that provisions in agreements have had across diverse industries. Some of the case studies describe how U.S. trade agreements have expanded and maintained market access through tariff and nontariff provisions, which both lowered barriers to trade and reinforced certainty that such free trade regimes will remain in effect. As a result, U.S. FTAs have often been accompanied by expanded trade in goods, services, and digital products, and in some cases have also helped to increase the flow of investment and labor across borders. However, growth in trade under these agreements has not occurred in a vacuum: other economic factors and policies unrelated to the agreements also play a major role—and in some cases a more significant role—in directing the flow of trade.

Other case studies describe rules to address systemic problems within U.S. FTA partners' supply chains, particularly related to workers' rights and the environment. These practices can affect the U.S. economy if they cause foreign production to become more cost competitive relative to U.S. industries and workers or if they contribute to global environmental threats (particularly climate change). As discussed in chapter 4, the success of two provisions examined in this report—one under the U.S.-Peru FTA to combat illegal logging and deforestation in Peru and the other in a NAFTA side agreement to improve collective bargaining rights in Mexico—have been limited. However, more recent developments under the USMCA provide the opportunity for improvement in terms of the ability of agreements to address labor and environmental concerns. For example, robust labor and environment provisions under USMCA have established new mechanisms for combating these problems, although it is still too early to assess the impact of these new measures.

The first two case studies cover provisions that address specific national policies and practices of trading partners that affect U.S. exports and imports. The first of these demonstrates how U.S. exports of light vehicles to Korea substantially increased as a result of a KORUS provision that allows a certain quantity of vehicles meeting U.S. safety regulations to be sold in that market. This case study also puts the potential costs of foreign technical barriers to trade into focus by describing chemical regulatory requirements that are being adopted by other trading partners around the world. These requirements are based on the European Union (EU) Regulation on Registration, Evaluation, Authorisation, and Restriction of Chemicals (EU REACH), a challenging set of regulations for U.S. exporters. The second case study shows how the Forestry Annex in the U.S.-Peru Trade Promotion Agreement contributed to reforms of Peru's environmental regulatory system and likely caused reductions in U.S. imports of forest products from Peru. However, illegal logging and deforestation in Peru have continued since the adoption of the Forestry Annex, and some stakeholders and policymakers have questioned whether the provisions were adequately enforced.

The third and fourth case studies deal with labor-related provisions in North American agreements. The third case study finds that labor provisions included in a NAFTA side agreement likely did not strengthen Mexican workers' ability to engage in collective bargaining. Mexican wage rates in the manufacturing sector are far lower than in the United States. This is due in part to weakness in the ability of Mexican workers to unionize. The wage disparity may have prompted U.S. investment shifts toward Mexico in certain sectors. This case study also explores how USMCA contains provisions designed to improve Mexican workers' ability to engage in collective bargaining; if properly adhered to and enforced, these provisions could address some of the shortcomings of the earlier agreement. The fourth case study shows how temporary entry provisions have increased the movement of labor across North American borders and explores the potential impacts of this movement on certain U.S. industries.

The fifth case study discusses the effects of a provision, included in many U.S. agreements, that prohibits partners from imposing customs duties on electronic transmissions. This provision, which supports the WTO moratorium on such customs duties, helps provide certainty that the free flow of digital products will continue. U.S. FTA provisions and non-FTA agreements (such as the WTO moratorium) can be mutually reinforcing by building international consensus about the rules governing digital trade. This is particularly important for services and other digitally intensive sectors, where imposition of such duties would create significant compliance costs and increase uncertainty for firms; these outcomes, in turn, would reduce their competitiveness vis-à-vis local firms in foreign markets.

The final two case studies show how expanded market access can lead to opportunities for U.S. producers through tariff cost reductions as well as through the increased stability and certainty associated with the agreements. The sixth case study recounts how U.S. exporters of yellow corn were able to gain tariff advantages in Peru and Colombia relative to other global corn exporters as a result of expanded tariff-rate quota access and reduced uncertainty through elimination of price band duties. The seventh case study describes how the United States gained a tariff advantage in Korea for U.S. exports of energy products. Following important technological developments in the energy industry and a major expansion in U.S. supply, the Korean tariff changes contributed to a major increase of these exports to one of the largest energy markets in the world. This case study also examines how national treatment provisions may have helped incentivize early investments and contracts for U.S. sales of liquefied natural gas to South Korea.

Review of the Economic Literature

The report's literature review centers on studies that empirically estimate the historical impacts of trade agreements. Although the literature since the Commission's 2016 retrospective report has been limited, it continues to estimate that NAFTA had a large, positive aggregate impact on bilateral trade flows between the United States, Canada, and Mexico. Additionally, literature on the distributional effects of NAFTA on different groups is growing. In U.S. localities that had industries which had been protected by tariffs on Mexican goods, findings show that (1) there was lower wage growth for blue-collar workers in those U.S. industries and localities, (2) lower wage growth for blue-collar women than men, (3) a larger increase in unemployment among nonwhite workers than white workers, and (4) outward migration of workers without a high-school degree from those localities. Literature covering the impacts of agreements other than NAFTA is still very limited, and the estimates vary significantly.

Literature on the effects of different types of provisions in U.S. FTAs is also very limited and findings are, generally, specific to the context of agreements and the trading partners involved. For example, labor provisions can raise earnings for workers in middle-income partner countries, but implementation remains challenging in some countries. On IPR provisions, literature suggests the effects vary by type of IPR provision, industry sector, and country development levels. And lastly, environmental provisions in U.S. trade agreements have set new standards for monitoring and reporting environmental impacts in partner countries, and the provisions have led to the adoption of environmental protection laws in some markets.

Chapter 1

Introduction

Objective

Free trade agreements (FTAs) implemented under U.S. trade authorities procedures during the last several decades have affected the U.S. economy not only at a macro level but in key sectors as well. Trade agreements have created more favorable conditions for many U.S. firms through a variety of means. These include expanding market access through the reduction or elimination of tariff and nontariff barriers, enhancing the protection of U.S. intellectual property rights, opening opportunities for government procurements in FTA partner countries, and increasing protections for U.S. investors in FTA partner countries. Trade agreements have also provided U.S. consumers with access to a larger variety of goods imported from FTA trading partners at competitive prices. Trade agreements have affected U.S. labor markets as well. This report provides details about and estimates on the economic impact on the United States of trade agreements with respect to which Congress has enacted implementing bills under trade authorities procedures since January 1, 1984. The report is required under section 105(f)(2) of the Bipartisan Congressional Trade Priorities and Accountability Act of 2015 (TPA 2015) (19 U.S.C § 4204(f) (2)).

Scope

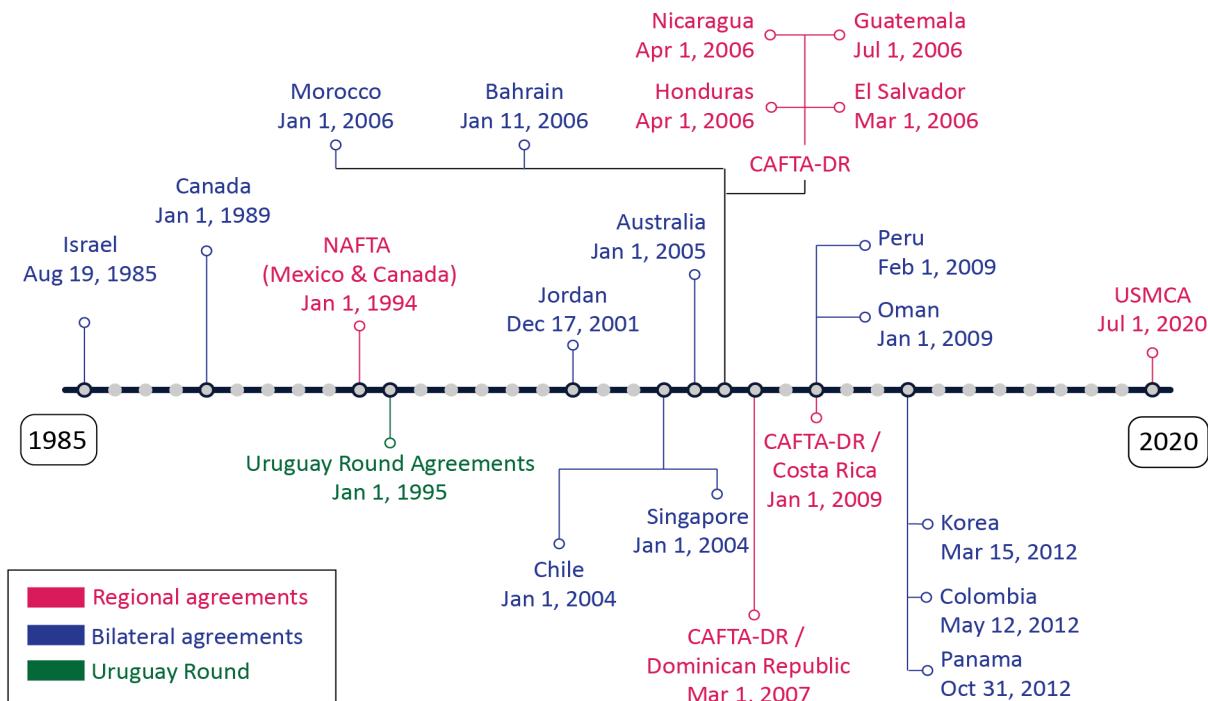
Section 105(f)(2) requires that the U.S. International Trade Commission (Commission or USITC) report “on the economic impact on the United States of trade agreements with respect to which Congress has enacted an implementing bill under trade authorities procedures since January 1, 1984.” The trade agreements covered in this report include the multilateral Uruguay Round Agreements as well as 16 U.S. bilateral and regional trade agreements. In chronological order, this group of agreements encompasses U.S. bilateral trade agreements with Israel and Canada; the North American Free Trade Agreement (NAFTA) with Canada and Mexico; the multilateral Uruguay Round Agreements; U.S. bilateral agreements with Jordan, Singapore, Chile, Australia, Morocco, and Bahrain; a U.S. regional trade agreement with the Dominican Republic and five Central American countries (CAFTA-DR), including El Salvador, Honduras, Nicaragua, Guatemala, and Costa Rica; five more U.S. bilateral agreements with

Oman, Peru (PTPA), Korea (KORUS), Colombia, and Panama; and the United States-Mexico-Canada Agreement (USMCA) with Canada and Mexico (figure 1.1).⁶

As indicated above, the trade agreements for which this report estimates economic effects include only those for which Congress enacted implementing bills, generally agreements that address tariff and nontariff barriers. This includes trade agreements implemented under so-called fast-track authority before 2002, and agreements implemented under “trade promotion authority” since 2002. It also includes agreements implemented under special implementing legislation (e.g., the U.S.-Jordan Free Trade Agreement) since January 1, 1984.

This report does not include any trade agreement negotiated by the President and proclaimed under the President’s executive agreement authority under section 103(a) of TPA 2015 (and similar provisions in earlier legislation), as Congress does not enact an implementing bill for such an agreement. Thus, the recent agreements with Japan and the China Phase One Agreement are not included. It also does not include trade legislation providing trade preferences for certain developing countries, such as under the Caribbean Basin Economic Recovery Act, Andean Trade Preference Act, or the African Growth and Opportunity Act, as these preference programs are not implemented under trade authorities procedures. Agreements regarding tariff and nontariff barriers negotiated under section 103(b) of TPA 2015 and implemented by Congress, such as the United States-Mexico-Canada Agreement (USMCA) and other FTAs, are included.

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](#).” The U.S.-Canada FTA can be found at Global Affairs Canada, “[Canada-United States Free Trade Agreement \(FTA\)](#).” 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](#).” U.S. trade agreements are sometimes called “bilateral and regional trade agreements”; however, this report uses the more common term “free trade agreements (FTAs)” to refer to U.S. trade agreements other than the Uruguay Round Agreements. The term FTA is meant to include agreements with respect to which Congress has enacted an implementing bill under trade authorities procedures regardless of whether the agreement is called a trade promotion agreement (e.g., PTPA), a free trade agreement (e.g. KORUS) or otherwise (USMCA).

Figure 1.1 Uruguay Round Agreements and U.S. bilateral and regional FTAs and date of entry into forceUnderlying data for this figure appear in appendix G, [table G.1](#).

Sources: For agreements with Australia, Canada, Bahrain, Chile, Colombia, Jordan, Korea, Morocco, Oman, Panama, Peru, Singapore, and Canada and Mexico (USMCA) dates are from USTR, “Free Trade Agreements,” <https://ustr.gov/trade-agreements/free-trade-agreements>; for agreements with Costa Rica, the 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 Mexico and Canada (NAFTA), and with Israel, dates are from USITC, Economic Impact of Trade Agreements, 2016. 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 January 8, 2021).

Along with key provisions of the bilateral and regional trade agreements, the report provides analyses of the following Uruguay Round Agreements:⁷

- General Agreement on Tariffs and Trade 1994 (GATT 1994)
- General Agreement on Trade in Services (GATS)
- Agreement on Agriculture
- Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement)

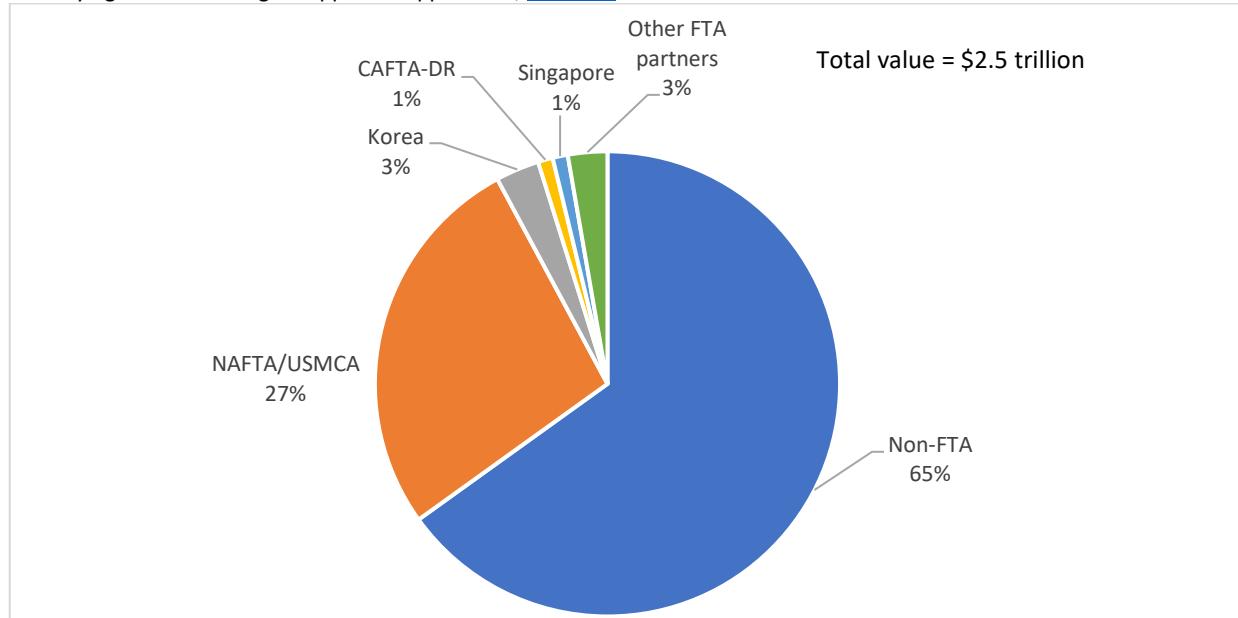
⁷The Uruguay Round Agreements include the Marrakesh Agreement Establishing the World Trade Organization (WTO) and its several annexes containing the agreements listed above among others. This subset was selected based on a review of the relevant literature and stakeholder input provided through submissions and testimony at the Commission’s hearing.

- Agreement on Textiles and Clothing
- Agreement on Technical Barriers to Trade (TBT Agreement)
- Agreement on Trade-related Investment Measures (TRIMs)
- Agreement on Rules of Origin (ROOs)
- Agreement on Trade-related Aspects of Intellectual Property Rights (TRIPS)
- Agreement on Government Procurement
- Understanding on Rules and Procedures Governing the Settlement of Disputes (DSU)

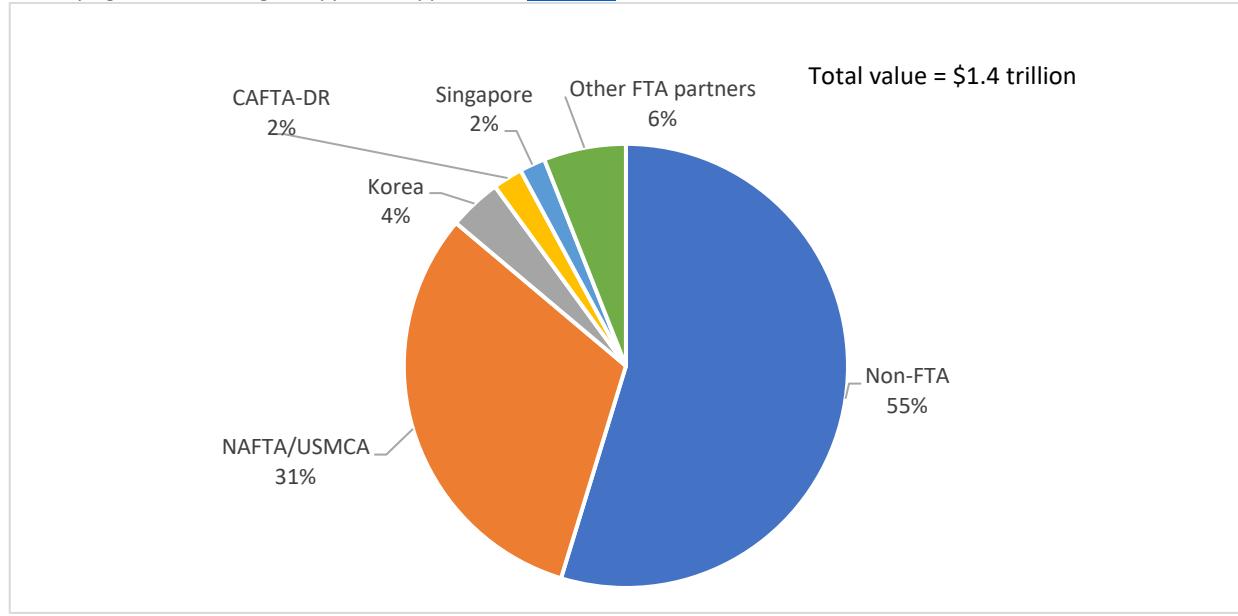
As of January 1, 2021, the United States has 14 free trade agreements with 20 countries in force.⁸ The Uruguay Round Agreements and FTAs covered in this report apply to a large share of U.S. trade. For example, U.S. trade with countries that are members of the World Trade Organization (WTO), and as a result have accepted all results of the Uruguay Round including the above listed agreements, accounted for approximately 99 percent of U.S. merchandise exports and imports in 2019. In addition, 45 percent of U.S. merchandise exports and 35 percent of U.S. merchandise imports in 2019 were between the United States and the partner countries in the bilateral and regional trade agreements (see figures 1.2–1.3). Further, bilateral and regional trade agreement partners account for more than one-fifth of U.S. cross-border services trade and affiliate transactions in services.⁹

⁸ While this report covers 16 FTAs, only 14 are in force because USMCA replaced NAFTA, with some exceptions (e.g., for ongoing disputes initiated under NAFTA, that continued under NAFTA procedures after July 1, 2020), and NAFTA replaced, for the United States and Canada, the U.S.-Canada Free Trade Agreement, with exceptions.

⁹ USDOC, BEA, Table 2.1 “Table 2.2. U.S. Trade in Services, by Type of Service and by Country,” July 10, 2020; USDOC, BEA, Table 4.4 “Services Supplied to Foreign Persons by U.S. MNEs Through Their MOFAs, by Country of Affiliate and by Industry of Affiliate,” October 20, 2020; USDOC, BEA, Table 5.4 “Services Supplied to U.S. Persons by Foreign MNEs Through Their MOUSAs, by Country of UBO and by Industry of Affiliate,” October 20, 2020.

Figure 1.2 U.S Merchandise imports from FTA partners as a share of total U.S. imports in 2019Underlying data for this figure appear in appendix G, [table G.2](#).

Source: USITC DataWeb/Census, accessed January 8, 2021: data series are imports for consumption, customs value.

Figure 1.3 U.S Merchandise exports to FTA partners as a share of total U.S. exports in 2019Underlying data for this figure appear in appendix G, [table G.2](#).

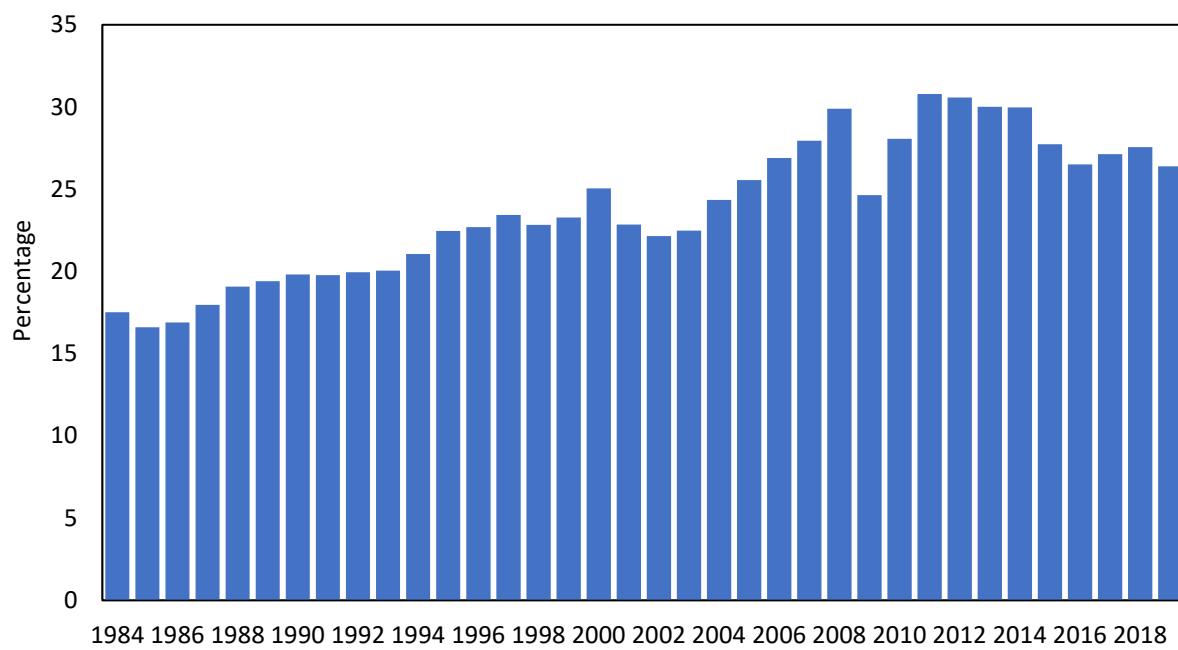
Source: USITC DataWeb/Census, accessed January 8, 2021: data series are domestic exports.

Growth in International Trade

U.S. international trade has grown significantly 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 1.4). The expansion in trade is the result of many economic factors. Prominent among these are the rapid growth of many emerging economies over this period, the reduction in transport and communication costs, technological advancements that facilitated digital trade, the growth of global value chains, and other globalization trends. Another important factor is the reduction and elimination of policy barriers to trade and investment under the trade agreements analyzed in this report. This report does not try to account for all of the growth in international trade over the period; rather, it estimates the contribution made by the U.S. trade agreements, which account for a substantial portion of total U.S. trade.

Figure 1.4 U.S. trade as a percentage of U.S. GDP, 1984–2019

Trade equals the sum of exports and imports of goods and services measured as a share of gross domestic product (GDP). Underlying data for this figure appear in appendix G, [table G.3](#).



Source: World Bank, World Development Indicators database, accessed January 8, 2021.

Approach and Organization

This report combines several different but complementary approaches to analyze the economic impact on the United States of U.S. trade agreements. These diverse 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. This report examines the evolution and expansion 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 studies in economic literature that also seek to measure the impact of individual and multiple agreements. This report contains five chapters in total. A brief summary of the chapters is provided below.

Chapter 2: Provisions in Trade Agreements

This chapter begins with a detailed description of key provisions in multilateral, regional, and bilateral trade agreements involving the United States, and the evolution of these provisions. The chapter illustrates how provisions in trade agreements implemented under trade authorities procedures have expanded over time—both in scope and in depth of coverage—reflecting the evolution of negotiating objectives in trade authorities legislation. The first part of the chapter focuses on sector-specific provisions, including those pertaining to agriculture, manufactured goods, natural resources, textiles and apparel, chemicals, and services. The second part covers a sampling of cross-sectoral provisions (i.e., measures affecting more than one segment of the economy). It includes discussions of provisions on customs administration and trade facilitation, technical barriers to trade (TBTs), government procurement, investment, electronic commerce and digital trade, intellectual property, labor, environment, good regulatory practices, and dispute settlement. Each sector-specific and cross-sectoral provision is the subject of a separate section that includes information on the treatment of these issues in the Uruguay Round Agreements, when applicable, and in U.S. regional and bilateral trade agreements.

Chapter 3: Estimates of the Economic Impact of the Agreements

The Commission developed several economic models to provide estimates of the impacts of the trade agreements on the U.S. economy. The models rely on the methods developed in the academic literature to study the effects—usually on a global scale—of various agreements. The Commission has updated and modified the models to address the narrower focus of this report: the impacts of U.S. trade agreements on the U.S. economy.

These economic models in this report mostly rely on historical data to estimate the relationship between the trade agreements and economic outcomes such as trade in goods and services, investment, and foreign affiliate sales, while accounting for other coinciding determinants of trade and investment. These models draw on gravity modeling framework and were designed to isolate the incremental impact of the trade agreements on the U.S. economy, even when the trade agreements in question are not the most significant factor driving trade and overall economic conditions.

These models fall into two general categories: economy-wide and stand-alone models that focus on specific provisions and sectors. The first group of models quantifies the effects of the agreements on the U.S. economy as a whole. This economy-wide analysis estimates the effects of all bilateral and regional U.S. FTAs, except USMCA, on the U.S. economy, including their impact on trade flows, GDP,

employment, wages, investment, and consumer welfare.¹⁰ A set of gravity models that relate trade and investment between two countries to country-specific factors and bilateral trade and investment costs is used to estimate the impact of the U.S. agreements on cross-border trade in goods and services and foreign direct investment (FDI). Estimated effects from these models are then converted into ad valorem equivalent¹¹ reductions in trade costs between the United States and its trading partners. These effects, in turn, are used in the Commission's economy-wide model. The Commission's economy-wide model then simulates the counterfactual scenario that would occur if U.S. trade agreements were not in force to determine the economy-wide effects at the aggregate and sector levels.

The Commission then uses a number of stand-alone gravity models that quantify the impact of specific provisions, such as services, intellectual property rights, and digital trade, that are found in many U.S. trade agreements. These models allowed the Commission to examine in greater detail the effects of these provisions on U.S. trade in different sectors. The Commission also developed a model that quantifies the impact on U.S. imports when Colombian firms experience a reduction in trade policy uncertainty as a result of Colombia moving from a unilateral preferential program to an FTA with the United States. The Commission also used a stand-alone model to quantify the impact on the U.S. automotive sector of provisions in the modified U.S.-Korea FTA involving changes made to the staging of tariffs on U.S. imports of light trucks.¹² Unlike the first set of models, the results of these stand-alone models are not linked to overall economy-wide effects.

Chapter 4: Case Studies on the Economic Impact of Selected Trade Agreement Provisions

The fourth chapter of the report presents case studies analyzing the effects of specific trade agreement provisions on U.S. industries. The case studies illustrate the varied effects that provisions in agreements have had across diverse industries—effects that may be impossible to capture or isolate from aggregate effects in economic models. These case studies also 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 investment. These changes shed light on the complex interrelationship of factors affecting trade and investment patterns.

The case studies in this report cover a range of provisions, exploring how each one bears on a particular manufacturing, agriculture, natural resources, and services industry (table 1.1).

¹⁰ Since USMCA entered into force in July 2020, there were not adequate data for the Commission to incorporate the ongoing effects of USMCA in its economy-wide analysis. The Commission's economy-wide analysis also does not include the effects of U.S. agreements signed under the Uruguay Round Agreements as they require extensive data on trade flows and trade barriers in the years leading up to Uruguay Round; these data are often limited and incomplete in practice.

¹¹ Tariffs that are expressed as a percentage of a good's value are called ad valorem tariffs. An ad valorem equivalent converts a tariff rate that was originally expressed in "specific" terms (e.g., a dollar per ton) into a percentage of the appraised custom value of imported good.

¹² Throughout this report, "U.S.-Korea FTA" and "KORUS" are used interchangeably to refer to the United States-Korea Free Trade Agreement.

Table 1.1 Case studies in this report

Case study	Provisions	Industry/sector	Agreements
1	Technical barriers to trade	Autos and chemicals	KORUS
2	Environment/ Peru Forestry Annex	Forestry/ logging	PTPA
3	Labor/ Unionization	Manufacturing	NAFTA/ USMCA
4	Temporary entry	Services	U.S.-Chile FTA U.S.-Singapore FTA NAFTA/USMCA
5	Prohibitions on customs duties on electronic transmissions (POCDET)	Digital goods and service providers (e.g., software, cloud services)	WTO and multiple FTAs
6	Tariff reductions	Corn	U.S.-Colombia Trade Promotion Agreement PTPA
7	Tariff reductions/national treatment	Energy	KORUS

Source: Compiled by USITC.

Case studies examine and scrutinize the mechanics of a provision's effect on a given sector and evaluate the economic impact emerging from this interaction. Examples of effects demonstrated in the case studies include increases in trade with FTA partners owing to reductions in tariffs and technical barriers to trade; growth in foreign direct investment; increased labor mobility that benefitted certain U.S. sectors; and the reduction of risk associated with new tariffs. While the case studies primarily assess the impact of provisions on U.S. exports and imports, they also discuss effects on U.S. employment, investment, productivity, profitability, and output, where applicable.

Chapter 5: The Economic Literature

Chapter 5 reviews the academic literature that estimates the economic impacts of trade agreements, with a focus on the literature estimating the effects of trade agreements on U.S. trade flows, GDP and welfare, employment and wages, investment, and those U.S. industries most directly affected. This chapter is divided into two sections. The first section gives a summary of the literature review that appeared in the Commission's previous TPA retrospective report, covering literature published from 2002 to 2015. It also adds an update that summarizes the literature since 2016. The second section of this chapter focuses on literature containing analyses of the economic effects of specific provisions found in trade agreements implemented since 2002, to conform with the time period of literature covered in the Commission's 2016 report.

Information Sources

The Commission relied upon information from a variety of sources, many of which are publicly available, including statistical databases, information from the Commission hearing, and findings from empirical literature and prior Commission reports. The report also makes use of some nonpublic information gathered through Commission staff interviews with representatives from industry, organized labor, government, non-governmental organizations, and academia.

Chapter 2

Provisions in Trade Agreements

This chapter describes key provisions in U.S. bilateral and regional free trade agreements (FTAs) and in trade agreements resulting from the Uruguay Round of multilateral trade negotiations (the Uruguay Round Agreements or URAs). The first part of the chapter focuses on sector-specific provisions pertaining to agriculture, manufactured goods, natural resources, textiles and apparel, chemicals, and services. The second part covers a sampling of cross-sectoral provisions (i.e., measures affecting more than one segment of the economy) on customs administration and trade facilitation, technical barriers to trade, government procurement, investment, electronic commerce/digital trade, intellectual property, labor, environment, good regulatory practices, and state-to-state dispute settlement. Each section in this chapter first discusses the sectoral or cross-sectoral provision in the context of URAs and then in the context of U.S. FTAs.

Key Findings

U.S. FTAs have become broader and deeper over time. Their length has expanded from 14 pages of text in the U.S.-Israel FTA in 1985 to 1,030 pages of text in the United States-Mexico-Canada Agreement (USMCA) in 2020 (excluding appendices, annexes, and side letters).¹³ Similarly, the congressional negotiating objectives that govern FTA negotiations have grown to include new and detailed lists of priorities. For example, the Trade Act of 1974—the first legislation to include fast-track authority or expedited procedures for congressional consideration of FTAs—had only one overall negotiating objective and one objective for sectoral negotiations.¹⁴ The latest trade promotion authority (TPA) legislation, the Bipartisan Congressional Trade Priorities and Accountability Act of 2015 (TPA 2015), includes 15 overall objectives, 22 principal objectives, and even more priorities and sub-objectives.¹⁵

The URAs, which entered into force in 1995, form the basis of the current World Trade Organization (WTO) system.¹⁶ They address a wide range of topics including trade in goods and services, agriculture, food safety, textiles and clothing, industry standards and product safety, intellectual property, and state-to-state dispute settlement, among others. Important common principles run through the URAs including transparency and nondiscrimination—which encompasses most-favored-nation (MFN)

¹³ USTR, “[Free Trade Agreements](#),” accessed March 9, 2021.

¹⁴ Trade Act of 1974, §§ 103 and 105, 19 U.S.C. §§ 2113 and 2114(a). Fast-track authority was renamed trade promotion authority (TPA) in the Bipartisan Trade Promotion Authority Act of 2002, § 2101, 19 U.S.C. § 3801.

¹⁵ Bipartisan Congressional Trade Priorities and Accountability Act of 2015 (TPA 2015), § 102, 19 USC § 4201; see also USITC, hearing transcript, October 6, 2020, 115–16 (testimony of Lori Wallach, Public Citizen’s Global Trade Watch).

¹⁶ The URAs include the Marrakesh Agreement Establishing the World Trade Organization (WTO Agreement) which describes various aspects and functions of the WTO and is the umbrella agreement under which the commitments from the Uruguay Round reside. The WTO Agreement includes annexes that encompass agreements for each of the three broad areas of trade the WTO covers (goods, services, and intellectual property); dispute settlement; and reviews of governments’ trade policies. WTO, [Marrakesh Agreement Establishing the World Trade Organization](#). See also WTO, “[Overview: A Navigational Guide](#),” accessed January 25, 2021; U.S. Chamber of Commerce, written submission to USITC, September 25, 2020, 2.

treatment (not discriminating between trading partners) and national treatment (treating imported goods no less favorably than domestically produced goods).¹⁷

The URAs often also provide the foundation upon which FTA chapters build. For example, FTA chapters expand on disciplines contained in the General Agreement on Tariffs and Trade, the General Agreement on Trade in Services, the Agreement on Technical Barriers to Trade, the Agreement on Trade-Related Aspects of Intellectual Property Rights, and other URAs. By contrast, in areas where there are few WTO disciplines, such as labor and environment, congressional negotiating objectives and agreements with the Executive Branch (such as the 2007 Bipartisan Trade Deal or “May 10th Agreement”) provide a reference point for FTA negotiations.¹⁸ Similarly, in the area of investment, where the URAs do not include robust provisions, the United States has negotiated bilateral investment treaties that provide the basis for FTA investment chapters. Most recently, USMCA negotiations in 2019 between the Executive Branch and Congress have resulted in new approaches to labor, environment, intellectual property, enforcement, investor-state dispute settlement, government procurement, and other FTA provisions.¹⁹

Many industry representatives support FTA provisions that not only reduce tariffs but also require substantial commitments on “behind the border” measures. They state that nontariff provisions help to level the playing field when the U.S. market is largely open and other countries impose steep barriers, and foster a more transparent and rules-based environment.²⁰ They also support FTA provisions in areas such as digital trade and intellectual property rights (IPR) protection.²¹ However, other stakeholders (including some representatives of organized labor, public interest groups, and industry) state that trade agreements often have served the commercial interests of multinational corporations at the expense of American workers and the public welfare. For example, they raise concerns about tariff reductions notwithstanding ongoing violations of labor and environmental obligations; IPR rules that may limit competition and contribute to high prescription drug prices; investor-state dispute settlement mechanisms and other protections that may promote the transfer of capital to other countries; and

¹⁷ WTO, [“Overview: A Navigational Guide,”](#) accessed January 25, 2021.

¹⁸ USTR, [“Bipartisan Trade Deal,”](#) May 2007, 3.

¹⁹ USTR, [Protocol of Amendment,](#) December 10, 2019.

²⁰ USITC, hearing transcript, October 6, 2020, 12 (testimony of John Murphy, U.S. Chamber of Commerce); USITC, hearing transcript, October 6, 2020, 192 (testimony of Beth Hughes, American Apparel & Footwear Association); USITC, hearing transcript, October 7, 2020, 325 (testimony of Robert Helminiak, Society of Chemical Manufacturers and Affiliates); North American Meat Institute, written submission to USITC, October 29, 2020, 2; American Farm Bureau Federation, written submission to USITC, October 22, 2020, 1; Distilled Spirits Council of the United States (DISCUS), written submission to USITC, November 6, 2020, 3.

²¹ USITC, hearing transcript, October 6, 2020, 112 (testimony of Jake Colvin, National Foreign Trade Council); USITC, hearing transcript, October 7, 2020, 406 (testimony of Christine Bliss, Coalition of Services Industries); Computer & Communications Industry Association (CCIA), written submission to USITC, 4, November 6, 2020; International Intellectual Property Alliance (IIPA), written submission to USITC, November 6, 2020, 3–4; U.S. Chamber of Commerce, written submission to USITC, September 25, 2020, 3.

provisions that may limit the ability of governments to self-regulate.²² The diverse range of views on trade agreement provisions, and the evolution of these provisions, are discussed below and in appendix E.

Agriculture

Agriculture includes animals and animal products, fishery products, plant and plant products, processed foods, and beverages. U.S. trade agreements have contributed to greater U.S. trade in many agriculture products by lowering or eliminating tariffs on products, helping to ensure that food safety standards do not create unnecessary obstacles to trade, and providing increased transparency for sanitary and phytosanitary (SPS) measures and product standards, as well as access to dispute settlement processes.²³ During the Uruguay Round, WTO members negotiated two agreements that primarily affect trade in agricultural products: the Agreement on Agriculture and the Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement). While the General Agreement on Tariffs and Trade (GATT) technically always applied to agricultural trade, it contained exceptions that limited its disciplines on agricultural trade.²⁴ The Agreement on Agriculture made the GATT disciplines more effective by closing loopholes and introducing new disciplines on domestic production and agricultural trade policies that may distort global trade. U.S. FTAs build on the Agreement on Agriculture by including provisions that increase market access between parties while using mechanisms to protect import-sensitive agricultural products, such as safeguards and tariff rate quotas (TRQs). The SPS Agreement recognizes the rights of members to adopt measures necessary to protect human, animal and plant life or health but also imposes disciplines that seek to ensure that SPS measures are not applied in a manner that would arbitrarily or unjustifiably discriminate between WTO members or act as disguised restrictions on trade.²⁵

²² USITC, hearing transcript, October 6, 2020, 16–20 (testimony of Eric Gottwald, AFL-CIO); USITC, hearing transcript, October 6, 2020, 30–35 (testimony of Andy Green, Center for American Progress); USITC, hearing transcript, October 6, 2020, 47–50 (testimony of Lori Wallach, Public Citizen’s Global Trade Watch); Southern Shrimp Alliance, written submission to USITC, September 25, 2020, 6; Nucor Corporation, written submission to USITC, November 6, 2020, 5–7; MFJ International, written submission to USITC, November 6, 2020, 3–5; American Phoenix Trade Advisory Services, written submission to USITC, November 6, 2020, 1.

²³ USITC, hearing transcript, October 6, 2020, 295–298 (testimony of Robert Maron, Distilled Spirits Council of the United States); USITC, hearing transcript, October 6, 2020, 308–313 (testimony of Lance Jungmeyer, Fresh Produce Association of the Americas); American Farm Bureau Federation, written submission to USITC, October 22, 2020, 1–2; American Peanut Council, written submission to USITC, October 19, 2020, 6–12; American Soybean Association and U.S. Soybean Export Council, written submission to USITC, 2020, 4–9; National Cattlemen’s Beef Association, written submission to USITC, November 6, 2020, 1–3; National Grain and Feed Association and the North American Export Grain Association, written submission to USITC, November 6, 2020, 2–3; National Milk Producers Federation and U.S. Dairy Export Council, written submission to USITC, October 6, 2020, 1; National Potato Council, written submission to USITC, October 20, 2020, 1; North American Meat Institute, written submission to USITC, October 29, 2020, 2.

²⁴ 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. Sharma, “[Agriculture in the GATT](#),” 2000.

²⁵ WTO, [Agreement on the Application of Sanitary and Phytosanitary Measures](#) (SPS). See also WTO, “[Standards and Safety](#),” accessed December 31, 2020.

Uruguay Round Agreements

The Agreement on Agriculture

The Agreement on Agriculture²⁶ 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.²⁷ First, to facilitate market access, the Agreement on Agriculture required countries to convert nontariff measures (NTMs), such as import quotas or bans, affecting agricultural goods trade into MFN tariffs that afforded protection equal to or less than the protection that had been given by the NTM. This conversion process is called tariffication. Countries then committed to reduce the average tariff rate across all agricultural products over the agreement's implementation period and to reduce tariffs on individual provisions in the global Harmonized Commodity Description and Coding System (HS) by a certain minimum percentage. The size of the required reductions depended on the development status of the participating countries.²⁸ In addition, countries established TRQs²⁹ for many of the products that previously had import quotas or bans in place, subject to certain guidelines.³⁰ They also established agricultural special safeguard measures (SSGs) that permit countries to temporarily impose additional duties on agricultural products if the volume of imports surges. For example, such duties may be imposed if imports in any one year exceed a predetermined quantity (known as a volume based safeguard or volume trigger) or if the import price falls below a certain level (known as a price based safeguard or price trigger).³¹ MFN tariffs for products were also reduced or eliminated in agreements made at the time of the Uruguay Round, such as the zero-for-zero spirits agreement, which reduced MFN tariffs on certain spirits to zero percent.³²

In addition to lowering tariffs, the Agreement on Agriculture required WTO members to impose disciplines on the level of domestic support, including subsidies, provided to agricultural sectors. The agreement divided domestic support programs into categories based on their potential to distort global

²⁶ WTO, [Agreement on Agriculture](#).

²⁷ Market access, domestic support, and export competition are commonly referred to as the three “pillars” of [Agreement on Agriculture](#). WTO, [The WTO Agreement Series: Agriculture](#), 2016, 10.

²⁸ Developed countries agreed to an overall reduction of 36 percent over 6 years, while developing countries agreed to an overall reduction of 24 percent over 10 years. Least-developed countries were exempt from these reductions. WTO, [The WTO Agreement Series: Agriculture](#), 2016, 15.

²⁹ A TRQ allows imports of up to a set quantity of a product at a lower or zero duty rate. Imports over the quota amount face a higher tariff rate.

³⁰ 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 an MFN basis to ensure minimum access opportunities. Members had to expand access to 5 percent by 2000 (developed countries) or 2004 (developing countries). WTO, [The WTO Agreement Series: Agriculture](#), 2016, 15–16.

³¹ Specific formulas guiding the calculations of a quantity surge or a price drop were laid out in the [Agreement on Agriculture](#). WTO, “[Agriculture: Explanation: Market Access](#),” accessed December 31, 2020; WTO, [The WTO Agreement Series: Agriculture](#), 2016, 75–78. Only one safeguard can apply per product at any time. For examples, see U.S. safeguards in subchapter IV of Chapter 99 of the Harmonized Tariff Schedule of the United States.

³² The United States and the EU were parties to the original agreement, which has since been joined by Canada, Japan, Taiwan, Ukraine, Macedonia, and new EU member states. The agreement eliminated tariffs on brown distilled spirits. Similar zero-for-zero agreements were also made for beer and nonagricultural products. WTO, [Sector Specific Discussions and Negotiations](#), January 24, 2005, 9; USITC, hearing transcript, October 6, 2020, 295–296 (testimony of Robert Maron, Distilled Spirits Council of the United States).

trade, and established guidelines to govern their use. The Agreement on Agriculture initially focused on decreasing the use of the most trade distorting programs by establishing a value cap for the amount spent on these programs.³³ Further, the Agreement on Agriculture prohibited the use of export subsidies for agricultural products unless the subsidies were entered in a country's list of commitments.³⁴ Products which did not receive export subsidies during the 1986–88 base period were ineligible for future export subsidies.

The SPS Agreement

The SPS 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.³⁵ These SPS measures include 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.³⁶ For example, regulatory agencies of all countries, including the United States, routinely enforce measures at the border to ensure safe food for consumers and to protect domestic crops or livestock from imported agricultural products or animals that may introduce a plant pest or animal disease into the country.

The SPS Agreement requires that SPS measures be based on scientific principles and a risk assessment appropriate to the circumstance. It further requires that SPS measures be no more trade restrictive than required to achieve a WTO member's appropriate level of protection. It requires the use of international standards, guidelines, and recommendations, where they exist, subject to exceptions that seek to ensure that deviations from international standards are risk- and science-based.³⁷ The SPS Agreement

³³ Developed countries agreed to a 20 percent reduction of the most trade distorting domestic support over 6 years, while developing countries agreed to a 13 percent reduction of over 10 years. Least-developed countries were exempt from these reductions. WTO, [The WTO Agreement Series: Agriculture](#), 2016, 22.

³⁴ Developed countries agreed to a 21 percent reduction in the quantities subsidized and a 36 percent reduction in the value of export subsidies over 6 years, while developing countries agreed to a 14 percent reduction, by quantity, and a 24 percent reduction, by value, over 10 years. Least-developed countries were exempt from these reductions. WTO, [The WTO Agreement Series: Agriculture](#), 2016, 27. U.S. dairy exporters see the reduction of export subsidies as an important event in creating a more level playing field for international dairy trade. National Milk Producers Federation and U.S. Dairy Export Council, written submission to USITC, October 6, 2020, 2.

³⁵ WTO, [SPS Agreement](#).

³⁶ The term SPS measure is defined in Annex A of the SPS Agreement. 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 on relevant statistical methods, sampling procedures, and methods of risk assessment; and packaging and labeling rules directly related to food safety. WTO, [The WTO Agreement Series: Sanitary and Phytosanitary Measures](#), 2010, 37.

³⁷ WTO SPS Agreement, arts. 2.3, 3.1, 5.1, 5.6. The three recognized international standard-setting bodies in the SPS Agreement are (1) the Joint Food and Agriculture Organization of the United Nations (FAO)/World Health Organization (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). WTO, “[Sanitary and Phytosanitary Measures](#),” accessed December 31, 2020.

also includes a notification process for national SPS regulations and establishes a permanent committee for consultations on SPS measures affecting trade.³⁸

U.S. Free Trade Agreements

NAFTA entered into force in 1994; however, its market access provisions generally reflected those of the Agreement on Agriculture with expanded duty-free access for certain agricultural products as well as the establishment of TRQs and SSGs.³⁹ Subsequent U.S. FTAs primarily have sought to expand and accelerate the market access disciplines established under the Agreement on Agriculture and, in more recent agreements, to strengthen SPS disciplines. U.S. trade agreements include provisions that eliminate tariffs and global TRQs on almost all tariff lines. The provisions set up temporary or permanent TRQs and SSGs to give particularly sensitive agriculture sectors time to adjust to greater competition from imports.⁴⁰ This provides a level of ongoing protection to sensitive sectors. In addition, most U.S. FTAs eliminate the use of export subsidies on goods traded between partner countries.⁴¹ All U.S. FTAs negotiated after the establishment of the WTO reaffirm parties' obligations under the SPS Agreement.

Market Access Provisions

U.S. FTAs 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.⁴² However, for some highly sensitive agricultural products, U.S. FTAs do 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.

TRQs and SSGs are commonly used in U.S. FTAs to provide added protection to participating countries' most sensitive agricultural products.⁴³ 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

³⁸ WTO, [SPS Agreement](#), art. 12 and annex B.

³⁹ Unlike the [Agreement on Agriculture](#) and subsequent U.S. FTAs, NAFTA treated safeguards as a type of tariff rate quota. [NAFTA](#), section A, arts. 703–705.

⁴⁰ NAFTA also established TRQs and SSGs on sensitive products including, for Mexico, corn, pork products, and apples from the United States. [NAFTA](#), section A, art. 703, annex 703.3; [NAFTA](#), chap. 3, annex 302.2, "Schedule of Mexico," chap. 10.

⁴¹ Since the [Agreement on Agriculture](#) 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.

⁴² 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 Agreement](#), annex 2.3. See case study seven for a discussion of the effects of the market access provisions in the [U.S.-Colombia Agreement](#) and [Peru Trade Promotion Agreement \(PTPA\)](#) on U.S. corn exports.

⁴³ This discussion focuses on the trade agreements enacted after the Uruguay Round reforms (i.e., after NAFTA). Access granted under these trade agreements' TRQs is in addition to any access granted to the world generally through WTO TRQs.

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.⁴⁴

Many countries, including the United States, maintain permanent TRQs for sensitive agriculture products, for example, U.S. permanent TRQs cover sugar products from nine Latin American partner countries and Canada, and dairy products from Australia and Canada.⁴⁵

Sanitary and Phytosanitary Provisions

Most U.S. FTAs 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 was similar to the final WTO SPS Agreement because the negotiations for both agreements overlapped in the early 1990s.⁴⁶ All U.S. FTAs negotiated after the WTO was established reaffirm parties' obligations under the SPS Agreement.

USMCA goes further than previous U.S. FTAs in requiring transparency and encouraging harmonization or equivalence of SPS measures.⁴⁷ The SPS chapter of USMCA incorporates the definitions and many of the core principles of the WTO SPS Agreement, including equivalence and regionalization.⁴⁸ It also incorporates enhanced SPS disciplines in the areas such as equivalence, science and risk analysis, transparency, and cooperative technical consultations. Like the SPS Agreement, the USMCA requires that SPS measures be applied in a nondiscriminatory manner and only to the extent necessary to

⁴⁴ 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 agreement](#), annex 3.3; [U.S.-Morocco FTA](#), annex IV. In addition, under [CAFTA-DR](#), a portion of the existing ethyl alcohol TRQ under the 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, 19 U.S.C. § 2703(a)(1)(B).

⁴⁵ Sectors that are considered import sensitive, such as the dairy and sugar industries, often have longer transition periods or indefinite border protections. Jurenas, [Agriculture in U.S. Free Trade Agreements](#), January 30, 2008, 9–10. The nine Latin American countries are Costa Rica, the Dominican Republic, El Salvador, Guatemala, Honduras, Nicaragua, Peru, Panama, and Colombia. Through the U.S.-Australia FTA, 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. Through USMCA, the United States has indefinite TRQs on eight dairy products/product groups, sugar, and sugar-containing products. See [USMCA](#), annex 2-B, appendix 2: Tariff Schedule of the United States, section B.

⁴⁶ Meilke, An Appraisal of the SPS Provisions, 2001, 4, 7–10.

⁴⁷ USTR, “[United States–Mexico–Canada Trade Fact Sheet](#),” accessed March 3, 2021; Burfisher, Lambert, and Matheson, “[NAFTA to USMCA: What is Gained?](#)” March 2019, 10; American Soybean Association and U.S. Soybean Export Council, written submission to USITC, 2020, 7.

⁴⁸ Equivalence is a process that evaluates whether a country's food safety inspection system achieves the level of public health protection applied in another country. USDA, FSIS, “[Equivalence Process Overview](#),” accessed December 31, 2020. Regionalization is a process in which countries recognize regions or zones within a country as disease-free rather than ban products from the entire country. Ferguson, “[Regionalization Plays a Key Role](#),” May 10, 2018.

protect, human, animal or plant life or health, and that measures be not more trade restrictive than required to achieve the WTO member's level of protection.⁴⁹

Many of the SPS provisions of USMCA affect the practices of establishing, notifying, and monitoring SPS regulations.⁵⁰ Parties to the agreement are to document their risk assessment and risk management decisions; they must offer other parties and individuals the opportunity to comment on proposed SPS regulations.⁵¹ In addition, the entire SPS Chapter is subject to USMCA dispute settlement procedures.

Other Agricultural Provisions

U.S. FTAs typically include a few provisions addressing aspects of agricultural trade other than market access and SPS measures. For example, in line with the Agreement on Agriculture, 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.⁵² In addition, since the mid-2000s, many U.S. FTAs 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. In addition, some trade agreements establish mechanisms to consult on specific areas of bilateral concern, such as dairy commitments and trade in poultry.⁵³ Agriculture industry representatives also identified several crosscutting provisions that are important for agricultural trade—specifically, intellectual property, labor, and environment provisions.⁵⁴

Newer issues have influenced agricultural trade provisions in U.S. FTAs. USMCA's provisions on agricultural biotechnology mostly relate to transparency, timely review of products of agricultural biotechnology that require regulatory approval, and cooperation between the parties. For example, parties would be required to make available to the public a summary of the risk or safety assessments that lead to product approval, to accept and review applications on an ongoing basis, and to allow initiation of the domestic regulatory authorization process of a product not yet authorized in another country.⁵⁵

⁴⁹ [NAFTA](#), arts. 712.4 and 712.5; [USMCA](#), arts. 9.3, 9.6.6, and, 9.6.10. [USMCA](#), art. 9.6.10 notes that a measure is more restrictive than required if there is an alternative measure that "achieves the appropriate level of sanitary or phytosanitary protection and is significantly less restrictive to trade."

⁵⁰ See [USMCA](#), arts. 9.6–9.17.

⁵¹ [SPS Agreement](#), arts. 9.6.7 and 9.13.

⁵² This article is in nine U.S. trade agreements (Australia, Bahrain, CAFTA-DR, Chile, Colombia, Morocco, Oman, Panama, and Peru) covering 14 trading partners. Additionally, USMCA includes export competition provisions specifying that partners will not maintain or adopt export subsidies on agricultural goods destined for members of the agreement, and the United States-Israel FTA includes an annex stating that one objective of the agreement is to eliminate export subsidies.

⁵³ For example, USMCA provisions maintain TRQs for dairy and poultry products and establish a consultation process for dairy provisions (see [USMCA, art. 3.A.11](#)).

⁵⁴ NAMI, written submission to USITC, October 29, 2020, 4–5. The TBT Agreement also applies to measures applicable to agricultural products if they fall within the scope of measures covered by the TBT Agreement, for example, labeling measures that have a purpose other than protecting human, animal or plant life or health such as country of origin labeling.

⁵⁵ [USMCA](#), arts. 3.12–3.16.

Manufactured Goods

Manufactured goods include transportation equipment, machinery, medical devices, and electronic products. Both the URAs and FTAs include a variety of commitments to address tariff and nontariff barriers concerning manufactured goods, as described further below.

Uruguay Round Agreements

Important URAs for manufactured goods include GATT 1994, under which signatories agree to reduce or eliminate duties on manufactured goods, bind tariff rates on a non-preferential basis, and follow important disciplines on market access and nondiscrimination, among others.⁵⁶ Also important is the Agreement on Rules of Origin, which focuses on transparency, predictability, and consistency in defining and applying rules of origin (ROOs) to manufactured goods and other products.⁵⁷ In addition, the Agreement on Technical Barriers to Trade (TBT Agreement) is particularly relevant to manufactured goods trade.

Tariff reductions under the URAs vary greatly among manufactured products. WTO members agreed to reduce their tariffs on manufactured products generally, and for some products tariffs were completely removed by many countries through plurilateral agreements. Specifically, the URAs include plurilateral zero-for-zero initiatives on a range of products, including information technology, medical, construction, and agricultural equipment. These agreements eliminate duties on specific products on an MFN basis, benefiting all WTO members.

For the motor vehicle industry, which did not have its own initiative, URA tariff reductions had little effect on U.S. exports: the United States already faced no tariffs on motor vehicles in its two largest export markets, Canada and Japan.⁵⁸ The URAs reduce some developed-country tariffs on motor vehicle parts, including those in Japan (where they had fallen to zero percent) and in Australia, Korea, and Singapore (2 percent), all significant U.S. destinations for automotive parts in 1994.

U.S. Free Trade Agreements

Whereas the URAs generally reduce tariffs (and in some cases eliminate tariffs) on a non-preferential (or MFN) basis, U.S. FTAs generally eliminate tariffs on a preferential basis (i.e., only to the FTA partner country or countries), either immediately or over a period of time.⁵⁹ Motor vehicles tend to be one of the manufactured goods with the longest phased reductions (“staging” periods) for tariff removal when negotiated with a partner that produces and exports vehicles and has historically not opened its own

⁵⁶ WTO, [General Agreement on Tariffs and Trade 1994](#).

⁵⁷ Rules of origin are the criteria used to determine which nation is the source of a product and whether a particular product qualifies for preferential or duty-free treatment under an agreement. See generally WTO, [Agreement on Rules of Origin](#).

⁵⁸ The United States already had a trade agreement with Canada, and Japan's MFN rate on motor vehicles was zero. Key Japanese nontariff measures related to motor vehicles were not removed under these agreements.

⁵⁹ NAFTA, for example, eliminated Canadian and Mexican tariffs on most products in manufacturing 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. USITC, [Impacts of Trade Agreements](#), 2003, 158.

market to imports. For example, KORUS had an extremely long staging period (25 years) for U.S. imports of vehicles for the transport of goods (trucks and work vans).⁶⁰ In agreements with countries that have no vehicle production, the tariffs on originating motor vehicles are often removed immediately, as is typically the case with other manufactured products as well.

U.S. FTAs also set specific ROOs for many manufactured goods. In some agreements, these rules include regional value content (RVC) requirements that are calculated using build-up, build-down, or net cost methods, sometimes with change of tariff classification requirements.⁶¹ The U.S.-Canada agreement that predated NAFTA was the first agreement in which detailed ROOs were negotiated, and ROOs in subsequent agreements have varied in their specificity. Agreements with countries in the Middle East and North Africa (in chronological order: Israel, Jordan, Morocco, Bahrain, and Oman) have less variety and more RVC requirements, while agreements outside of that region allow greater variety in ROO type.⁶² Later FTAs have largely followed the NAFTA model in terms of market access rules, but have moved away from net-cost calculations towards build-up or build-down approaches.⁶³ USMCA allows for both net cost and transaction value methods for RVC calculations.⁶⁴

Motor vehicles often have complex multi-element ROOs. For example, USMCA contains product-specific ROOs, including a three-year phase-in period for raising the RVC requirement for autos and light vehicles from 62.5 percent under NAFTA to 75 percent (extendable to five years with an “alternative staging plan” approved by all three parties). USMCA also requires that a specific share of regional content be produced by workers earning greater than \$16 per hour, and that vehicles contain more than 70 percent North American steel and aluminum.⁶⁵

In addition to chapters on general nontariff measures, U.S. FTAs have increasingly included provisions on nontariff measures related to specific product groups within the manufactured goods sector. KORUS, for example, includes specific provisions for medical devices and motor vehicles. The medical devices provision commits each party to determine government-provided reimbursement amounts for pharmaceutical and medical devices based on “competitive market-derived prices.”⁶⁶ The provision also requires transparency in pricing and reimbursement decisions for medical devices. The KORUS

⁶⁰ The United States and Korea agreed to further extend these tariffs to 2041. [KORUS](#), annex 2-B, 190 (HTS 87042100 and 87043100); [KORUS](#), General Notes: Tariff Schedule of the United States; USTR, “[Fact Sheet on U.S.-Korea Free Trade Agreement Outcomes](#),” September 2018.

⁶¹ 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.” Jones and Wong, [International Trade: Rules of Origin](#), March 3, 2020, 8. A change in tariff classification occurs when a product undergoes a process so that it would be categorized under a different chapter, heading, or subheading of the HS.

⁶² Powers and Ubee, “[A Comprehensive Comparison of Rules of Origin](#),” May 2020.

⁶³ Inama, [Rules of Origin in International Trade](#), 2009, 323.

⁶⁴ The transaction value method uses the difference between the transaction value and the value of non-originating materials to calculate RVC. USMCA, [chap. 4](#), arts. 4-7 and 4-8.

⁶⁵ USITC, [U.S.-Mexico-Canada Agreement](#), April 2019, 76.

⁶⁶ KORUS, [chap. 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.

confirmation letter on motor vehicles contains commitments for transparent development of regulations and has specific sections on how Korean regulations on environmental and safety standards will govern U.S. vehicles exported to Korea.⁶⁷ The Australia, Bahrain, CAFTA-DR, Chile, Colombia, Korea, Morocco, Oman, Panama, Peru, Singapore, and USMCA agreements contain provisions addressing remanufactured goods.⁶⁸ These provisions prohibit import bans, limit regulatory barriers, set out ROOs, and ensure nondiscriminatory treatment for these goods.⁶⁹

Energy, Forestry, and Mineral and Metal Products (Natural Resources)

For the purpose of this report, energy, forestry, and mineral and metal products, including downstream products such as lubricants, electricity, printed materials, ceramics, glassware, steel, jewelry, prefabricated buildings, and furniture, are grouped under the category of “natural resources.” The various commitments in the URAs and FTAs to address applicable tariff and nontariff barriers, and other specific topics related to natural resources, are described below.

Uruguay Round Agreements

U.S. imports of most natural resources products have been subject to low or zero average tariff rates for decades,⁷⁰ and the remaining tariffs were cut further in stages starting in 1995 under the URAs.⁷¹ Under the Uruguay Round, zero-for-zero staged annual tariff reductions were negotiated between the United States, Canada, the European Union (EU)-15,⁷² Japan, and various other GATT members⁷³ for a number of goods. These included certain pulp, paper, and printed materials (tariffs removed by 2004); iron and

⁶⁷ For more on the safety portion of this confirmation letter, see the case study in chapter 4.

⁶⁸ A remanufactured good is one that reached its end of life, and then underwent an industrial process to restore it to its original working condition. USITC, *Remanufactured Goods*, 2012, i.

⁶⁹ USITC, *Remanufactured Goods*, 2012, 2–21.

⁷⁰ For example, both crude petroleum and refined petroleum products already had applied tariff rates averaging less than 1 percent ad valorem even before the (1973–79) Tokyo Round. USITC, *The Impact of Trade Agreements*, August 2003, 264.

⁷¹ Bound tariff rates for natural resources were progressively reduced during the previous rounds of GATT, culminating in the Uruguay Round. WTO, “*Natural Resources, International Cooperation*,” 2010, 165. Successive tariff reduction negotiations prior to the Uruguay Round are summarized in WTO, “*Sector Specific Discussions and Negotiations*,” January 24, 2005, 3–8.

⁷² The EU was established on November 1, 1993, by the 12 Member States of the former European Communities (Belgium, Denmark, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, and the United Kingdom) and subsequently was expanded on January 1, 1995 through April 30, 2004, with the entry of 3 additional Member States (Austria, Finland, and Sweden). The EU currently has 27 members. EC, “*Glossary: EU Enlargements*,” January 14, 2020.

⁷³ USITC, *Potential Impact on the U.S. Economy*, June 1994, V-30.

steel products (removed by 1999);⁷⁴ and furniture (removed by 1999).⁷⁵ Almost all tariff lines in the *Harmonized Tariff Schedule of the United States* (HTS) for natural resources were bound during the Uruguay Round,⁷⁶ with about two-thirds bound at a duty rate of “Free.”⁷⁷

Significant URA nontariff provisions for forest products include pre-shipment inspection rules, ROOs, and technical barriers to trade (TBTs).⁷⁸ Other significant URA nontariff provisions applicable to minerals and metals include safeguards with the elimination of voluntary restraint agreements (VRAs),⁷⁹ antidumping and countervailing measures with sunset provisions, government procurement, TBTs, pre-shipment inspection, import licensing, and ROOs.⁸⁰

U.S. Free Trade Agreements

Under U.S. FTAs, the majority of the remaining U.S. duties related to natural resources were ended immediately upon implementation into force, particularly those with developing-country partners in the Western Hemisphere.⁸¹ Other duties were phased out over staging periods, particularly those bound at higher ad valorem levels.⁸² For example, ceramic tiles, porcelain or china tableware, and kitchen or bathroom glassware products benefited from such tariff staging, which extended up to 10 years in

⁷⁴ The United States, the EU-12, Austria, Finland, Japan, Korea, Norway, and Sweden also negotiated a zero-for-zero agreement to eliminate tariffs on steel structural and steel wire products over a 10-year period. USITC, [Potential Impact on the U.S. Economy](#), June 1994, V-30.

⁷⁵ See Annex 3: Sectoral Negotiations During the Uruguay Round (1986–1994), in WTO, “[Sector Specific Discussions and Negotiations](#),” January 24, 2005, 19–23. For listings of the specific HTS subheadings, see Annex 5: Product Coverage of Successful Plurilateral Sectoral Negotiations During the Uruguay Round, in WTO, “[Sector Specific Discussions and Negotiations](#),” January 24, 2005, 26–29.

⁷⁶ Only two tariff lines for U.S. crude-petroleum were not bound and remain so today. Although the United States could raise the rates on these two tariff lines, current NTR tariffs are low at 5.25 cents per barrel (HTS 2709.00.10) and 10.5 cents per barrel (HTS 2709.00.20), equivalent to applied tariff rates less than 1 percent. WTO, “[Tariff Download Facility](#),” accessed September 21, 2020.

⁷⁷ Among the 2,270 natural resources tariff lines (HS 2017 nomenclature), 1,430 tariff lines (63.0 percent) were bound at a duty rate of “Free.” WTO, “[Tariff Download Facility](#),” accessed September 21, 2020. However, forest products, aluminum, and steel industry representatives also state that significantly higher average and bound duty rates confront U.S. exports to Brazil, China, India, and other fast-growing foreign markets outside North America. American Forest & Paper Association (AF&PA), written submission to USITC, November 3, 2020, 1–2; Century Aluminum Co., written submission to USITC, November 6, 2020, 8; Nucor Corp., written submission to USITC, November 6, 2020, 3

⁷⁸ USITC, [Potential Impact on the U.S. Economy and Industries](#), June 1994, II-3, II-53–II-54, II-57–II-58.

⁷⁹ VRAs, also referred to as a “voluntary export restraints” (VERs) or “orderly marketing arrangements” (OMAs), are bilateral arrangement by which an exporting country agrees to reduce or restrict its exports and the importing country agrees not to impose import quotas, tariffs, or other controls. WTO, “[Glossary Term, VRA, VER, OMA](#),” retrieved March 2, 2021.

⁸⁰ USITC, [Potential Impact on the U.S. Economy and Industries](#), June 1994, V-3, V-6–V-7, V-20–V-21, V-25–V-26, V-30.

⁸¹ The [CAFTA-DR](#), [U.S.-Colombia](#), [U.S.-Panama](#), and [U.S.-Peru](#) agreements immediately eliminated U.S. tariffs on imports of natural resources products originating in the agreement partner countries. U.S. imports of natural resources products originating in either Canada or Mexico continued to receive duty-free treatment under [USMCA](#) as under [NAFTA](#).

⁸² Ad valorem tariffs are calculated as a percentage of the value of the product.

certain U.S. FTAs.⁸³ U.S. FTA partners were generally granted longer staging schedules for natural resource products, with tariffs imposed by Colombia, Korea, and Panama on certain sector goods originating in the United States eliminated as of January 2021.⁸⁴

Among the TRQ provisions of the U.S.-Chile FTA are staged duty-free import provisions for refined copper cathodes⁸⁵ and for non-household porcelain and chinaware originating in Chile.⁸⁶ By contrast, Australia, Israel, Oman, and Singapore agreed to immediate and reciprocal elimination of import tariffs on natural resources products with the United States.⁸⁷

Moreover, U.S. agreements include a few discrete nontariff provisions specific to natural resources. Included in U.S. FTAs (other than those with Israel and Jordan) are U.S. export restrictions on all species of logs.⁸⁸ In addition, the CAFTA-DR agreement includes a side letter recognizing an indefinite moratorium on strip- and open-pit mining in Costa Rica.⁸⁹ The Peru Trade Promotion Agreement (PTPA) contains binding commitments in the “Annex on Forest Sector Governance (Forestry Annex)” to strengthen governance against illegal logging.⁹⁰ Among the modifications to KORUS negotiated in 2018,⁹¹ was an exemption under import quotas for steel originating in Korea from the section 232 national security import tariffs imposed in March 2018.⁹²

USMCA includes new provisions, beyond those for NAFTA, for various natural resources products. It also continues duty-free treatment and investment and service-provider benefits, as well as additional

⁸³ The U.S. trade agreements with [Australia](#), [Chile](#), [Bahrain](#), [Israel](#), [Jordan](#), [Korea](#), [Morocco](#), [Oman](#), and [Singapore](#) phased-out U.S. tariffs within 10 years on certain ceramic and glassware products. Conversely, the agreements with [Bahrain](#) and [Oman](#) phased out U.S. tariffs within 10 years on certain ceramic products but granted immediate duty-free benefits to imports of originating glassware products from these agreement partner countries.

⁸⁴ See the [U.S.-Colombia](#), [U.S.-Korea](#), and [U.S.-Panama](#) agreements.

⁸⁵ Duty-free U.S. imports of refined copper cathodes (HTS 7403.11.00) from Chile were limited to 55,000 metric tons during the first year of agreement implementation. [U.S.-Chile FTA, annex 3.3](#), U.S. notes 15–16.

⁸⁶ U.S. duty-free imports of hotel or restaurant ware and other non-household ware of porcelain and chinaware (HTS 6911.10.10) from Chile were staged for 10 years, granting duty-free entry to 10,000 dozen units in the first year and increasing the number by 1,250 dozen units in each successive year. [U.S.-Chile FTA, annex 3.3](#), U.S. note 16, accessed September 29, 2020.

⁸⁷ U.S. exports of natural resources products continued to receive duty-free treatment upon entry into the Canadian and Mexican markets under [USMCA](#) as under [NAFTA](#). See also the [U.S.-Australia](#), [U.S.-Israel](#), [U.S.-Oman](#), and [U.S.-Singapore](#) agreements.

⁸⁸ Although the URAs do not include an exemption specifically allowing the United States to restrict log exports, GATT 1947, art. XX (General Exception) includes provisions for the conservation of exhaustible natural resources. WTO, “[Natural Resources, International Cooperation](#),” 2010, 165–166 and 168–169.

⁸⁹ According to the “Letter on Mining Activities,” Costa Rica’s nondiscriminatory and indefinite moratorium on strip- or open-pit mining activities in its territory shall not be considered as a non-conforming measure subject to the disciplines of the Investment or the Cross-Border Trade in Services Chapters of the CAFTA-DR agreement. USTR, CAFTA-DR, “[Costa Rica, Letter on Mining Activities](#),” May 28, 2004.

⁹⁰ AF&PA, written submission to USITC, November 3, 2020, 4; Decorative Hardwoods Association (DHA), written submission to USITC, November 6, 2020, 1–4. For further information about the Peru Forestry Annex, see the “Environment” cross-sectoral provisions section of this chapter and the “Environmental Provisions” case study in chapter 4: Impact of Trade Agreements.

⁹¹ See also the “KORUS Energy” case study in chapter 4: Impact of Trade Agreements.

⁹² USITC, [The Year in Trade 2019](#), August 2020, 170. See also Presidential Proclamation 9711, 83 Fed. Reg. 13361 (March 28, 2018); Presidential Proclamation 9740, 83 Fed. Reg. 20683 (May 7, 2018).

provisions to promote inter-regional trade of energy products among the agreement partners.⁹³ For forest products, USMCA includes initiatives to promote conservation and sustainable forestry management and combat illegal logging.⁹⁴ Among minerals and metals products, USMCA provides stricter ROOs for certain glass- and steel-containing products,⁹⁵ along with inclusion of steel and aluminum input products into the new RVC requirements for motor vehicle products.⁹⁶

Industry witnesses testified that they consider several crosscutting provisions as incentives for North American production of steel and aluminum,⁹⁷ with the benefits accruing to USMCA signatories rather than outside parties.⁹⁸ Some industry representatives also supported stronger labor and environmental standards,⁹⁹ international standards alignment,¹⁰⁰ new Good Regulatory Practices provisions,¹⁰¹ new

⁹³ More specifically, USMCA continues duty-free tariff treatment for energy products, continues investment and service-provider benefits of Mexico's 2013 energy-sector reforms; allows hydrocarbon products transported through pipelines to qualify as originating; provides new flexibilities in ROOs certification requirements for oil and gas transported between partner countries; and provides automatic approval for U.S. exports of liquified natural gas to Canada and Mexico. USTR, "[USMCA Fact Sheet, Energy and Energy Products](#)," retrieved September 29, 2020.

⁹⁴ [USMCA](#), arts. 24.22 and 24.23; USTR, "[USMCA Fact Sheet: Modernizing NAFTA](#)," accessed May 20, 2021; see also the "Environment" section of this chapter for further details.

⁹⁵ USTR, "[USMCA Fact Sheet, Rebalancing Trade to Support Manufacturing](#)," retrieved September 29, 2020.

⁹⁶ USITC, [U.S.-Mexico-Canada Trade Agreement](#), April 2019, 74–76, 81. For further information, see the "Manufactured Goods" section of this chapter. According to a hearing witness, the aluminum ROOs in both NAFTA and USMCA, being based mostly on substantial transformation, present some operational and metallurgical sourcing and tracking issues due to the ease of (1) recovery and reuse of aluminum waste and scrap and (2) substitutability between primary (unwrought) and secondary (recovered) aluminum in many end-use applications. Nevertheless, the North American aluminum industry reportedly anticipates benefits under the new USMCA RVC requirements, or at least correspondence with the already foreseen growth, for aluminum in motor vehicles and components. USITC, hearing transcript, 256–258 (testimony of Lauren Wilk, Aluminum Association); Aluminum Association, written submission to USITC, November 6, 2020, 4–5.

⁹⁷ USITC, hearing transcript, 223 (testimony of Benjamin Pickett, Nucor Corp.), 223–224 (testimony of Chris B. Weld, Wiley Rein LLP), 258–259 (testimony of Lauren Wilk, The Aluminum Association).

⁹⁸ USITC, hearing transcript, 224 (testimony of Chris B. Weld, Wiley Rein LLP); Nucor Corp., written submission to USITC, November 6, 2020, 5–6.

⁹⁹ Nucor Corp. considers these enforceable USMCA provisions as steps forward to countering countries from pursuing competitive advantages from lax labor and environmental standards and that such provisions be included in future FTAs. Nucor Corp., written submission to USITC, November 6, 2020, 5–8. See also the "Labor" and "Environment" cross-sectoral provisions sections below.

¹⁰⁰ As the American National Standards Institute (ANSI)-accredited standards setting organization for aluminum produced in the United States, the Aluminum Association argues for closer alignment among international regulatory systems for the benefit of intermediate and finished aluminum goods producers. Aluminum Association, written submission to USITC, November 6, 2020, 5–6. See also the "Technical Barriers to Trade" cross-sectoral provisions section below.

¹⁰¹ The Aluminum Association considers mutual recognition and regulatory harmonization of value to customers of aluminum products. Aluminum Association, written submission to USITC, November 6, 2020, 6. See also the "Good Regulatory Practices" cross-sectoral provisions section below.

disciplines in the subsidy rules for state-owned or state-supported enterprises and for foreign currency manipulation,¹⁰² and more limited investor-state dispute settlement (ISDS) provisions.¹⁰³

Textiles and Apparel

Textiles and apparel include natural and manmade fibers, yarns, knit and woven fabrics, nonwovens, apparel, and made-up articles such as towels and linens. Until the implementation of the URAs, multilateral trade in textiles and apparel was subject to, or potentially subject to, import restraints in the form of quota limits. The URAs established a transition period for the elimination of these quota arrangements, thereby integrating the rules for trade in textiles and apparel into the international rules that applied to all goods. Most U.S. FTAs include special rules of origin for preferential treatment for textiles and apparel that are different from the rules that apply to other goods. The preference rules for apparel are stringent and often require the tracking of specified materials used to make the garments. The summary below examines the U.S. FTA rules for apparel in more detail, highlighting the evolution of those rules from one FTA to the next. In addition to ROOs, other rules affecting the textile and apparel sector include the TBT Agreement, for example with respect to textile labeling.

Uruguay Round Agreements

Among the URAs, the Agreement on Textiles and Clothing (ATC) ushered in a new set of multilateral rules for trade in textile and apparel goods by phasing out the Multifiber Arrangement (MFA) that had governed the sector for decades.¹⁰⁴ In four stages over a 10-year transition period from 1994 to 2004, the ATC phased out the elaborate web of quotas on supplier countries that joined the WTO. During the transition period, the ATC also provided rules for transitional safeguard actions, accelerated growth for the quotas eliminated at later stages, and included a dispute settlement mechanism specific to textile and apparel actions. The ATC expired on December 31, 2004, at which point textile and apparel goods were considered to be fully integrated into the multilateral rules that apply to all goods.¹⁰⁵

¹⁰² Nucor Corp.’s. hearing witnesses claimed that these stronger USMCA provisions will provide broader incentives to producing steel in North America and recommended that these provisions be included in future FTAs. USITC, hearing transcript, 223 (testimony of Benjamin Pickett, Nucor Corp.), 223–224 (testimony of Chris B. Weld, Wiley Rein LLP).

¹⁰³ See “Investment” cross-sectoral provisions section below. However, the AF&PA considers the ISDS provisions under USMCA to be inadequate, having opposed both the phasing out of investor access to ISDS provisions for U.S.-Canada investors under NAFTA and more limited access for U.S.-Mexico investors. AF&PA, written submission to USITC, November 3, 2020, 2–3.

¹⁰⁴ WTO, [Agreement on Textiles and Clothing](#) (ATC). The MFA was the umbrella under which developed nations, including the United States, relied on bilateral agreements to set quantitative limits or quotas to restrict imports of sensitive textile and apparel goods, primarily from developing countries. The MFA governed global textile and apparel trade from 1974 to 1994.

¹⁰⁵ See the earlier USITC report for more detailed analysis of the Uruguay Round Agreements for the textile and apparel sector. USITC, [Economic Impact of Trade Agreements](#), June 2016.

U.S. Free Trade Agreements

Except for the first FTA with Israel (1985), all U.S. FTAs contain product-specific rules for textile and apparel goods.¹⁰⁶ The U.S. rates of duty on imported textile and, especially, apparel goods are among the highest in the HTS.¹⁰⁷ Therefore, the potential for duty-free treatment provides a considerable incentive for U.S. buyers to source apparel from FTA partners. However, for some importers, the strict preference ROOs, along with the record-keeping and documentation requirements the rules entail, make the cost of compliance too great to take full advantage of the duty-free opportunities.¹⁰⁸ On the other hand, some U.S. domestic textile industry representatives state that the existing FTA rules follow a simple template designed to benefit upstream manufacturers in the textile and apparel supply chain.¹⁰⁹

The U.S. FTA ROOs for apparel follow two distinct templates. The first is the value-added model set in the agreements with Israel and Jordan under which goods must satisfy a 35 percent value-added requirement. In general, this requirement can easily be met for apparel when fabric is first cut into components and then assembled into a garment (cut-and-sew operations) without the need to track the origin of materials or inputs.¹¹⁰ The second is the tariff shift plus model, which was first negotiated with Mexico and Canada for NAFTA, requiring the cutting and sewing operations to be performed in one of the parties and also requiring the tracking of certain origin-restricted materials. This NAFTA model served as the starting point for apparel ROOs in U.S. FTAs that followed. However, even with a common starting point, no two FTAs using the tariff shift model contain the same ROOs for apparel goods. Changing market conditions and experience gained from preceding rules both led to incremental changes. The result is a web of similar, yet different, requirements. The following summary briefly highlights where and when the various elements of the rules were modified.

“Yarn-forward” Tariff Shift Rules

Implemented in 1994, NAFTA set the precedent for what became known as the “yarn-forward” ROO for apparel.¹¹¹ NAFTA required that apparel must be made from fabric and yarn¹¹² that were also made in

¹⁰⁶ The preferential rules of origin for textile and apparel goods under the U.S.-Israel FTA rely on the same value-added criteria that apply to all goods. There are no separate textile-specific provisions in the FTA. Interestingly, when the country of origin marking rules for textile and apparel goods were changed under section 334 of the Uruguay Round Agreements Act in 1994 (as reflected in 19 CFR 102.21), the marking rules for textiles and apparel goods from Israel remained separate (19 CFR 102.22). Under the “old” or Israel marking rules, the country of origin for apparel is conferred by the cutting of fabric into components. For goods to qualify for duty-free treatment, the apparel must also satisfy the 35 percent value-added criteria under the FTA.

¹⁰⁷ The U.S. rate of duty on some apparel goods is as high as 32 percent ad valorem.

¹⁰⁸ USITC, hearing transcript, October 6, 2020, 169, 228 (testimony of Beth Hughes, AAFA); USITC, hearing transcript, October 6, 2020, 177, 228, 238 (testimony of Julia Hughes, USFIA).

¹⁰⁹ NCTO, written submission to USITC, November 6, 2020, 2–3.

¹¹⁰ Under U.S. MFN country of origin rules (19 CFR 102.21), origin for cut components is conferred when fabric is cut into garment components. Origin for apparel is conferred when components are sewn or assembled. If both the cutting of fabric and the assembly of the components occurs in one country, then the value of the cut components can be counted as part of the value added in that country.

¹¹¹ “Yarn-forward” requires all of the materials be from, and all of the processing occur in, one of the parties to the agreement, beginning with the formation of yarn (from fiber of any origin), to fabric making, cutting of fabric, sewing, and finishing of the final (or imported) garment.

¹¹² Yarns and fabrics of some fibers, such as silk or linen, were not restricted to NAFTA origin.

the United States, Mexico, or Canada.¹¹³ The same “yarn-forward” foundation,¹¹⁴ with two small changes, would become the basic ROO for apparel under the FTAs with Chile, Singapore, Australia, Bahrain, Morocco, and Oman.¹¹⁵ The CAFTA-DR further modifies NAFTA’s “yarn-forward” foundation with two additional changes.¹¹⁶ The Panama FTA mimics CAFTA-DR, whereas agreements with Colombia and Peru retain yarn restrictions identical to the original NAFTA requirements.¹¹⁷ All four of the newer Western Hemisphere FTAs (CAFTA-DR, Panama, Colombia, and Peru) add origin restrictions for the trims of sewing thread, narrow elastic fabrics, and pocket bag fabrics. Coming full circle, USMCA picks up certain elements from previous FTAs¹¹⁸ and phases in the origin requirements for sewing thread, narrow elastic fabrics, and pocket bag fabrics but drops the origin requirement for visible lining fabrics, a provision that remains in all the other “yarn-forward” FTAs.

Tariff Shift Rules other than “Yarn-forward”

In the CAFTA-DR and Panama agreements, the underlying “yarn-forward” tariff shift rule was modified to restrict only the origin of cotton and manmade fiber yarns, permitting wool and certain other yarns to be of any origin. The result of this change is that the rule for apparel of those fibers becomes a “fabric-forward” tariff shift rule instead of “yarn-forward.” USMCA incorporates this change for some yarns but retains the origin restriction on wool yarns.¹¹⁹

NAFTA set the precedent for the limited use of a “cut and sew” tariff shift rule by establishing a special ROO for brassieres.¹²⁰ All of the subsequent FTAs but Korea also include a special ROO for brassieres, a garment of complicated construction where the application of a yarn- or fabric-forward tariff shift rule

¹¹³ The specified tariff shift rule was applied only to the component of the garment that determines its classification or the “essential character component.” Within that essential character component, a de minimis allowance permits the use of 7 percent of yarns or fibers that do not meet the origin requirements, expressed as a percent by weight of that component. Additionally, NAFTA required certain visible lining fabrics (if used, largely for the production of tailored clothing) be made from yarn in one of the parties to the agreement.

¹¹⁴ The “yarn-forward” foundation is a yarn-forward tariff shift rule that applies along with the 7 percent de minimis limit and visible lining fabric requirement.

¹¹⁵ First, elastomeric yarns (typically used in very small quantities to add stretch to fabrics) were excluded from the de minimis allowance (i.e., elastomeric yarns must always be produced in the United States or partner country). Second, the visible lining fabric requirement was modified to exclude certain fabrics of certain types of rayon (i.e., that particular lining fabric could be of any origin).

¹¹⁶ One CAFTA-DR change increased the de minimis allowance to 10 percent (but that still does not apply to elastomeric yarn that must always originate from a partner country). A second change established that for “yarns,” only cotton and manmade fiber yarns were required to originate from one or more of the CAFTA trading partners, while other yarns such as wool, etc., may be of any origin.

¹¹⁷ Colombia and Peru both introduced a new exception for viscose rayon yarns (allowed to be of any origin). This exception is also found in the tariff shift rules for KORUS.

¹¹⁸ Among the changes picked up by USMCA are the allowance for certain non-originating rayon fibers, and a de minimis allowance of 10 percent. Within the USMCA de minimis allowance, elastomeric yarns are limited to no more than 7 percent, the original NAFTA de minimis allowance.

¹¹⁹ USMCA eliminates the origin requirements for non-cotton vegetable fiber yarns (such as ramie, hemp, jute, and other plant-derived fibers).

¹²⁰ A “cut and sew” tariff shift rule allows the use of fabric and other components of any origin. CAFTA-DR, Colombia, Panama, Peru, and the USMCA have a “cut and sew” tariff shift rule for brassieres.

to an essential character component is difficult if not impossible.¹²¹ CAFTA-DR contains “cut and sew” tariff shift rules for a number of garments; it is the only FTA to do so for garments other than brassieres.¹²²

“Short Supply” Provisions and Tariff Preference Levels

An additional element to the NAFTA rules for apparel allow apparel made of certain non-originating materials to qualify for preferential treatment under “short supply” or commercial availability provisions. The “short supply” provisions apply to yarns or fabrics that are not produced in commercial quantities in a timely manner by producers in the United States or the other FTA partner(s).¹²³

NAFTA incorporated this concept in two ways, both for specific garments made from specific fabrics.¹²⁴ The resulting “short supply” rule for those garments is comparable to a “cut and sew” rule, but restricted to the use of specific fabrics. In chronological order, the FTAs with Chile, Singapore, Australia, Bahrain, Morocco, Oman, Korea, and USMCA all contain “short supply” provisions comparable to NAFTA.¹²⁵

CAFTA-DR took a different approach to “short supply” rules, borrowed from the “short supply” provisions of the legislated Caribbean Basin Trade Partnership Act (CBTPA). Under CAFTA-DR, the rule applies to all garments provided the materials in “short supply” are found on a separate “short supply” list.¹²⁶ The FTAs with Colombia, Peru, and Panama all follow the CAFTA-DR “short supply” model (with FTA-specific “short supply” lists).

A final element to apparel FTA rules that allows the limited use of materials of any origin, found originally in NAFTA, are tariff preference levels (TPLs). Like “short supply” provisions, TPLs permit the

¹²¹ In chronological order, beginning with Chile, the agreements with Australia, Bahrain, Morocco, and Oman employ a different, but still special, rule of origin for brassieres. This rule is borrowed from the legislated preference program for apparel, the now-expired Andean Trade Promotion and Drug Eradication Act (ATPDEA) that was implemented in 2002. The ATPDEA brassiere rule requires the use of at least 75 percent originating materials in the production of brassieres by producers in the previous year. The Singapore FTA contains a “fabric-forward” rule (like that of wool in the CAFTA-DR and Panama agreements) for brassieres, and Korea does not include a special rule for brassieres.

¹²² These rules are the result of concessions sought by the Dominican Republic and Central American countries during the negotiation of the “pocketing amendments,” in exchange for adding a new chapter rule to restrict the origin of the fabric used to form pocket bags (used in trousers, coats and jackets) sought by the United States.

¹²³ Therefore, apparel made from such non-partner materials would fail to satisfy the NAFTA tariff shift rule whether it be “yarn-forward” or “fabric-forward.”

¹²⁴ NAFTA short supply provisions included, first, a chapter rule for woven garments (HS chapter 62) that listed five fabrics—velveteen, corduroy, Harris Tweed, cashmere, and batiste—that may be of any origin when used as the outer shell of any garment described in chapter 62. The second “short supply” rule found in NAFTA was written into the tariff shift rule for men’s and boys’ woven dress shirts, similarly, permitting certain fabrics to be of any origin.

¹²⁵ Over the years, the United States and FTA partners have occasionally revisited the rules of origin for select garments as the availability of materials within FTA regions changed. The text of such amendments generally creates new tariff shift rules along the lines of “cut and sewn in one or both partners, provided the outer shell of the garment is [certain fabrics].”

¹²⁶ That short supply list, in turn, may be amended by either additions or deletions via a petition process managed by the Committee for the Implementation of Textile Agreements (CITA), chaired by the U.S. Department of Commerce. This process is considered faster and more flexible than the NAFTA-based amendment process.

use of non-originating materials. Unlike “short supply” provisions, however, the non-originating materials (and/or the finished garment) are not specified. The use of TPLs is restricted by annual quota limits. The TPLs for apparel result in a “cut and sew” rule for any garment, from any fabric, up to the specified limit. The scope of coverage for TPLs for apparel varies from agreement to agreement.¹²⁷

Chemicals

This section primarily focuses on tariff eliminations on chemicals achieved under U.S. trade agreements, as well as the evolution of ROOs that affect these products.¹²⁸ U.S. trade agreements reportedly serve two important functions for the U.S. chemical industry and its downstream customers.¹²⁹ First, they provide greater certainty on tariff rates. Second, the agreements reduce and prevent nontariff barriers to trade.¹³⁰ Tariff elimination and regulatory alignment reportedly are essential to the global competitiveness of U.S. chemical manufacturers.¹³¹

Uruguay Round Agreements

Three developments resulting from the Uruguay Round negotiations are specific to chemicals industries: (1) the Agreement on Trade in Pharmaceutical Products (also called the Pharmaceutical Zero-for-Zero Initiative),¹³² (2) the Uruguay Round Concessions on Intermediate Chemicals for Dyes, and (3) the Chemicals Tariff Harmonization Agreement.¹³³ All three agreements reduce or eliminate tariffs. Industry representatives view the Chemicals Tariff Harmonization Agreement as having contributed to the shift of chemical production from the United States to other countries (including those with lower labor costs).¹³⁴ However, others also view it as having boosted the competitiveness of U.S. firms downstream by reducing input costs.¹³⁵

¹²⁷ The Chile FTA and USMCA contain permanent TPL provisions for apparel. In chronological order, the FTAs with Singapore, Bahrain, Morocco, Oman, and CAFTA-DR (for Nicaragua and Costa Rica only), each contained temporary TPL provisions for apparel which are now expired.

¹²⁸ For purposes of this section, the term “chemicals” refers to goods in HS chapters 28 through 39, which includes organic and inorganic chemicals, pharmaceuticals, plastics, fertilizers, agro-chemicals, paints and dyes, and cosmetics.

¹²⁹ See appendix E, table E.1 for a comparison of rules used to apply chemical ROOs in U.S. FTAs.

¹³⁰ USITC, hearing transcript, October 6, 2020, 329 (testimony of Ed Brzytwa, ACC).

¹³¹ Other provisions that affect the U.S. chemicals and pharmaceuticals industries, including those on intellectual property rights, transparency, technical barriers to trade, and regulatory coherence are discussed below. USITC, hearing transcript, October 6, 2020, 329 (testimony of Ed Brzytwa, ACC).

¹³² The Pharmaceutical Zero-for-Zero Initiative eliminated tariffs on specified pharmaceuticals and chemical intermediates used to produce pharmaceuticals. The list of items from the original agreement has been updated four times, last in 2010, and now includes over 10,000 items. USTR, “[Pharmaceuticals](#),” accessed October 23, 2020.

¹³³ The Chemicals Tariff Harmonization Agreement specifies that all tariff rates on products in the chemicals sector be within the range from zero to 6.5 percent ad valorem. It defines the chemicals sector as all goods in HS chapters 28 through 39. USTR, “[Chemicals](#),” accessed October 23, 2020.

¹³⁴ USITC, hearing transcript, October 6, 2020, 324–5 (testimony of V.M. “Jim” DeLisi, Fanwood Chemical).

¹³⁵ USITC, hearing transcript, October 6, 2020, 329–333 (testimony of Ed Brzytwa, ACC).

U.S. Free Trade Agreements

U.S. FTAs have continued to reduce or eliminate tariffs on chemicals. As the tariffs have declined, chemical ROOs, which can be categorized into three types—regional value content (RVC), tariff shift, and process rules—have become more important to the industry and have been a regular component of U.S. FTAs. In the U.S.-Israel FTA, which entered into force almost a decade before the URAs, ROOs for all goods are based on domestic value content. They require a domestic value content of at least 35 percent for a good to qualify as “originating” in the trading partner. Also, any product produced using imported (non-partner) materials must be “substantially transformed into a new and different article of commerce, having a new name, character, or use, distinct from the article or material from which it was so transformed.”¹³⁶

In NAFTA, ROOs that affected chemical goods provided tariff shifts as an alternative to RVC. NAFTA clarified the vague “substantial transformation” requirement in the U.S.-Israel FTA by specifying the tariff shift required for each product. Sometimes a shift from one HTS subheading to another was sufficient. For other goods, the shift needed to be at least from one HTS heading to another or even from one HTS chapter to another. In many cases the importer could choose which method to use to qualify a good under NAFTA—either by a significant tariff shift or by a combination of a more limited tariff shift and its RVC, which could be calculated in different ways.¹³⁷ Numerous industry representatives have commented on the benefit of having various options to qualify a good as originating.¹³⁸

The next step in the evolution of chemical ROOs occurred in the 2004 FTAs with Singapore and Chile, which include the “chemical reaction” rule as an additional ROO.¹³⁹ Many chemicals can be transformed into new ones via chemical reactions without the new product requiring a change in the subheading-level classification. The U.S.-Chile FTA also includes a “separation prohibition” to ensure that products could not qualify simply by being imported as a mixture and then separated into the various components (which does not constitute a chemical reaction).¹⁴⁰ The U.S.-Australia FTA further expands the menu of ROOs by adding five other methodologies for chemical products: purification, mixtures and

¹³⁶ [U.S.-Israel FTA](#), annex 3.

¹³⁷ NAFTA ROOs provided two options for calculating RVC: transaction value method and net cost method. NAFTA, [chap.4](#).

¹³⁸ Industry representatives have stated that calculating RVCs can be a costly and tedious exercise, as the cost of inputs can vary with each production run. Conversely, a chemical reaction rule, once established, never changes for the product and does not require documentation unique to each production run. U.S. industry representatives, telephone interviews by USITC staff, July 29, 2020, July 31, 2020, October 27, 2020, and October 28, 2020. USITC, hearing transcript, October 7, 2020, 326–27 (testimony of Robert Helminiak, SOCMA).

¹³⁹ “A “chemical reaction” is a process (including a biochemical process) which results in 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. The following are not considered to be chemical reactions for the purposes of this definition: (a) dissolving in water or other solvents; (b) the elimination of solvents including solvent water; or (c) the addition or elimination of water of crystallization.” [U.S.-Chile FTA](#), annex 4.1.

¹⁴⁰ The U.S.-Chile FTA defines separation prohibition as follows: “A non-originating material or component will not be deemed to have satisfied all applicable requirements of these rules by reason of a change from one classification to another merely as the result of the separation of one or more individual materials or components from a man-made mixture unless the isolated material or component, itself, also underwent a chemical reaction.” [U.S.-Chile FTA](#), annex 4.1.

blends, change in particle size, standard materials, and isomer separation.¹⁴¹ Each of these rules provides another alternative for conferring origin on a good. These ROOs also are included in the CAFTA-DR, Peru, KORUS, Colombia, and Panama FTAs. Interestingly, most of these FTAs do not include chemicals-specific RVCs as an option for qualifying an originating good. USMCA adds another ROO for chemical products based on biotechnological processes.¹⁴² Departing from the pattern of other recent FTAs, it also includes chemicals-specific RVCs as a method of qualifying as an originating good.¹⁴³

The evolution of the ROOs, including the changes incorporated in USMCA, are considered to have benefited both U.S. importers and exporters. At the Commission's hearing, the American Chemistry Council (ACC) characterized USMCA as moving toward "clear, transparent, and simple" rules. ACC and the Society of Chemical Manufacturers and Affiliates (SOCMA) both supported USMCA's "menu of options" for chemical ROOs.¹⁴⁴ According to one industry representative, this evolution towards less "murky" ROOs also makes it easier to prevent "bad actors" from inappropriately gaining preferential access to the U.S. market.¹⁴⁵

Services

Services industries (like distribution, electronic, financial, and professional services) are complex, technologically advanced, and growing rapidly in the global economy. Services are traded across borders and through affiliates, as well as when individuals travel abroad to consume or provide a service.¹⁴⁶ The United States has included services in its trade agreements since the U.S.-Israel FTA (1985), which had only one obligation: parties should "develop means for cooperation on trade in services pursuant to the provisions of a Declaration to be made by the Parties."¹⁴⁷ NAFTA (1994) was a forward-looking agreement that included chapters on cross-border services trade, telecommunications, and financial services. In later U.S. trade agreements, services commitments have developed and become more

¹⁴¹ [U.S.-Australia FTA](#), annex 5A.

¹⁴² USMCA defines the biotechnological processes rule as follows: "A good of Chapter 28 through 38, except for a good of heading 29.30 through 29.42, Chapter 30, heading 33.01, or subheading 3502.11 through 3502.19, is an originating good if it undergoes a biochemical process or one or more of the following processes: (a) Biological or biotechnological culturing, hybridization or genetic modification of: (i) Micro-organisms (bacteria, viruses (includes phages) etc.), or (ii) Human, animal or plant cells; (b) Production, isolation, or purification of cellular or intercellular structures (such as isolated genes, gene fragments, and plasmids); or (c) Products obtained by fermentation."

USMCA, [chap. 4](#).

¹⁴³ "A major benefit relative to the original NAFTA is that chemical manufacturers will no longer be required to determine regional value content to have origin conferred." American Chemistry Council, *Public Comment on the Impact of the U.S.-Mexico-Canada Agreement (USMCA) on the Business of Chemistry*, December 20, 2018.

¹⁴⁴ American Chemistry Council, *Public Comment on the Impact of the U.S.-Mexico-Canada Agreement (USMCA) on the Business of Chemistry*, December 20, 2018. USITC, hearing transcript, October 7, 2020, 326 (testimony of Robert Helminiak, SOCMA).

¹⁴⁵ USITC, hearing transcript, October 7, 2020, 328 (testimony of Robert Helminiak, SOCMA); see also American Phoenix Trade Advisory Services, written submission to USITC, November 6, 2020, 1 (weak ROOs may permit abuse and undermine the regional integration function of FTAs).

¹⁴⁶ Specifically, the four modes of services trade are (1) cross-border supply, (2) consumption abroad, (3) commercial presence, and (4) a temporary presence of natural persons. USITC, [Recent Trends](#), July 2020, 13.

¹⁴⁷ [U.S.-Israel FTA](#), art. 16

complex, with different issues (like financial data requirements and long-haul trucking) emerging and evolving over time.¹⁴⁸

In addition to the broad impact of technological progress, many regulatory policies affect the provision and trade in services in industries like telecommunications, transport, and professional services. Even regulations that apply to all services firms, and therefore do not specifically target or exclude foreign firms, can have a significant impact on services trade. Additionally, in countries like the United States, in addition to national regulations, regulations that affect services trade are commonly imposed at the state and local level (e.g., in legal services and insurance). The growth of the internet also has expanded the scope of services that can be traded internationally through digital means, such as education and health.

Uruguay Round Agreements

The Uruguay Round of trade negotiations included the first multilateral agreement on services trade, the General Agreement on Trade in Services (GATS).¹⁴⁹ GATS commitments fall within two broad categories: general obligations and specific commitments.¹⁵⁰ Specific commitments apply to services according to each member's GATS schedule. Most GATS schedules consist of both sectoral and horizontal commitments with sectoral commitments categorized into 12 services sectors: business services, communication services, construction, distribution services, educational services, environmental services, financial services, health services, tourism, recreational services, transport services, and other services.¹⁵¹ The agreement does not apply to services involved in the exercise of government authority (such as social security) or air traffic rights.¹⁵²

Some GATS commitments are general in that they apply to all services sectors (general obligations). For example, the MFN provision requires that services providers from any WTO member be treated no less favorably than providers from any other WTO member.¹⁵³ This prohibits special preferences to particular members, though there are exemptions; for example, some members maintain preferences for one or more of their trade partners in road transport and in audiovisual services.¹⁵⁴ GATS also obligates members to publish all measures affecting trade in services, respond to information requests by other members, and establish review and appeals procedures.¹⁵⁵

¹⁴⁸ For examples see USITC, [U.S.-Mexico-Canada Trade Agreement](#), April 2019, 141–67.

¹⁴⁹ WTO, [General Agreement on Trade in Services](#) (GATS).

¹⁵⁰ WTO, “[The General Agreement on Trade in Services \(GATS\): Objectives, Coverage and Disciplines](#),” accessed September 16, 2020.

¹⁵¹ WTO, “[The General Agreement on Trade in Services \(GATS\): Objectives, Coverage and Disciplines](#),” accessed September 16, 2020. Examples of “other services” can include religious services, hairdressing services, and services provided by trade unions. United Nations et al., “[Manual on Statistics of International Trade in Services](#),” 2002, 12, 148.

¹⁵² WTO, “[The General Agreement on Trade in Services \(GATS\): Objectives, Coverage and Disciplines](#),” accessed September 16, 2020.

¹⁵³ WTO, [GATS](#), art. II.

¹⁵⁴ WTO, “[The General Agreement on Trade in Services: An Introduction](#),” January 31, 2013, 6.

¹⁵⁵ WTO, “[The General Agreement on Trade in Services \(GATS\): Objectives, Coverage and Disciplines](#),” accessed September 16, 2020.

Other GATS commitments are specific. This means that the commitments apply in the specific sectors for which a member has undertaken commitments and subject to the terms, limitations and conditions specified in each member's GATS schedule. The specific commitments include market access as well as national treatment obligations. The market access provisions (GATS, art. XVI), prohibit restrictions on the number of services suppliers, the value of services transactions, the quantity of services output, the number of operations or persons supplying services, the type of legal entity, and the participation of foreign capital.¹⁵⁶ The national treatment provisions (GATS, art. XVII) require members to accord services and services suppliers of any other member no less favorable treatment than they accord their own services and service suppliers.¹⁵⁷

Each WTO member is required to maintain a GATS schedule where the sectors for which they undertake market access and national treatment commitments are set out along with any applicable terms, limitations and conditions. These commitments are divided between "horizontal" commitments, which apply to all sectors, and "sector-specific" commitments.

After the Uruguay Round, additional GATS annexes were negotiated on financial services, telecommunications, and the movement of natural persons supplying services under the agreement.¹⁵⁸ GATS also established a Working Party on GATS Rules that continued negotiations in three areas: emergency safeguards, government procurement, and subsidies, though little progress has been made so far.¹⁵⁹ Additionally, since 2013, 23 WTO members have been negotiating a new Trade in Services Agreement in an attempt to build on GATS obligations.¹⁶⁰

U.S. Free Trade Agreements

NAFTA (1994) was the first U.S. FTA to cover services trade extensively. Many of its services trade commitments were repeated in subsequent agreements, such as national treatment and MFN obligations, as well as a "ratchet" effect provision (which states that if a party liberalizes its policy towards foreign services providers at a later date, that liberalization becomes part of the agreement and the old policy cannot be reintroduced).¹⁶¹ Additionally, all U.S. FTAs since NAFTA, except the U.S.-Jordan agreement, have used the broader "negative list" approach, so they apply to all services sectors unless

¹⁵⁶ WTO, "[The General Agreement on Trade in Services: An Introduction](#)," January 31, 2013, 5.

¹⁵⁷ WTO, "[GATS Training Module](#)," accessed September 16, 2020.

¹⁵⁸ [GATS](#), art. XXIX sets these annexes as integral parts of the GATS.

¹⁵⁹ The GATS calls for multilateral negotiations on government procurement in which all WTO members would be part of the agreement. At present, all participation in government procurement is voluntary under the WTO's plurilateral agreement.

¹⁶⁰ USTR, [Trade in Services Agreement](#), accessed May 21, 2021.

¹⁶¹ For example, NAFTA set a 30 percent limit on the total annual screen time given to the projection of national films in Mexico, but over time this limit was reduced to 10 percent. The ratchet effect binds that liberalization, so in theory the limit cannot go back up to 30 percent. USITC, [U.S.-Mexico-Canada Trade Agreement](#), April 2019, 157.

they are specifically excluded.¹⁶² In contrast, “positive list” agreements such as the GATS do not apply certain obligations to services sectors unless they are specifically included.¹⁶³

Over time, services provisions in U.S. trade agreements have evolved and expanded upon GATS commitments.¹⁶⁴ In some agreements, U.S. trade partners have made innovative commitments on specific types of services trade. For example, Australia first made commitments on audiovisual services in the 2005 U.S.-Australia FTA.¹⁶⁵ Similarly, Bahrain first made commitments on telecommunications services in the 2006 U.S.-Bahrain FTA.¹⁶⁶ Chile had never made commitments on asset management services or the cross-border supply of marine, aviation, and transport insurance until the 2004 U.S.-Chile FTA.¹⁶⁷ These agreements also created new opportunities specifically for U.S. services firms, such as the KORUS FTA (concluded in 2007 with entry into force in 2012), which includes commitments to make the Korean legal services market open to U.S. firms for the first time.¹⁶⁸ Services trade agreements also have changed over time because of economic, environmental, and technological developments. For example, services commitments in U.S. FTAs have increasingly included provisions on digital trade and data flows.¹⁶⁹

USMCA captures many of the existing domestic regulations and commitments that the three countries had already made to each other under NAFTA and GATS, so it is not expected to substantially affect the total output in the U.S. services sector.¹⁷⁰ However, the agreement does include some new services provisions. USMCA is the first U.S. FTA to prohibit local data storage requirements in financial services so long as regulatory authorities have access to financial information, and to include a chapter that facilitates services trade by small and medium-sized enterprises.¹⁷¹ In audiovisual services, U.S. home shopping broadcasters have more access to Canadian cable, satellite, and internet distributors.¹⁷² For professional services, USMCA expands Canada’s and Mexico’s commitments on licenses and qualifications by eliminating certain market access limitations they had maintained under NAFTA in

¹⁶² Williams, [Bilateral and Regional Trade Agreements](#), May 17, 2018.

¹⁶³ The 1989 Australia-New Zealand Closer Economic Relations Trade Agreement was the first services trade agreement with an overall negative list format, and other examples of negative list agreements in addition to U.S. FTAs since the Jordan FTA include the EU-Canada Comprehensive Economic and Trade Agreement. Examples of positive list agreements include the EU-Korea FTA, the EU-Singapore FTA, and the Japan-Malaysia economic partnership agreement. In practice, most positive list agreements have at least some negative list elements. For example, GATS is generally referred to as positive list, but in GATS when a member includes a sector in its schedule of commitments it must list all restrictions that apply to that sector, like in a negative list format. Gallagher, “[Negative-list Schedules of the TPP](#),” May 15, 2016; European Commission, “[Services and Investment in EU Trade Deals](#),” April 2016.

¹⁶⁴ Powell, “[Services in the NAFTA](#),” September 2018, 9.

¹⁶⁵ USITC, [U.S.-Australia Free Trade Agreement](#), May 2004, xix.

¹⁶⁶ USITC, [U.S.-Bahrain Free Trade Agreement](#), October 2004, xvi.

¹⁶⁷ USITC, [U.S.-Chile Free Trade Agreement](#), June 2003, 97.

¹⁶⁸ USITC, [U.S.-Korea Free Trade Agreement](#), September 2004, 4–19.

¹⁶⁹ USITC, hearing transcript, October 7, 2020 (Bliss). See the discussion below on e-commerce and digital trade provisions in FTAs. This includes digitally enabled but physically delivered trade in goods and services.

¹⁷⁰ USITC, [U.S.-Mexico-Canada Trade Agreement](#), April 2019, 141.

¹⁷¹ USITC, [U.S.-Mexico-Canada Trade Agreement](#), April 2019, 159, 253.

¹⁷² USITC, [U.S.-Mexico-Canada Trade Agreement](#), April 2019, 156.

certain sectors.¹⁷³ Additionally, annex II of USMCA permits the United States notwithstanding its national treatment and MFN obligations to impose limitations on the supply of cross-border long-haul trucking services by Mexican providers in the United States if it determines that limitations are required to address material harm to U.S. service suppliers.¹⁷⁴

Customs Administration and Trade Facilitation

Customs administration and trade facilitation provisions address three important areas. First, they are designed to expedite the movement of goods across borders (including goods in transit). Second, they are intended to facilitate the exchange of information among border agencies and between these entities and exporters, importers, and transportation services providers. Third, they ensure the fair administration of customs rules and regulations in a manner that does not unduly benefit customs authorities or impede cross-border trade.¹⁷⁵ Provisions on customs and trade facilitation in U.S. FTAs have expanded over time.¹⁷⁶ The U.S.-Chile and U.S.-Singapore FTAs (2004) are the first agreements to include disciplines on customs administration.¹⁷⁷ The breadth and scope of these disciplines have been enhanced in subsequent FTAs, culminating in broad and far-reaching provisions in USMCA (2020).¹⁷⁸

The URAs, including the Agreement on Preshipment Inspection¹⁷⁹ and provisions of GATT (1994), address many issues related to customs administration and trade facilitation.¹⁸⁰ Building on these provisions, the WTO Trade Facilitation Agreement (TFA) entered into force in 2017 and is scheduled for full implementation in 2022.¹⁸¹ The TFA includes provisions to expedite the movement, release and clearance of goods. TFA represents the first comprehensive, multilateral agreement concluded among

¹⁷³ For example, Mexico agreed to allow market access in legal services, integrated engineering services, urban planning and landscape architecture services, scientific and technical consulting services, and some research and development services. Canada removed some of its provincial restrictions in architecture services, auditing services, integrated engineering services, and management consulting services. USITC, [U.S.-Mexico-Canada Trade Agreement](#), April 2019, 161.

¹⁷⁴ U.S. law directs the USITC to establish a mechanism for U.S. suppliers to challenge authorizations given to Mexican long-haul trucking service suppliers to determine whether the provision of such services causes or threatens to cause material harm to U.S. suppliers, operators, or drivers. 19 U.S.C. §§ 4571-4574. USITC published its final rules implementing this mechanism on April 8, 2021, effective May 10, 2021. 86 Fed. Reg. 18183 (April 8, 2021).

¹⁷⁵ Ultimately, the objective of customs and trade facilitation provisions is to lower the costs of cross-border trade. OECD, [Trade Facilitation and the Global Economy](#), 2018, 9.

¹⁷⁶ Trade facilitation refers to a range of measures designed to expedite the export, import, and transit of goods across national borders by removing administrative barriers to cross-border trade. As discussed in this section, such measures address customs transparency, the simplification of customs procedures, and improved cooperation between customs authorities, among other items. OECD, “[Why Trade Facilitation Matters](#),” accessed September 16, 2020.

¹⁷⁷ [U.S.-Chile FTA](#), chap. 5.

¹⁷⁸ [USMCA](#), chap. 7.

¹⁷⁹ The Agreement on Preshipment Inspections creates a set of procedures and deadlines for inspections and an independent review body to resolve disputes between importers and preshipment inspection companies, among other provisions. WTO, [Agreement on Preshipment Inspections](#).

¹⁸⁰ Relevant provisions in GATT (1994) include GATT art. V (freedom of transit); art. VII (customs fees and formalities); and art. X (the publication and administration of trade regulations). WTO, “[Trade Facilitation](#),” accessed May 21, 2021.

¹⁸¹ WTO, [Trade Facilitation](#) Agreement (TFA).

WTO members since the creation of the WTO.¹⁸² After a brief overview of customs and trade facilitation provisions in U.S. FTAs, this section discusses the evolution of these provisions in USMCA and the significance of TFA implementation.

U.S. Free Trade Agreements

The coverage of disciplines on customs administration in U.S. FTAs has expanded to include provisions on trade facilitation.¹⁸³ Overall, 12 of 14 U.S. FTAs (except Israel and Jordan) include separate chapters on customs administration.¹⁸⁴ The customs chapters in each of these FTAs contain six articles in common.¹⁸⁵ These articles require publication of information on customs rules and procedures; timely release and clearance of goods at border checkpoints; disciplines on customs penalties and fees; confidential treatment of customs-related information provided by exporters and importers; issuance of advance rulings on imports; mechanisms for review and appeal of customs determinations; and cooperation between the customs administrations of FTA partners.¹⁸⁶ An additional discipline on impartiality, nondiscrimination, and transparency (also referred to as “administration”) is included as a separate article in the Australia and Singapore FTAs. This discipline requires FTA partners to ensure that customs rules and regulations are administered in a fair and uniform manner and are not used as barriers to trade.¹⁸⁷

U.S. FTAs also incorporate several provisions on the release and clearance of goods and automation. The provisions are intended to expedite the clearance of goods by customs authorities, especially low-value and low-risk cargo. Language regarding express shipments, for example, was expanded in the Oman, Peru, Colombia, KORUS, and Panama FTAs to include de minimis provisions, expediting the release of goods below certain value thresholds.¹⁸⁸ CAFTA-DR also includes provisions that require parties to use electronic systems to submit export and import documents.¹⁸⁹ This requirement is a precursor to the single electronic customs window referenced in USMCA and TFA.¹⁹⁰

Two other disciplines—customs cooperation and capacity building—are included in the customs administration chapters of U.S. FTAs. Provisions on customs cooperation encourage the sharing of

¹⁸² WTO, TFAF, “[The Trade Facilitation Agreement Enters into Force](#),” February 22, 2017.

¹⁸³ Neufeld, “[Trade Facilitation Provisions in Regional Trade Agreements](#),” WTO Staff Working Paper, January 16, 2014, 4. Early disciplines on trade facilitation in regional trade agreements, for example, were narrowly focused on customs procedures. They were eventually expanded to include measures that address the transparency, governance, and efficiency of customs administration.

¹⁸⁴ These FTAs are Chile (2004), Singapore (2004), Australia (2005), Bahrain (2006), the CAFTA-DR (2006), Morocco (2006), Oman (2009), Peru (2009), Colombia (2012), KORUS (2012), and Panama (2012). CAFTA-DR was the first FTA to include language on trade facilitation. Previous FTAs refer to customs administration only.

¹⁸⁵ See appendix E, table E.2.

¹⁸⁶ See, for example, [U.S.-Chile FTA](#), chap. 5.

¹⁸⁷ [U.S.-Australia FTA](#), chap. 6.

¹⁸⁸ De minimis provisions in each of these agreements specify that “no customs duties or taxes will be assessed on, nor formal entry documents will be required for” express shipments with a value of \$200 or less (for Panama, this amount is \$100 or less). See, for example, “[U.S.-Panama TPA](#),” art. 5.7.

¹⁸⁹ [CAFTA-DR](#), chap. 5.

¹⁹⁰ [USMCA](#), art. 7.10. Single windows permit exporters and importers to file customs-related documents within a single electronic portal in order to complete all regulatory requirements concerning the export, import, and transit of goods across borders. WCO, “[Single Window Concept](#),” (accessed September 10, 2020).

information and technical advice between national customs administrations to simplify and expedite the clearance of goods at border checkpoints.¹⁹¹ CAFTA-DR contains a separate article on capacity building, acknowledging countries' need for assistance to implement customs provisions in the agreement.¹⁹²

The customs and trade facilitation chapter in USMCA extends coverage of customs-related matters beyond previous U.S. FTAs to strengthen cooperation between customs authorities and simplify cross-border trade.¹⁹³ In particular, the agreement enhances disciplines on customs administration and conduct, builds on provisions in the WTO TFA on single windows and authorized economic operators, and establishes a joint mechanism among USMCA partners for customs cooperation and enforcement.¹⁹⁴ Other important provisions in USMCA noted by experts include a requirement for customs authorities to use risk management tools to assess and target high-risk cargo; mechanisms to facilitate the electronic payment of customs duties, taxes, and fees; and those that permit goods under customs control to move freely within a country until they reach their final destination.¹⁹⁵ Representatives from the U.S. chemicals industry indicate support for USMCA provisions on customs and trade facilitation, including the electronic filing of customs documentation and the harmonization of border clearance procedures.¹⁹⁶

The WTO Trade Facilitation Agreement

TFA advances global trade facilitation and provides a roadmap for countries to improve cross-border trade.¹⁹⁷ The agreement entered into force on February 22, 2017 after ratification by a required two-

¹⁹¹ [U.S.-Colombia FTA](#), art. 5.5.

¹⁹² [CAFTA-DR](#), art. 5.12. As discussed later, technical assistance and capacity building are a central feature of the WTO Trade Facilitation Agreement.

¹⁹³ For previous discussion on customs provisions in USMCA, see USITC, [U.S.-Mexico-Canada Trade Agreement, 2019](#), 236–39.

¹⁹⁴ Such changes permit importers to self-file customs declarations without the assistance of customs brokers (art. 7.20) and contain measures to deter corruption by customs officials (art. 7.19). In addition, USMCA, arts. 7.10 and 7.14 require signatories to have established an electronic customs portal by December 2018 and request that USMCA countries develop AEO programs in accordance with WCO guidelines. [USMCA](#), chap. 7, art. 7.14. Guidelines on the establishment of AEO programs are found in the WCO's Framework of Standards to Secure and Facilitate Global Trade. WCO, [SAFE Framework of Standards: 2018 Edition](#), June 2018. AEO programs permit exporters, importers, shippers, and other entities to be certified as trusted traders, thereby benefiting from streamlined and expedited customs procedures.

¹⁹⁵ [USMCA](#), arts. 7.8, 7.12, and 7.17; USITC, hearing transcript, October 6, 2020, 84–85 (testimony of Lori Wallach, Director, Public Citizens' Global Trade Watch).

¹⁹⁶ American Chemistry Council, written submission to USITC, November 6, 2020, 12.

¹⁹⁷ Ugaz, “[The World Trade Organization's Trade Facilitation Agreement at Two](#),” 2019; ITC, [WTO Trade Facilitation Agreement](#), 2013, xi.

thirds of the WTO's 164 members.¹⁹⁸ Like similar provisions in FTAs, most customs and trade facilitation disciplines in TFA are binding obligations.¹⁹⁹

The text of TFA is divided into three sections with 24 articles. Section I forms the core of the agreement and contains 12 articles on customs and trade facilitation, many of which are similarly covered in U.S. FTAs and USMCA.²⁰⁰ Section II includes special and differential treatment disciplines for developing and least-developed country (LDC) members of the WTO, permitting them to implement provisions in the agreement under self-determined timelines and with the aid of technical assistance and capacity building from donor countries.²⁰¹ Section III provides guidance on the establishment of administrative bodies, including national trade committees, to help WTO members implement TFA.²⁰²

Certain TFA disciplines, particularly those on trade facilitation and customs cooperation, have informed language on related provisions in USMCA.²⁰³ In addition, emphasis on special and differential treatment for developing and LDC countries is unique to TFA, and technical assistance and capacity building provisions expand upon those found in certain FTAs. TFA also helps create a baseline for commitments on customs and trade facilitation for all countries, including trading partners with which the United States has not yet signed an FTA.²⁰⁴

Technical Barriers to Trade

Technical regulations and standards are measures that establish product characteristics or their related processes and production methods as well as packing, marking and labeling requirements as they apply to products, processes, or production methods. Conformity assessment procedures are procedures used to determine if a product conforms to technical regulations and standards. Technical regulations, standards, and conformity assessment procedures are used by governments to achieve a variety of public policy objectives such as protecting national security, human health or safety, animal or plant life

¹⁹⁸ WTO, TFAF, "[The Trade Facilitation Agreement](#)," February 22, 2017. WTO members deposit an "instrument of acceptance" for the Protocol of the Amendment that inserts the TFA into the agreement establishing the WTO (i.e., the Marrakesh Agreement). For more information, see WTO, "[Members Accepting the Protocol](#)," accessed September 22, 2020.

¹⁹⁹ ITC, [WTO Trade Facilitation Agreement](#), 2013, 1. U.S. ratification of the TFA in January 2015 did not require separate approval by Congress because no changes to U.S. laws were required to implement the provisions in the agreement. Fefer and Jones, [WTO Trade Facilitation Agreement](#), March 3, 2017, 3.

²⁰⁰ Disciplines in section I of the TFA build upon similar provisions in GATT. Specifically, these provisions are GATT, art. V (freedom of transit); art. VII (customs fees and formalities); and art. X (the publication and administration of trade regulations). WTO, "[The Trade Facilitation Agreement: An Overview](#)," (accessed September 21, 2020).

²⁰¹ The TFA includes measures on technical assistance and capacity building under the auspices of the Trade Facilitation Agreement Facility, established on July 22, 2014. WTO, TFAF, "[About the Facility](#)," 2020, accessed September 17, 2020. Representatives from think tanks note that a lack of adequate funding in developing and LDC members of the WTO may contribute to gaps in TFA implementation among these countries. USITC, [hearing transcript](#), October 6, 2020, 98 (testimony of Lori Wallach, Director, Public Citizens' Global Trade Watch).

²⁰² WTO, "[The Trade Facilitation Agreement: An Overview](#)," accessed September 21, 2020. Members' timelines must meet a WTO notification deadline of August 2022.

²⁰³ U.S. industry representatives, interviews by USITC staff, Washington, DC, October 29, 2018. "[USMCA](#)" (art. 7.1, "Trade Facilitation," and art. 7.23, "Customs Initiatives for Trade Facilitation").

²⁰⁴ USITC, hearing transcript, October 6, 2020, 83 (testimony of Jake Colvin, National Foreign Trade Council). For more information on the TFA, see Peterson, "[The WTO Trade Facilitation Agreement](#)," November 2020.

or health, and the environment and preventing deceptive practices.²⁰⁵ For example, technical regulations and standards may 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 these measures may involve significant costs for producers and exporters, but can also be trade facilitative—, particularly technical regulations, standards, and conformity assessment procedures that are based on international standards.²⁰⁶

Technical barriers to trade (TBT) provisions in U.S. trade agreements recognize members' right to adopt technical regulations, standards, and conformity assessment procedures and seek to ensure that such measures are not discriminatory and do not create unnecessary barriers to trade. As countries made agreements over the years to bring down import tariffs, TBTs may have increased. The efficacy of technical regulations, standards, and conformity assessment procedures in achieving legitimate interests and avoiding the creation of unnecessary barriers to trade varies significantly among countries and among regulations within countries.²⁰⁷

Uruguay Round Agreements

The WTO TBT Agreement is the first and only multilateral trade agreement solely focused on standards, technical regulations, and conformity assessment procedures, and broadens commitments made under its predecessor, the plurilateral Standards Code (which was voluntary).²⁰⁸ The TBT Agreement includes provisions to (1) ensure that technical regulations, standards, and assessment procedures are not prepared, adopted, or applied with a view to or with the effect of creating unnecessary obstacles to international trade and are nondiscriminatory; (2) require that standards, technical regulations, and conformity assessment procedures be based on relevant international standards where they exist, except where ineffective or inappropriate to meet the member's legitimate regulatory objective; and (3) enhance transparency and opportunities for comment on standards, technical regulations, and conformity assessment procedures prior to their adoption.²⁰⁹

The TBT Agreement also created the WTO Committee on Technical Barriers to Trade, which allows members to consult on matters relating to the operation of the agreement. The Agreement includes provisions for members to notify proposed technical regulations and conformity assessment procedures

²⁰⁵ Technical regulations are mandatory measures enforceable by law, while technical standards are voluntary measures. WTO, "[Agreement on Technical Barriers to Trade](#)," Annex 1, accessed September 3, 2020.

²⁰⁶ These costs can include 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 Barriers to Trade](#)," accessed September 3, 2020 Popper et al, "[Measuring Economic Effects of Technical Barriers to Trade on U.S. Exporters](#)," August 2004, 3–4; Villareal, "[Keeping an Eye on What Matters for the Economy](#)," September 9, 2019.

²⁰⁷ Popper et al, "[Measuring Economic Effects of Technical Barriers to Trade on U.S. Exporters](#)," August 2004, 3–4.

²⁰⁸ The TBT Agreement is the multilateral successor to the plurilateral Agreement on Technical Barriers to Trade, commonly called the "Standards Code," signed by 32 GATT members at the end of the Tokyo Round in 1979. WTO, "[Technical Barriers to Trade](#)," accessed September 3, 2020; Middleton, "[The GATT Standards Code](#)," 1980, 201. For a more detailed explanation of the impact of the Tokyo and Uruguay Round Agreements on the evolution of TBTs, see USITC, "[Economic Impact of Trade Agreements](#)," June 2016.

²⁰⁹ [WTO, TBT Agreement](#), arts. 2.1, 2.2, 2.9, 2.11, 5.1, 5.6, annex 3. A conformity assessment procedure is a procedure used, directly or indirectly, to determine that relevant requirements in technical regulations and standards are fulfilled. [WTO, TBT Agreement](#), annex 1.

to the Committee.²¹⁰ Members may discuss specific trade concerns arising from these notifications or otherwise regarding measures covered by the TBT Agreement that affect their trade.²¹¹ Over the years, the WTO TBT Committee has also played an important role by issuing recommendations and decisions to assist in the implementation of the agreement. For example, as of October 2020, 55 WTO dispute cases cited the TBT Agreement in the request for consultations, and these disputes often cite the TBT Committee recommendations and decisions.²¹² One oft-cited decision is the Decision of the Committee on Principles for the Development of International Standards, Guides and Recommendations with Relation to Articles 2, 5 and Annex 3 of the Agreement (“TBT Committee Decision on Principles”).²¹³ This decision outlines principles to be observed when international standards, guides and recommendations are elaborated. These principles include transparency, openness, impartiality, consensus, and relevance. Industry representatives who appeared before the Commission identified the TBT Agreement and Committee notification mechanism as useful mechanisms for industry to provide input on matters such as increasing market access; trade facilitation; strengthening supply chains; and reducing tariff and nontariff measures.²¹⁴

U.S. Free Trade Agreements

The United States has built on the WTO TBT Agreement obligations through FTAs entered into since the TBT Agreement.²¹⁵ Starting with the U.S.-Chile agreement and extending through KORUS and USMCA, TBT chapters have evolved, introducing new provisions and further developing the FTA approach. One of the key provisions of U.S. FTA TBT Chapters is the obligation for parties to use the WTO TBT decision by the Committee on Principles for the Development of International Standards, Guides and Recommendations in determining whether a standard is an international standard.²¹⁶

KORUS, in particular, expands TBT commitments beyond previous U.S. trade agreements. For example, KORUS substantially strengthens transparency requirements including by improving opportunities for the public to comment on proposed technical regulations prior to their adoption, requiring details about regulations and responses to significant comments received to be published in an official journal, and

²¹⁰ [WTO, TBT Agreement](#), arts. 2.9.2, 5.6.2.

²¹¹ WTO, “[Technical Barriers to Trade](#),” accessed September 10, 2020. For example, the American Chemistry Council offered comments to the government of Colombia regarding the development of its chemical management regime in 2018. Colombia recently released a revised version of this regime and is expected to soon submit it to the WTO TBT Committee, which will allow interested parties to provide comments over a 60-day period. American Chemistry Council, written submission, November 6, 2020, 4.

²¹² WTO, “[Dispute Settlement—Index of Disputes by Agreement Cited](#),” accessed October 8, 2020.

²¹³ WTO, [Decisions and Recommendations Adopted by the WTO Committee on Technical Barriers to Trade since 1 January 1995, G/TBT/1/Rev/14](#), September 24, 2019.

²¹⁴ American Chemistry Council, written submission, November 6, 2020, 4; Distilled Spirits Council of the United States, written submission, November 6, 2020, 4; Semiconductor Industry Association, written submission, November 6, 2020, 2.

²¹⁵ Before the WTO TBT Agreement, inclusion of TBT specific provisions was inconsistent in U.S. FTAs. For example, chapter 6 of the 1987 U.S.-Canada FTA covers TBTs and affirms the two countries’ commitments under GATT and the Tokyo Round, but the 1985 U.S.-Israel FTA does not include specific mention of TBTs. The U.S.-Jordan FTA was the only post-WTO TBT Agreement trade agreement which did not include additional TBT provisions.

²¹⁶ See, e.g., [PTPA](#) art. 7.3.2; [KORUS](#) art. 9.3; [USMCA](#) art. 11.4.2. Whether a standard is international is important because the WTO TBT Agreement requires members to base their technical regulations and conformity assessment procedures on relevant international standards.

committing Korea and the United States to notify to the WTO TBT Committee even those technical regulations that conform to relevant international standards.²¹⁷ These transparency provisions laid some of the early ground work for “good regulatory practices” provisions that later appear in the USMCA (see section on Good Regulatory Practices later in this chapter). KORUS also includes detailed commitments regarding automotive safety standards and technical regulations, including a requirement that parties cooperate bilaterally to harmonize standards.²¹⁸

USMCA further expands commitments under its TBT Chapter. For example, in addition to obligating parties to use the principles in the TBT decision by the Committee on Principles for the Development of International Standards, Guides and Recommendations in determining whether a standard is an international standard, the USMCA TBT Chapter prohibits parties from using other principles or criteria to determine what constitutes an international standard.²¹⁹ This provision precludes parties from limiting recognition of what constitutes an international standard, for example, to standards developed by nongovernmental or intergovernmental organizations that operate on a delegation model.²²⁰ USMCA further builds upon KORUS’ transparency provisions and adds provisions on national treatment for conformity assessment bodies, which allows manufacturers to use laboratories or certification facilities in Canada, Mexico, or the United States to qualify products for market access in all three countries.²²¹ Some industry representatives state that USMCA should serve as a model for drafting the TBT provisions of future agreements.²²² The United States also successfully negotiated for continued mutual recognition of U.S. Federal Motor Vehicle Safety Standards in Mexico, which codified existing practice and assured U.S. exporters continued access to the Mexican market, whereas other alternatives such as vehicle allowances may have been more limiting.²²³

²¹⁷ Article 9.6 of KORUS requires that parties give more information about the objective of and rationale for an adopted or proposed measure. It requires, for example, that the following details be published 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. It also requires, for example, that parties notify the text of proposed measures to the WTO TBT Committee and allow at least 60 days for persons of a party to comment on proposed measures. [KORUS](#), arts. 9.6.4 and 9.6.3. The WTO TBT Agreement only requires notification of technical regulations and conformity assessment procedures that are not in accordance with the technical content of relevant international standards, guides and recommendations and only requires a notice of proposed technical regulations and conformity assessment procedures rather than the actual text. WTO, [TBT Agreement](#), arts. 2.9 and 5.6.

²¹⁸ A case study in chapter 4 discusses automotive safety standards and KORUS.

²¹⁹ [USMCA](#), art. 11.3. Under Article 11.3, the criteria parties may not use in determining whether a standard is an international standard include the domicile of the standards body, whether the body is a non-governmental or inter-governmental organization and whether the standards body limits participation to delegations.

²²⁰ The effect of this provision is that a party cannot limit what it considers an international standard to standards developed, for example, by the Organization for International Standardization (ISO) which operates on a national delegation model and that standards developed by ASTM International or other U.S.-domiciled standards bodies may qualify as international standards if developed in accordance with the TBT Committee decision principles.

²²¹ [USMCA](#), arts. 11.1, 11.2; USITC, “[U.S.-Mexico-Canada Trade Agreement](#),” 2019, 242.

²²² Air-Conditioning, Heating, & Refrigeration Institute, written submission, November 2, 2020, 2; American Chemistry Council, written submission, November 6, 2020, 11; Aluminum Association, written submission, November 6, 2020, 5; hearing transcript, 71 (testimony of John Murphy, U.S. Chamber of Commerce).

²²³ Industry representative, telephone Interview with USITC Staff, October 20, 2020.

Government Procurement

Government procurement provisions in trade agreements typically encourage or require members to maintain open, transparent, and nondiscriminatory procedures that permit foreign companies 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 gross domestic product (and for a number of economies the share can be substantially greater than 15 percent), obtaining nondiscriminatory access for U.S. suppliers in foreign markets has been a key U.S. goal in trade agreement negotiations.²²⁴

Uruguay Round Agreements

During the Uruguay Round, government procurement was addressed through the establishment of a voluntary plurilateral agreement, the WTO Agreement on Government Procurement (GPA).²²⁵ While most U.S. trading partners are not party to the agreement, the GPA serves as an important reference point.²²⁶ All U.S. FTAs include specific government procurement commitments modeled closely on those of the GPA.

The GPA has 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 additional requirements regarding the transparency 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, including threshold values above which procurement activities by foreign suppliers are covered by the agreement.²²⁷

In 2014, a revised GPA entered into force.²²⁸ The main elements of GPA 1994, including the principles of national treatment, nondiscrimination, and transparency, as described above, persist in the revised GPA. However, the revised GPA clarifies language, adds language on the use of electronic tools, clarifies

²²⁴ Grier, “[Government Procurement in the WTO](#),” 2015; Bosio and Djankov, “[How Large is Public Procurement?](#)” February 5, 2020

²²⁵ The 1979 Government Procurement Agreement, one of the 1979 Tokyo Round Agreements, served as a model for the Uruguay Round GPA. The text of the Uruguay Round GPA can be found here: WTO, [Agreement on Government Procurement](#).

²²⁶ The only FTA partners party to the GPA are Canada, Israel, Singapore, and Korea. Overall, the GPA consists of 21 parties covering 48 WTO members. While the EU and its 27 member states are considered one party, the EU itself is considered a member, as are its member states. While most trading partners are not party to the agreement, many of the United States' most commercially significant trading partners are party to the agreement, including the European Union, the United Kingdom, and Japan.

²²⁷ WTO, [Agreement on Government Procurement](#).

²²⁸ WTO, [Agreement on Government Procurement](#). The text of the Revised GPA can be found here: WTO, [Agreement on Government Procurement \(as amended on 30 March 2012\)](#).

special and differential treatment provisions, and requires parties to avoid conflicts of interest and prevent corruption.²²⁹ Many parties have ratified the revised agreement, but for those that have not, the GPA 1994 remains in effect.²³⁰

U.S. Free Trade Agreements

The evolution of government procurement provisions in U.S. FTAs is intertwined with the evolution of such provisions at the multilateral level in GATT and at the WTO. For example, the government procurement chapter of the U.S.-Canada agreement (concluded before the GPA) contained significant expansions over the existing GATT agreement. Additional expansions were introduced in NAFTA based on negotiation of the GPA during the Uruguay Round.

Later U.S. trade agreements have included government procurement chapters based on GPA norms.²³¹ Because many U.S. trade agreement partners are not members of GPA, the incorporation of GPA disciplines 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 Singapore and Korea—both of which are GPA members—U.S. trade agreements include higher standards in areas such as access to technical specifications, limited tendering, and timeliness of information. This was similarly the case for Canada under NAFTA. However, the government procurement chapter in USMCA, while largely extending the provisions in NAFTA without additional commitments, only applies to activities between Mexico and the United States. Government procurement activities between the United States and Canada continue to be covered through the WTO's revised GPA.²³²

Investment

The URAs contain limited investment provisions. The WTO's Agreement on Trade-Related Investment Measures (TRIMs) applies only to specifically defined, trade-related investment measures and to certain services under GATS, such as business services, financial services, and transportation services, among others.²³³ Beginning with NAFTA, U.S. FTAs have included more extensive investment chapters, modeled on U.S. Bilateral Investment Treaties (BITs). All of the FTA chapters on investment include investor protections, and most include an investor-state dispute settlement (ISDS) mechanism that permits investors to settle disputes directly with the host country government through binding arbitration.²³⁴

²²⁹ WTO, "[Text of the Agreement](#)," accessed September 18, 2020.

²³⁰ The United States and each of its free trade partners that are also party to GPA—Canada, Singapore, and Korea—have ratified the revised GPA agreement.

²³¹ The commitments contained in each U.S. trade agreement are summarized in appendix E, table E.4.

²³² If the United States were to leave the GPA, government procurement activities between the United States and Canada would not be covered under any procurement-specific provisions. Appendix table E.4 gives additional information on the government procurement chapters and annexes for all U.S. trade agreements. Specifically, it compares the chapters on market access thresholds, national and subnational coverage, and relevant government procurement provisions. The provisions and structure of the WTO GPA have been used as a model for U.S. trade agreements; as such, there are only small departures between agreements.

²³³ The text of the TRIMs agreement can be found here: WTO, [Agreement on Trade-Related Investment Measures](#).

²³⁴ See appendix E, table E.5 for a summary of key elements of FTA investment chapters.

Uruguay Round Agreements

There is no broad investment agreement in the URAs. Instead, investment is addressed primarily through TRIMs and GATS. Under TRIMs, WTO members agree not to apply investment-related measures that violate GATT, art. III (national treatment of imported products) or GATT, art. XI (prohibition of quantitative restrictions on imports and exports) and agree to transparency in case of exceptions.²³⁵ Examples of measures not permitted under the agreement—as outlined in an Illustrative List annexed to the agreement—include local-content requirements or other import or export restrictions.²³⁶ TRIMs also establishes a committee to monitor the operation and implementation of these commitments.²³⁷

Whereas TRIMs is limited to trade in goods, GATS covers provisions specific to the supply of services, including investment.²³⁸ GATS defines four modes of trade in services: cross-border trade (mode 1); consumption abroad (mode 2); commercial presence (mode 3); and the presence of natural persons (mode 4). Mode 3 (commercial presence) is analogous to an established investment. GATS is a positive list agreement, meaning that particular service sectors and modes of delivery are covered by market access and national treatment commitments only if a party chooses to include them in its GATS schedule of commitments.²³⁹ As a result, the extent of investment coverage depends largely on each country's schedule.²⁴⁰

U.S. Free Trade Agreements

Since NAFTA, each U.S. FTA has included an investment chapter based, for the most part, on the U.S. model BIT in effect at the time of each agreement.²⁴¹ The United States completed the text of its first model BIT in 1981. This model BIT was subsequently updated in 2004 and again in 2012; each agreement follows the model BIT current at the time it was negotiated.²⁴²

²³⁵ [WTO, TRIMs](#), art. 2 (national treatment and quantitative restrictions) and [WTO, TRIMs](#), art. 6 (transparency).

²³⁶ Local-content requirements require foreign investors to include local inputs in products they produce in foreign markets. With regards to the TRIMs agreement, the prohibition of local-content requirements only applies to imported or exported goods. Other import/export restrictions can include trade-balancing requirements which either require limits on imports of inputs into local production, or exports of a prescribed share of local production.

²³⁷ [WTO, TRIMs](#).

²³⁸ Because TRIMs applies to investment measures that are related to the trade of goods only, it does not broadly regulate foreign investment. It thus differs from investment provisions in most FTAs. WTO, [Agreement on Trade-Related Investment Measures](#).

²³⁹ As discussed in greater detail in the Services section, the goal of GATS is to progressively liberalize the trade of services across member countries.

²⁴⁰ WTO, [The General Agreement on Trade in Services](#).

²⁴¹ A BIT is an international treaty that establishes terms and conditions for the treatment of investors by a host government. A model BIT is a hypothetical BIT that serves as the foundational text for negotiating new BITs with other countries. USTR, "[United States Concludes Review of Model Investment Treaty](#)," April 20, 2012.

²⁴² However, as each agreement is the result of negotiations between the parties, they do not exactly follow the model BIT. For example, the U.S.-Australia FTA investment chapter did not include ISDS and the USMCA substantially limited ISDS. These examples are discussed further below. Additionally, the model BIT can evolve over time in response to FTA negotiations. The text of the 2012 U.S. model BIT can be found here: USTR, "[2012 U.S. Model Bilateral Investment Treaty](#)," accessed April 23, 2021.

In most U.S. FTAs and BITs, investment provisions fall into two sections. The first offers protections for investment; the second outlines the ISDS mechanism. Investment provisions typically include commitments to offer national treatment and MFN treatment to investors in like circumstances; a commitment to uphold a minimum standard of treatment of foreign investors; a requirement to pay compensation in case of expropriation;²⁴³ and rules governing capital transfers, performance requirements, and nationality requirements for senior managers and boards of directors. USMCA updates these protections to include clarifying language on “like circumstances” under the national treatment and MFN provisions, and introduces a new prohibition on rules requiring the purchase or use of specific technology.²⁴⁴

The ISDS section of U.S. FTAs generally outlines the process by which an investor can submit a claim alleging a government has violated the provisions of the investment chapter to binding international arbitration against the host country government. 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 initiating a government-to-government claim under the dispute settlement provisions of the trade agreement or at the WTO.²⁴⁵

Beginning with NAFTA, all U.S. FTAs have included ISDS provisions, except for the U.S.-Australia agreement.²⁴⁶ However, USMCA departs significantly from the ISDS provisions under NAFTA and subsequent agreements. First, it eliminates ISDS between the United States and Canada three years after USMCA goes into effect. Second, it restricts the use of ISDS in most sectors between the United States and Mexico—allowing ISDS claims in the remaining sectors only after all domestic remedies have been exhausted, or parties have spent 30 months attempting to exhaust these remedies, and only for claims related to direct expropriation, or violations of MFN or national treatment obligations.²⁴⁷ Additionally, USMCA increases the transparency of arbitral proceedings under ISDS, including opening hearings and making hearing material, such as transcripts and awards, available to the public.

There are divergent opinions concerning ISDS in general and the changes made to ISDS under USMCA. Some industry representatives argue that ISDS provides assurance that investors have an alternative to domestic courts where courts may not be independent from the government, especially when the case

²⁴³ Expropriation is the taking of property, in this case the investment, by a state or relevant authority. In the case of BITs, there can be both direct expropriation and indirect expropriation. Direct expropriation refers to the removal of a title to an investment, or the seizure of the investment. An example of direct expropriation would be when an investment is nationalized. Indirect expropriation refers to regulations or other actions by the state that can affect the value of an investment. UNCTAD, “[Expropriation: A Sequel](#),” 2012.

²⁴⁴ For a detailed discussion of changes made to the investment provisions in the USMCA, see USITC, [U.S.-Mexico-Canada Trade Agreement](#), April 2019.

²⁴⁵ There is no equivalent of the ISDS process in the URAs.

²⁴⁶ Officially, ISDS was not perceived as necessary in the U.S.-Australia FTA because both countries have “robust and developed legal systems for resolving disputes . . .” Government of Australia, Department of Foreign Affairs and Trade, “[Investment](#),” accessed December 2, 2020; IISD, “[Australia’s Rejection of Investor State Dispute Settlement](#),” July 12, 2011.

²⁴⁷ Under [USMCA](#), annex 14-E, full ISDS is available to U.S. investors in Mexico with a “covered government contract” for investments in five “covered sectors” (oil and gas, power generation, telecommunications, transportation services, and some infrastructure).

involves direct expropriation.²⁴⁸ Another industry representative states that the changes made to ISDS under USMCA diminish protections for many industries, especially in terms of indirect expropriation.²⁴⁹ However, others state that ISDS incentivizes outsourcing, allows foreign investors to bypass domestic laws and court scrutiny, and can undermine public health and environmental regulations.²⁵⁰

Unlike U.S. market access and national treatment investment commitments under the URAs, U.S. FTAs are negative list agreements, meaning that for the investment chapter, the provisions apply to all sectors unless specific reservations are listed by one of the parties. These exceptions are found in the annexes of nonconforming measures (NCMs), with separate lists of NCMs for each party. U.S. NCMs are mostly consistent from one agreement to the next, reflecting U.S. law.²⁵¹ U.S. negotiating partners each structure their lists of NCMs to reflect their particular interests and political sensitivities.

Electronic Commerce and Digital Trade

The URAs do not include commitments on electronic commerce (e-commerce) or digital trade;²⁵² the internet was in its early stages in 1995. WTO members successfully concluded the Information Technology Agreement at the first WTO Ministerial meeting in December 1996, helping member countries reduce duties on information technology goods. At the second WTO Ministerial meeting in 1998, ministers established the Work Programme on Electronic Commerce. This program included discussions regarding the continuation of the practice of not imposing customs duties on electronic transmissions which was adopted at the WTO Ministerial Conference earlier the same year. This moratorium has been renewed several times since, most recently at the WTO Ministerial Conference in 2017.²⁵³ Subsequent U.S. FTAs have built on the moratorium and the WTO work program by incorporating e-commerce provisions within the text of the agreements, including a binding commitment not to impose customs duties on digital products (in contrast to the WTO moratorium which does not have an enforcement mechanism). Since e-commerce was not addressed in the URAs,

²⁴⁸ American Forest & Paper Association, written submission to USITC, November 3, 2020

²⁴⁹ American Chemistry Council, written submission to USITC, November 6, 2020.

²⁵⁰ See USITC, hearing transcript, October 6, 2020, 22 (testimony of Eric Gottwald, AFL-CIO); USITC, hearing transcript, October 6, 2020, 53 (testimony of Lori Wallach, Public Citizen); Public Citizen, “More Information on Investor-State Dispute Settlement,” accessed May 27, 2021. But see Miller and Hicks, “[Investor-State Dispute Settlement](#),” January, 2015 (stating that ISDS tribunals do not have the authority to overturn national legislation) and Tietje and Baetens, “[The Impact of Investor-State Dispute Settlement](#),” June 24, 2014 (concerns that governments may cease to adopt or enforce regulations for fear of an ISDS claim are difficult to test).

²⁵¹ For example, most U.S. trade agreements include an NCM on national treatment, 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.

²⁵² The definitions of electronic commerce and digital trade vary by agreement, however electronic commerce is defined by the WTO as “the production, distribution, marketing, sale or delivery of goods and services by electronic means.” Digital trade is a broader term that encompasses “digitally-enabled transactions of trade in goods and services that can either be digitally or physically delivered” as used by the OECD. WTO, “[Work Programme on Electronic Commerce](#),” September 30, 1998; OECD, “[Digital trade](#),” accessed March 2, 2021.

²⁵³ WTO, “[Work Programme on Electronic Commerce](#),” September 30, 1998.

U.S. FTAs have been the primary venue for commitments to advance U.S. trade in digital products and services.²⁵⁴

WTO Work Programme and Goals

In accordance with the 1998 Work Programme, ongoing WTO e-commerce negotiations involve 76 countries (including the United States) and aim to facilitate e-commerce by promoting an open, transparent, nondiscriminatory, and predictable regulatory environment.²⁵⁵ In January 2019, a working group known as the Joint Statement Initiative (JSI), began discussions and the exchange of papers outlining positions on various issues related to e-commerce. However, in recent years some developing countries have opted not to participate in these discussions, including India, South Africa, and Vietnam, in order to protect their flexibility and policy space on e-commerce issues.²⁵⁶

U.S. Free Trade Agreements

U.S. FTAs are largely similar in their treatment of e-commerce, incorporating and building on the principles established by the WTO Work Programme. These agreements have evolved and expanded over time, including new provisions and making some previously aspirational provisions binding.

The U.S.-Jordan FTA (2001) was the first U.S. FTA in which specific provisions on e-commerce were included in a stand-alone chapter as well as a joint statement. A provision covering the prohibition of customs duties on electronic transmissions has been included in every U.S. FTA since its first inclusion in the U.S.-Jordan FTA. Provisions covering nondiscrimination for digital products and the applicability of trade rules to the supply of digital services have been included in every U.S. FTA since the U.S.-Chile agreement (2004). Other more aspirational provisions, including a pledge to avoid unnecessary regulatory barriers to e-commerce, have also been included in all U.S. FTAs from the U.S.-Jordan FTA onward.²⁵⁷

Over time, e-commerce commitments in U.S. FTAs have become more detailed and include more binding provisions.²⁵⁸ For example, KORUS was the first agreement to contain provisions on cross-border flows of information, stating that “parties shall endeavor to refrain from imposing or maintaining unnecessary barriers” to electronic information flows, without defining what constitutes an unnecessary barrier. A provision in USMCA covering the same topic contains more restrictive language committing parties to not prohibit or restrict the cross-border transfer of information by electronic means.²⁵⁹

²⁵⁴ See the case study in chapter 4 on the WTO Moratorium on Customs Duties on Electronic Transmissions and corresponding FTA provisions for further discussion.

²⁵⁵ WTO, “[Joint Statement on Electronic Commerce](#),” December 13, 2017.

²⁵⁶ Fefer, [Internet Regimes](#), January 28, 2020, 19.

²⁵⁷ See appendix E, table E.6.

²⁵⁸ See appendix E, table E.6.

²⁵⁹ The USMCA provision specifies, however, that data transfers are only covered if the activity is for business purposes, and the provision contains an exemption for a “legitimate public policy objective.” [USMCA](#), art. 19.11.

USMCA includes a chapter entitled digital trade rather than e-commerce,²⁶⁰ and additional provisions related to e-commerce are also included in the telecommunications, trade facilitation, customs, financial services, and intellectual property rights (IPR) chapters.²⁶¹ Several provisions in USMCA's digital trade chapter have not been part of previous U.S. FTAs. These include provisions that prohibit a requirement to locate computing facilities in a party's territory as a condition of doing business there ("data localization"), as well as those that address encryption, cybersecurity, mandatory source code disclosure, and limitations on the liability of suppliers and users of interactive computer services for content posted by users of that service .

These commitments have been described by some digital industry representatives as "world class" and the "gold standard" for digital trade agreements.²⁶² Some industry representatives consider the prohibition of data localization requirements important, particularly because of its potential effect on competitiveness. However, others state that regulatory cooperation would still be necessary to ensure access to data by governments and for other legitimate public policy concerns.²⁶³ Similarly, while some industry representatives state that USMCA's prohibition on mandatory source code disclosure is important,²⁶⁴ others focus on the importance of sufficiently preserving governments' ability to review source code when necessary (for instance, for antitrust oversight).²⁶⁵ Additionally, some digital sector firms and industry associations support the provision on internet intermediary liability.²⁶⁶ But others have raised concerns about whether the provision improperly locks in a specific approach to intermediary liability that is subject to active debate domestically.²⁶⁷ Outside the digital trade chapter,

²⁶⁰ The digital trade chapter contains more comprehensive commitments than previous chapters on e-commerce in U.S. FTAs, including in areas such as cybersecurity, data localization, and limitations on the liability of interactive computer service suppliers. USTR, "[USMCA Digital Trade Fact Sheet](#)," accessed December 11, 2020.

²⁶¹ USITC, hearing transcript, October 7, 2020, 469–70 (testimony of Arthur Sidney, Computer & Communications Industry Association); USITC hearing transcript, October 7, 2020, 406 (testimony of Christine Bliss, Coalition of Services Industries); USITC hearing transcript, October 7, 2020, 418 (testimony of Brian Scarpelli, the App Association).

²⁶² USITC, hearing transcript, October 7, 2020, 406 (testimony of Christine Bliss, Coalition of Services Industries); USITC, hearing transcript, October 7, 2020, 410–11, 418 (testimony of Arthur Sidney, Computer & Communications Industry Association); Computer & Communications Industry Association, written submission to USITC, November 6, 2020, 3.

²⁶³ USITC, hearing transcript, October 7, 2020, 522 (testimony of David Snyder, The Software Alliance). Data-related provisions covering financial services are covered in the financial services chapter of USMCA, and regulatory access to data is specifically mentioned in that chapter. [USMCA](#), art. 17.18.

²⁶⁴ USITC, hearing transcript, October 7, 2020, 468 (testimony of Christine Bliss, Coalition of Services Industries); USITC, hearing transcript, October 7, 2020, 469–70 (testimony of Arthur Sidney, Computer & Communications Industry Association).

²⁶⁵ USITC, hearing transcript, October 7, 2020, 523 (testimony of Hosuk Lee-Makiyama, European Centre for International Political Economy).

²⁶⁶ USITC, hearing transcript, October 7, 2020, 469 (testimony of Arthur Sidney, Computer & Communications Industry Association); USITC, hearing transcript, October 7, 2020, 411 (testimony of Christine Bliss, Coalition of Services Industries); Computer & Communications Industry Association, written submission to USITC, November 6, 2020, 4.

²⁶⁷ USITC, hearing transcript, October 6, 2020, 70 (testimony of Lori Wallach, Public Citizen's Global Trade Watch).

digital sector representatives also consider commitments in USMCA's intellectual property chapter important,²⁶⁸ such as improved trade secrets protection.²⁶⁹

In general, as digital trade commitments in U.S. FTAs have become more detailed, digital industry representatives consider these specific commitments more effective than earlier more general provisions.²⁷⁰ This is in part because they help build global norms by creating a web of countries with similar trade commitments, according to one industry representative.²⁷¹ Another representative notes that the value of existing commitments will grow over time as the economy becomes more digital.²⁷² A different industry representative states one source of value in U.S. FTAs is that they frame commitments in ways that make them more effective. For example, by specifically defining digital products and using this language in its commitment on electronic customs duties, the FTA commitments are seen by some as more effective compared to the more general language used in the WTO moratorium on customs duties for electronic transmissions.²⁷³

Intellectual Property

Intellectual property refers to creations of the mind, including inventions, literary and artistic works, symbols and names used in commerce, and industrial designs. IPR systems aim to foster an environment where innovation and creativity flourish by striking the right balance between the interests of innovators and the interests of competitors and the public in access to innovations.²⁷⁴

IPR provisions in U.S. FTAs have expanded substantially in recent years.²⁷⁵ The one paragraph on IPR treatment in the U.S.-Israel FTA (1985) grew to 21 IPR-related articles and four annexes in NAFTA (1994),²⁷⁶ which provided the foundation for additional IPR protections in the WTO's Trade-Related Aspects of Intellectual Property Rights Agreement (TRIPS). U.S. FTAs since TRIPS have continued the trend with "TRIPS-plus" provisions that build on and expand IPR requirements beyond those in TRIPS.²⁷⁷ Some industry representatives view this strengthening of IPR protections as critical to supporting U.S.

²⁶⁸ SIA, written submission to USITC, November 6, 2020, 13; The App Association, written submission to USITC, October 21, 2020, 4; USITC, hearing transcript, October 7, 2020, 465 (testimony of Nigel Cory, The Information Technology and Innovation Foundation); USITC, hearing transcript, October 7, 2020, 409–10 (testimony of Arthur Sidney, Computer & Communications Industry Association).

²⁶⁹ USITC, hearing transcript, October 7, 2020, 418 (testimony of Brian Scarpelli, The App Association). Trade secrets protection for proprietary information is also related to protections against mandatory source code disclosure discussed above. BSA, written submission to USITC, September 25, 2020, 2.

²⁷⁰ USITC, hearing transcript, October 7, 2020, 471 (testimony of Arthur Sidney, Computer & Communications Industry Association).

²⁷¹ USITC, hearing transcript, October 7, 2020, 466–67 (testimony of Nigel Cory, The Information Technology and Innovation Foundation).

²⁷² USITC, hearing transcript, October 7, 2020, 434 (testimony of Nigel Cory, The Information Technology and Innovation Foundation).

²⁷³ Industry representative, interview by USITC staff, September 22, 2020.

²⁷⁴ World Intellectual Property Organization (WIPO), "[WIPO](#)," accessed January 8, 2021; see also Chamber of Commerce, written submission to USITC, September 25, 2020, 2.

²⁷⁵ The evolution of particular IPR provisions is also described in appendix E, table E.7.

²⁷⁶ Compare U.S.-Israel FTA, art. 14, with NAFTA, chap. 17 and annexes 1701.3, 1705.6, 1710.9, and 1718.14.

²⁷⁷ Chapter 3 includes econometric estimates of the trade effects of IPR provisions and chapter 5 reviews the literature on their economic effects.

innovation and economic growth.²⁷⁸ The Semiconductor Industry Association, for example, states that the global legal framework established by TRIPS has enabled the industry “to establish new business models centered around licensing and contract manufacturing,” and incentivized investments in research and development.²⁷⁹ Similarly, the International Intellectual Property Alliance (a coalition of associations representing the publishing, entertainment software, independent film and television, motion picture, and recording industries), states that the growth in foreign sales and exports of U.S.-copyright materials has coincided with the adoption of U.S. trade agreements.²⁸⁰ Other stakeholders, however, raise concerns about the negative effects of overly strong IPR protections, particularly for access to affordable medicines.²⁸¹ They state that strengthening patent and data exclusivity protections in FTAs favors branded drug producers at the expense of the generics industry and contributes to higher prices and lack of access for consumers in the United States and abroad.²⁸²

Uruguay Round Agreements

TRIPS requires WTO members to protect a wide range of intellectual property, including copyrights, trademarks, geographical indications, industrial designs, patents, layout designs of integrated circuits, and undisclosed information (including trade secrets and regulatory data).²⁸³ Generally, TRIPS establishes minimum standards for these rights; prescribes procedures and remedies for their enforcement in administrative, civil, and criminal proceedings; extends basic WTO principles such as national treatment, MFN treatment, and transparency to IPR matters; and makes WTO dispute-settlement mechanisms available for IPR-related disputes.²⁸⁴

To provide balance, TRIPS also requires that IPR protections promote technological innovation and dissemination for the mutual advantage of producers and users in a manner conducive to social and economic welfare.²⁸⁵ Members may adopt measures necessary to protect public health and nutrition and promote the public interest in sectors of vital importance to their development, provided that the

²⁷⁸ U.S. Chamber of Commerce, written submission to USITC, September 25, 2020, 6; National Association of Manufacturers, written submission to USITC, October 2, 2020, 3; The App Association, written submission to USITC, September 25, 2020, 4; USITC, hearing transcript, October 6, 2020, 195 (testimony of Beth Hughes, American Apparel & Footwear Association).

²⁷⁹ The semiconductor industry particularly values the protection of trade secrets and layout designs of integrated circuits. Semiconductor Industry Association, written submission to USITC, November 6, 2020, 4–6.

²⁸⁰ International Intellectual Property Alliance, written submission to USITC, November 6, 2020, 2.

²⁸¹ Public Citizen, written submission to USITC, October 2, 2020, 3; MFJ International, written submission to USITC, November 6, 2020, 3; USITC, hearing transcript, October 6, 2020, 22 (testimony of Eric Gottwald, AFL-CIO); USITC, hearing transcript, October 6, 2020, 103 (testimony of Andy Green, Center for American Progress); USITC, hearing transcript, October 6, 2020, 52–54 (testimony of Lori Wallach, Public Citizen’s Global Trade Watch).

²⁸² MFJ International, written submission to USITC, November 6, 2020, 6–7; Public Citizen, written submission to USITC, October 2, 2020, 3.

²⁸³ TRIPS defines geographical indications as indications that identify a good as originating in the territory of a Member where a quality, reputation, or other characteristics of the good is essentially attributable to its geographical origin. WTO, “[Agreement on Trade-Related Aspects of Intellectual Property Rights \(as amended on January 23, 2017\) \(TRIPS\)](#),” part II, art. 22.1.

²⁸⁴ The binding nature of WTO dispute settlement for IPR disputes, with the possibility of withdrawal of tariff concessions, sets TRIPS apart from previous IPR treaties. CRS, “[Intellectual Property Rights and International Trade](#),” May 12, 2020, 16; Semiconductor Industry Association, written submission to USITC, November 6, 2020, 4.

²⁸⁵ WTO, [TRIPS](#), part I, art. 7.

measures are consistent with the agreement. Members also may adopt measures to prevent IPR abuse or unreasonable restraints on trade or technology transfer.²⁸⁶ With regard to patents, TRIPS also allows for compulsory licensing under certain conditions.²⁸⁷ In addition, as some countries had limited IPR systems in place, developing and least-developed countries were provided extended time periods to implement IPR reforms required by TRIPS.²⁸⁸

To further address public health concerns, WTO members adopted the Doha Declaration on the TRIPS Agreement and Public Health in November 2001. The declaration commits members to interpret TRIPS to support public health and access to medicine for all. It also reaffirms flexibilities under TRIPS that allow governments to grant compulsory licenses authorizing the use of patented products without the patent holder's consent, and to determine the circumstances under which such licenses may be granted.²⁸⁹ In 2003, WTO members also agreed to waive the TRIPS requirement that production under a compulsory license had to be predominantly for the domestic market, enabling those countries that are unable to manufacture such products to more easily import them.²⁹⁰ In 2005, WTO members agreed to incorporate this waiver into TRIPS. The amendment was agreed by two-thirds of WTO members and entered into force in 2017.²⁹¹

U.S. Free Trade Agreements

U.S. FTAs negotiated since NAFTA and TRIPS have established increasingly detailed TRIPS-plus standards, particularly in the areas of copyrights, patents, data exclusivity, and enforcement.²⁹² However, there have been two exceptions to the trend of expanding IPR protections. The first was in 2007, when Congress and the Executive Branch agreed in the May 10th Agreement to scale back TRIPS-plus pharmaceutical provisions in FTAs with Colombia, Peru, and Panama.²⁹³ The second was in December 2019, when Congress and the Executive Branch agreed to cut back on pharmaceutical IPR protections in USMCA.²⁹⁴ The remainder of this section describes key TRIPS-plus provisions and limitations to these provisions included in the agreements with Colombia, Peru, Panama, and in USMCA.

²⁸⁶ WTO, [TRIPS](#), part. I, art. 8.

²⁸⁷ Compulsory licensing is when the government, or a party authorized by the government, uses the subject matter of a patent without the consent of the patent owner. TRIPS does not limit the type (product or process) or subject matter of patents that may be compulsorily licensed, although the issue often relates to pharmaceutical patents. WTO, [TRIPS](#), part II, art. 31.

²⁸⁸ Countries that declared themselves to be “developing” when they joined the WTO were given a five-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 chemicals), developing countries were given an additional five years for compliance, until January 1, 2005. Least-developed countries have until July 2021, or until they graduate from this category if earlier, to attain general TRIPS compliance, and until January 2033 to implement protections for pharmaceutical patents and clinical test data CRS, “[Intellectual Property Rights and International Trade](#),” May 12, 2020, 18; WTO, “[WTO Members Agree to Extend](#),” November 6, 2015.

²⁸⁹ WTO, [Declaration on the TRIPS Agreement and Public Health](#), November 14, 2001.

²⁹⁰ WTO, General Council, “[Implementation of Paragraph 6](#),” September 1, 2003.

²⁹¹ WTO, [TRIPS](#), art. 31bis, and part VII, annex and appendix to the TRIPS Agreement.

²⁹² Additional TRIPS-plus provisions are highlighted in appendix E table E.7.

²⁹³ USTR, “[Bipartisan Trade Deal](#),” May 2007, 3.

²⁹⁴ [USMCA Implementation Act](#), H.R. Rep. No. 116–358, pt. 1, at 10–13 (2019).

TRIPS-plus copyright provisions generally focus on lengthening the copyright term and the protection of copyrights in the digital environment.²⁹⁵ With regard to the term, many FTAs require extension of the copyright term from the TRIPS standard of 50 years—calculated from the death of the author for individual works or from the date of first authorized publication for corporate works—to 70 years.²⁹⁶ With regard to the digital environment, beginning with the U.S.-Jordan FTA (2001), parties must join and then implement commitments in the “Internet Treaties” of the World Intellectual Property Organization (WIPO).²⁹⁷ An aspect of the Internet Treaties that copyright industry representatives consider particularly important is the requirement of penalties for the circumvention of technological protection measures (TPMs) that rightsholders use to bar unauthorized access to copyrighted material.²⁹⁸

FTAs also contain provisions that limit the legal liability of internet service providers for copyright infringement on their networks as long as they remove access to infringing material when they obtain actual knowledge of it or become aware of facts from which infringement is apparent, among other requirements.²⁹⁹ This process generally is referred to as “notice and takedown.” While some stakeholders support these notice and takedown provisions,³⁰⁰ others state that the United States should no longer pursue detailed FTA provisions on this topic as the adequacy of such procedures is subject to ongoing domestic debate.³⁰¹

TRIPS-plus patent-related provisions include those that require patent coverage for new uses of known products; the extension or restoration of patent terms for regulatory delays; and stronger links between patent status and regulators’ decisions to approve generic drugs (patent linkage). They also include additional data exclusivity periods during which generic producers are precluded from relying on safety and efficacy data generated by original drug producers. As to the first element above, FTAs with Australia, Morocco, Bahrain, Oman, and Korea require the signatories to confirm the availability of patents for “any new uses or methods of using a known product.”³⁰² Although this provision was not included in the FTAs with Peru, Colombia or Panama, it was in the original USMCA. The provision was removed as part of the agreement between Congress and the Executive Branch in 2019. The goal of the

²⁹⁵ The internet was still in early stages in 1995, when there were less than 25,000 websites, compared to approximately 2 billion websites today. Internet live stats, “[Total Number of Websites](#),” accessed October 25, 2020.

²⁹⁶ The following FTAs extend the copyright term to 70 years for individual works: Chile, Singapore, Australia, Morocco, Bahrain, CAFTA-DR, Oman, Peru, Korea, Colombia, and Panama. USMCA further extends the term of protection for corporate works to 75 years from the date of first authorized publication.

²⁹⁷ 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.

²⁹⁸ Industry representatives emphasize the importance of fully implementing and enforcing TPM requirements in Mexico and other countries. IIPA, written submission to USITC, November 6, 2020, 6.

²⁹⁹ See, for example, [KORUS FTA](#), art. 30(b).

³⁰⁰ CCIA, written submission to USITC, November 6, 2020, 5–6.

³⁰¹ For example, after a multiyear study, the U.S. Copyright Office found that the processes do not effectively balance the interests of right holders and Internet service providers, as intended by Congress, citing the “whack-a-mole” problem of infringing content quickly reappearing after takedown. U.S. Copyright Office, “[Section 512 of Title 17](#),” May 21, 2020, 1; see also Industry Trade Advisory Committee on Intellectual Property Rights (ITAC-13), “[Report of the ITAC-13](#),” September 27, 2018, 22; IIPA, written submission to USITC, November 6, 2020, 6–7 (raising concerns about the implementation and lax enforcement of such provisions).

³⁰² See, for example, [U.S. Morocco FTA](#), art. 15.9.2.

removal was to limit the practice of “patent evergreening,” when pharmaceutical companies reportedly obtain patents on minor variations of a product to block generic competition.³⁰³ Similarly, the revised FTAs with Colombia, Peru, Panama and USMCA also scaled back strict patent linkage and data exclusivity requirements.³⁰⁴ Perhaps most noteworthy, the revised USMCA completely removes the 10-year data exclusivity period for biologics included in the original agreement. Proponents of these revisions cite the importance of balancing incentives for innovation with the need to facilitate generic competition and affordable access to medicines.³⁰⁵

TRIPS-plus provisions also address IPR enforcement. U.S. rightsholders consider IPR commitments in trade agreements to be of little value if trading partners do not implement their requirements or have the capacity and willingness to enforce them. They attribute substantial trade in counterfeit and pirated products to ineffective enforcement at the border and in judicial proceedings.³⁰⁶ TRIPS-plus provisions include presumptions that seek to facilitate proof in civil cases, and provisions that seek to ensure the availability of deterrent damages.³⁰⁷ TRIPS-plus border enforcement measures include the requirement that customs officials have authority to take action against suspected infringing goods without a request from the rightsholder.³⁰⁸ TRIPS-plus criminal enforcement measures include the requirement that the parties provide for criminal procedures and penalties in cases of willful trademark or copyright infringement on a commercial scale, and that criminal penalties be at a level sufficient to deter future infringements.³⁰⁹

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 these provisions is to ensure that domestic labor laws and regulations in partner countries are consistent with international labor standards based on International Labour Organization (ILO) fundamental principles.³¹⁰ These principles include freedom of 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.³¹¹

The Generalized System of Preferences (GSP) 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

³⁰³ [USMCA Implementation Act](#), H.R. Rep. No. 116–358, pt. 1, at 10 (2019).

³⁰⁴ For a more detailed description of these changes from the viewpoint of one of the negotiators of the Bipartisan Trade Deal, see Rangel, “[Moving Forward: A New, Bipartisan Trade Policy](#),” Summer 2008, 400–405.

³⁰⁵ See USTR, “[Bipartisan Trade Deal](#),” May 2007, 3; [USMCA Implementation Act](#), H.R. Rep. No. 116–358, pt. 1, at 10–13 (2019); and MFJ International, written submission to USITC, November 6, 2020, 4–5.

³⁰⁶ Industry Trade Advisory Committee on Intellectual Property Rights (ITAC-15), [Advisory Committee Report](#), April 25, 2007, 18.

³⁰⁷ See, e.g., [KORUS FTA](#), arts. 18.10.3, 18.10.5–18.10.7 and [USMCA](#), art. 20.81.

³⁰⁸ See, e.g., [KORUS FTA](#), arts. 18.10.19; 18.10.22; [USMCA](#) art. 20.83.

³⁰⁹ See, e.g., [KORUS FTA](#), arts. 18.10.26–18.10.27; [USMCA](#) art. 20.84.

³¹⁰ These objectives are included in TPA negotiating objectives. See, for example, TPA 2015, § 102, 19 USC §§ 4201(a)(6) and 4201 (a)(10).

³¹¹ ILO core principles were adopted in 1998. ILO, “[Declaration on Fundamental Principles and Rights at Work](#).”

a U.S. international trade program.³¹² Labor rights are not covered in the URAs, and the WTO recognizes the ILO as the standards-setting body for worker rights.

U.S. Free Trade Agreements

NAFTA (1994) marked the introduction of labor rights in connection with U.S. trade agreements. Under a side agreement to NAFTA—the North American Agreement on Labor Cooperation (NAALC)—the parties committed to enforce their own domestic labor laws, but unlike later U.S. trade agreements, did not require consistency between these laws and ILO principles. Further, only failure to enforce laws on certain labor principles (occupational safety and health, child labor, and wage standards) were subject to sanctions under NAALC.³¹³ Since NAFTA, labor rights provisions have been included in the main text of all U.S. trade agreements. More recent trade agreements have also included provisions on 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.³¹⁴

The U.S.-Jordan Agreement was the first U.S. trade agreement to cover labor rights in the main text of the agreement. It committed each party to strive to ensure that its laws recognize and protect the rights and principles set forth in the 1998 ILO Declaration on Fundamental Principles and Rights at Work (ILO Declaration) and to not waive or derogate from such laws to encourage trade or investment.³¹⁵ It also committed each party to not fail to effectively enforce its labor laws through a sustained or recurring course of action or inaction in a manner affecting trade.³¹⁶ 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.³¹⁷

The Trade Act of 2002 included negotiating objectives on labor issues, including promoting respect for worker rights consistent with core ILO labor standards and obligating parties to “strive to ensure that they do not weaken or reduce the protections afforded in domestic environmental and labor laws” and

³¹² An addition to the GSP statute referenced international workers' rights. [GSP Renewal Act of 1984](#); Wedding, “The Evolution and Enforcement of Labor Provisions,” April 24, 2010; [International Labor Rights Forum](#); Compra and Vogt, “[Labor Rights in the Generalized System of Preferences](#),” 2011. While not a trade program per se, the Tariff Act of 1930 also includes a labor rights provision, prohibiting the import of goods that produced using forced labor or convict labor. Tariff Act of 1930, 19 USC § 1307.

³¹³ Sanctions under this dispute settlement mechanism could include monetary assessments or equivalent suspensions of NAFTA benefits. Monetary assessments would be used to improve the enforcement of labor legislation in the country where the violation had occurred and could not exceed 0.007 percent of the value of goods trade between the disputing parties. [North American Agreement on Labor Cooperation](#), arts. 27–41, annex 39, September 13, 1993. For more detailed information on NAFTA and USMCA provisions on collective bargaining, see chapter 4 of this report.

³¹⁴ For example, FTAs with Colombia and Panama, as well as USMCA, include provisions on cooperation and capacity building. See appendix E, table E.8. For more detailed information on the development of labor provisions in U.S. FTAs, see USITC, [Economic Impact of Trade Agreements](#), June 2016, 88–92.

³¹⁵ [U.S.-Jordan FTA](#), art. 6. This approach made labor rights more consistent with GSP labor provisions. Reference to the 1998 Declaration is included in all subsequent U.S. trade agreements. See ILO, “ILO Declaration on Fundamental Principles and Rights at Work,” accessed May 26, 2021.

³¹⁶ [U.S.-Jordan FTA](#), art. 6.4(a).

³¹⁷ [U.S.-Jordan FTA](#), arts. 6 and 17; Reinsch and Tassin de Montaigu, “[Does the United States Renegotiate](#),” September 2019.

to effectively enforce their labor laws.³¹⁸ The U.S.-Chile Agreement—the first U.S. FTA concluded after this legislation—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 provisions similar to the U.S.-Jordan FTA to strive to protect labor rights set forth in the ILO Declaration and not waive or derogate from labor laws as well as the obligation to effectively enforce labor laws.³¹⁹ The agreement also includes provisions on procedural guarantees and a specific mechanism for cooperation on labor matters.³²⁰ The chapter limits dispute settlement to disputes concerning the effective enforcement obligation and provides that sanctions in the event of a violation are a monetary assessment to fund labor initiatives in the responding party or—if the responding party fails to pay the assessment—suspension of benefits.³²¹ The same basic framework became a template for the labor chapters included in several subsequent U.S. trade agreements, including Singapore, Australia, Morocco, Bahrain, Oman, and CAFTA-DR.³²²

The May 10th Agreement—which was concluded to improve bipartisan support for U.S. free trade agreements—prompted notable changes in U.S. FTA labor provisions.³²³ Under the agreement, the U.S. Congress and Executive Branch agreed to increase the stringency of labor provisions included in U.S. FTAs. As a result, U.S. trade agreements finalized after 2007—specifically PTPA, KORUS, U.S.-Panama, and the U.S.-Colombia agreements—include obligations to adopt domestic legislation consistent with specified core ILO labor principles as stated in the ILO Declaration and to subject all labor provisions to the same dispute settlement procedures and remedies as commercial obligations in the trade agreements.³²⁴ In addition to including obligations similar to those in earlier FTAs not to fail to effectively enforce domestic labor laws, these agreements strengthened the language for non-derogation from domestic labor laws from a “strive” to a “shall” obligation.³²⁵

In addition to the obligations included in the trade agreements following the May 10th Agreement—including the obligation to adopt legislation consistent with core ILO labor principles—USMCA also substantially strengthens U.S. FTA labor and labor-related provisions.³²⁶ The original agreement signed in November 2018 included several provisions that were not included in any prior U.S. free trade agreement.³²⁷ Notable among these are provisions requiring Mexico to adopt laws that protect workers’ right to unionize and bargain collectively, prohibit interference by employers in union undertakings,

³¹⁸ Trade Act of 2002, 19 U.S.C. §§ 3802(a)(6)-(7) and 3802(11)(a).

³¹⁹ [U.S.-Chile FTA](#), arts. 18.1.2, 18.2.1(a), 18.2.2.

³²⁰ [U.S.-Chile FTA](#), arts. 18.3 and 18.5.

³²¹ [U.S.-Chile FTA](#), arts. 18.6.7 and 22.16.

³²² 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.

³²³ USTR, “[Bipartisan Trade Deal](#),” May 2007. For a more detailed description of these changes from the viewpoint of one of the negotiators of the Bipartisan Trade Deal, see Rangel, “[Moving Forward: A New, Bipartisan Trade Policy](#),” Summer 2008, 390–394. In this article, Representative Charles B Rangel identifies the lack of enforceable and significant labor provisions as the principle reason for Democratic opposition to certain trade agreements.

³²⁴ USTR, “[Bipartisan Trade Deal](#),” May 2007; ILO, “[Free Trade Agreements and Labour Rights](#),” accessed January 12, 2021.

³²⁵ See, for example, [U.S.-Panama FTA](#), arts. 16.2.2, 16.3.1(a).

³²⁶ USITC, hearing transcript, October 6, 2020, 69 (testimony of Andy Green, The National Foreign Trade Council); AFL-CIO, “[AFL-CIO Endorses USMCA](#),” December 10, 2019.

³²⁷ Villarreal and Cimino-Isaacs, “[USMCA: Labor Provisions](#),” January 10, 2020; Hogan Lovells, “[USMCA vote](#),” December 11, 2019.

provide for free union elections that occur by means of a secret ballot, and require that revisions to collective bargaining agreements be approved by a majority of covered workers.³²⁸ Other provisions in the labor chapter require parties to prohibit imports of goods that have been wholly or partly produced using forced or compulsory labor; address violence against workers and threats of such violence that impact intra-party trade or investment; ensure that their labor regulations protect migrant workers; and protect workers from discrimination (box 4.1).³²⁹

Box 2.1 Gender-related Provisions in U.S. FTAs

Seven U.S. trade agreements include “gender-related provisions” or address explicit gender-related considerations. The U.S.-Chile FTA (art. 9, annex 9.1) was the first U.S. trade agreement to include a gender-related provision: exemptions to the government procurement chapter, meaning the chapter does not apply to programs promoting women-owned businesses (as well as for businesses owned by minorities and disabled veterans) and as such, allows set-asides for these businesses. The trade agreements with Morocco, Colombia, Panama, and Peru as well as USMCA contain similar provisions.^a The second type of gender-related provision is included within the labor chapters and establishes a labor cooperation mechanism to address matters of common interest, including the elimination of gender discrimination in the employment arena. FTAs with Bahrain, Panama, and Peru as well as USMCA include this type of provision.^b The only enforceable gender provision in a U.S. trade agreement is found in USMCA. Specifically, USMCA includes a new gender-related provision that falls under the article on discrimination in the workplace. In addition to discrimination on the basis of explicit gender issues such as sex (including with regard to sexual harassment), pregnancy, and gender identity, this article also obligates parties to implement “appropriate” policies that address discrimination based on sexual orientation and caregiving responsibilities; leave for child birth, adoption, and family caregiving; and wage discrimination. Failure to meet these obligations may lead to trade sanctions against the noncompliant country.^c

^a More specifically, the note typically states, “This Chapter does not apply to preferences or restrictions associated with programs promoting the development of distressed areas, or businesses owned by minorities, disabled veterans, or women.” [U.S.-Chile FTA](#), art. 9, annex 9.1.

^b One common example of these provisions is the capacity and cooperation building priority noted under gender, “development of programs on gender issues, including the elimination of discrimination in respect of employment and occupation.” [PTPA](#), art. 17. USMCA expands this treatment to include potential areas for cooperation such as, “developing analytical and enforcement tools related to equal pay for equal work or work of equal value,” and “promotion of labor practices that integrate and retain women in the job market, and building the capacity and skills of women workers, including on workplace challenges and in collective bargaining.” [USMCA](#), art. 23.

^c [USMCA](#), art. 31, annex 31-A.

Additional changes in USMCA impacting labor followed from negotiations between the Executive Branch and U.S. Congress members in 2019.³³⁰ These include a revision to footnote text that shifts the responsibility for demonstrating a labor violation’s impact on trade and investment. Specifically, under previous agreements, a party alleging that another party had failed to establish or maintain a labor law or regulation in violation of its obligations under the agreement, needed to prove that the failure

³²⁸ [USMCA](#), annex 23-A. See chapter 4 for a case study related to these provisions.

³²⁹ Migrant worker protections and nondiscrimination across genders are addressed in the NAALC and in some existing U.S. FTAs as potential issues for cooperation between the parties or in these agreements’ definitions of “labor law.” However, USMCA is the first U.S. trade agreement in which these issues and violence against workers are subject to explicit obligations. U.S. government representative, interview by USITC staff, October 4, 2018.

³³⁰ Villarreal and Cimino-Isaacs, [USMCA: Labor Provisions](#), January 10, 2020; Hogan Lovells, “[USMCA Vote in U.S. Congress Appears Imminent](#),” December 11, 2019.

occurred “in a manner affecting trade and investment” to be subject to a dispute settlement action.³³¹ In contrast, the USMCA revisions stipulate that violations occur “in a manner affecting trade and investment” unless proven otherwise by the party responding to the allegation.³³² The revisions also removed a requirement in the initial agreement that acts of violence against workers need to be part of a “sustained or recurring course of action or inaction” to be actionable.³³³

Negotiations with Congress in 2019 also resulted in two substantial changes to the USMCA dispute settlement chapter that affect the enforcement of the agreement’s labor provisions. First, USMCA allows the establishment of dispute settlement panels even if a party fails to contribute to the panel selection process.³³⁴ Second, the USMCA dispute settlement chapter introduces a “Facility-Specific Rapid Response Labor Mechanism,” which enables the United States and Mexico to address suspected violations related to collective bargaining and freedom of association at individual workplaces by initiating an expedited panel review.³³⁵ The provision applies to entities that produce traded or trade-competing goods or services in the manufacturing, mining, and services sectors, and coverage of U.S. facilities is limited to those that are subject to a National Labor Relations Board order.³³⁶ Following a panel’s finding of a violation, goods and services produced at the subject facility may be subject to a temporary loss of tariff preferences or other penalties. Goods or services produced at facilities with two or more previous determinations may be subject to penalties, denied entry into the complainant country, or subject to preferential tariff suspension.³³⁷ As of May 2021, two separate cases have been filed under the USMCA Facility-Specific Rapid Response Labor Mechanism.³³⁸

Additionally, the USMCA implementing legislation passed by the U.S. Congress in December 2019 mandates the establishment of an interagency committee tasked with monitoring the implementation of USMCA labor provisions and revisions to Mexican labor law. Among other things, the committee will create and annually revise a list of focus sectors for its enforcement efforts, assess Mexico’s compliance with its collective bargaining obligations, determine whether violations of USMCA labor provisions have

³³¹ See, for example, [U.S.-Panama agreement](#), art. 16.2, footnote 2. According to the House Ways and Means Committee Report on the USMCA Implementation Act, this language has impeded the enforcement of U.S. FTA labor provisions. [USMCA Implementation Act](#), H.R. Rep. No. 116–358, pt. 1, at 4-5 (2019).

³³² [USMCA](#), art. 23.3, footnote 5. The text of this footnote was modified prior to the negotiations with Congress in 2019. The key difference is that the December 2019 version of the footnote is the removal of the phrase requiring a party to “demonstrate” that a violation occurred “in a manner affecting trade and investment.”

³³³ [USMCA Implementation Act](#), H.R. Rep. No. 116–358, pt. 1, at 5 (2019). The parties’ obligation to enforce their own labor laws remains subject to the “sustained or recurring course of action or inaction” language in [USMCA](#), art. 23.5.

³³⁴ The USMCA’s overall dispute settlement provisions, as well as those provisions specific to the rapid response mechanism, allow the formation of panels without the cooperation of all parties. “Panel blocking” is a key concern of the AFL-CIO, and the elimination of panel blocking from the revised USMCA was mentioned in the organization’s letter of support for the agreement; see AFL-CIO, [Letter Supporting U.S. Mexico Canada Agreement \(USMCA\)](#). For more information on FTA dispute settlement provisions, see the “Dispute Settlement” discussion below.

³³⁵ [USMCA](#), annex 31-A; [USMCA Implementation Act](#), H.R. Rep. No. 116–358, pt. 1, at 41-42 (2019); Hogan Lovells, “[USMCA’s Rapid-Response Labor Mechanism](#),” February 7, 2020. The USMCA also includes a similar but separate mechanism for disputes between Canada and Mexico. No rapid response mechanism exists for labor disputes between the United States and Canada. [United States-Mexico-Canada Agreement](#), Annex 31-B.

³³⁶ [USMCA](#), annex 31-A ; Hafeez, Hutman, and Torrico, “[The USMCA’s Rapid Response Mechanism](#),” July 2, 2020.

³³⁷ [USMCA](#), annex 31-A; Hogan Lovells, “[USMCA’s Rapid-Response Labor Mechanism](#),” February 7, 2020.

³³⁸ For more information on these cases, see chapter 4 of this report.

occurred, and recommend the initiation of enforcement actions. The committee will also accept public petitions regarding possible violations of USMCA labor provisions.³³⁹

Environment

Environmental provisions in U.S. trade agreements are intended to spur environmental protection in the context of international trade and to protect U.S. industry from unfair competition with trade partners that have weaker environmental laws or deficient enforcement.³⁴⁰ Although the URAs do not contain explicit provisions regarding the environment, U.S. FTAs have included environmental provisions since NAFTA and its environmental side agreement—the North American Agreement on Environmental Cooperation (NAAEC)—went into effect in 1994.³⁴¹ After NAFTA, environmental provisions in U.S. FTAs evolved and expanded over time to increasingly include binding and detailed commitments subject to dispute settlement concerning subjects such as non-derogation from domestic environmental laws, implementation of multilateral environmental agreements (MEAs), and specific environmental issues like illegal logging and overfishing. USMCA’s environmental provisions, which replaced those in NAFTA/NAAEC, build on more recent FTAs.³⁴² This section describes the evolution of U.S. FTA environmental provisions from NAFTA/NAAEC to USMCA.³⁴³

U.S. Free Trade Agreements

Environmental Provisions in NAFTA

The NAFTA text originally had few environmental provisions;³⁴⁴ however, the U.S. president spearheaded the development and adoption of three side agreements, including the NAAEC.³⁴⁵ NAFTA/NAAEC was the foundation for future U.S. FTA environmental provisions and many of its principles endure. NAFTA/NAAEC included provisions to promote environmental cooperation between

³³⁹ [USMCA Implementation Act](#), H.R. Rep No. 116–358, part 1 (2019), 36-39; Villarreal and Cimino-Isaacs, [USMCA: Labor Provisions](#), January 10, 2020.

³⁴⁰ These goals are reflected in TPA legislation and in USTR statements. See, for example, TPA 2015, § 102(a)(7), 19 USC § 4201(a)(7) and USTR, “[Environment & Natural Resources](#),” accessed September 21, 2020.

³⁴¹ Although the 1985 U.S.-Israel FTA did not contain any environmental provisions, it did reference [GATT, art. XX](#) exceptions which, among other things, provide that nothing in GATT “shall be construed to prevent the adoption or enforcement by any contracting party of measures . . .” “necessary to protect human, animal or plant life or health.” This construct has been used in all other U.S. FTAs, including the USMCA, usually as the basis for the definition of “environmental law.” See Jinnah and Morin, [Greening Through Trade](#), 2020, 26, 28.

³⁴² In its USMCA report, USITC compared the NAFTA/NAAEC and USMCA environmental provisions before USMCA’s revision in December 2019. See USITC, [U.S.-Mexico-Canada Agreement](#), April 2019, 251–53.

³⁴³ Appendix E, table E.9 provides a typology of some of the key environmental provisions in FTAs. Drawing from the Trade and Environment Database (TREND) of global FTA environmental provisions, which was developed by Dr. Jean-Frédéric Morin of Laval University in Quebec City, Canada, a typology of the distribution of 130 environmental provisions in U.S. FTAs is presented in Jinnah and Morin, [Greening Through Trade](#), 2020, 42–51.

³⁴⁴ For instance, article 1114 of NAFTA stated that parties should not waive or otherwise derogate from domestic health, safety, or environmental measures to encourage investment.

³⁴⁵ The other two agreements were the NAALC, discussed above in the labor section, and the North American Agreement on Import Surges. Congress authorized participation in these agreements as part of the NAFTA implementing legislation. NAFTA Implementation Act, § 532, 19 U.S.C. § 3472.

the parties; required effective enforcement of domestic environmental laws through appropriate governmental action; created an administrative structure and consultations process for resolving disputes; created a process for the public to submit allegations that a party is failing to effectively enforce its environmental laws; listed three MEAs³⁴⁶ that would prevail in the event of any inconsistency with NAFTA; and referenced several specific environmental issues.³⁴⁷

Regarding dispute settlement, NAFTA/NAAEC provided that a party can formally allege that another party is violating its own environmental laws.³⁴⁸ Monetary assessments³⁴⁹—or suspension of benefits if they are not paid—could be imposed on a party under the NAAEC’s dispute resolution process.³⁵⁰ NAFTA/NAAEC also referenced specific environmental issues by providing for the development of recommendations regarding, among other things, pollution prevention strategies, transport of air and marine pollutants, harmful exotic species, and eco-labelling.³⁵¹

Environmental Provisions in U.S. FTAs Post-NAFTA

Executive Order No. 13141, issued in November 1999, required the United States to “factor environmental considerations into the development of its trade negotiating objectives” and conduct environmental reviews for all future FTAs.³⁵² Pursuant to this order, USTR conducted the first U.S. FTA environmental review for the 2001 U.S.-Jordan FTA.³⁵³ The U.S.-Jordan FTA is also the first U.S. FTA to have environmental provisions, albeit limited ones, embedded in the agreement. The environmental provisions comprise a single article that contain an obligation to “strive to ensure” parties do not waive or derogate from environmental laws to encourage trade and an obligation to not fail to effectively enforce a party’s own environmental laws “in a manner affecting trade between the Parties.”

Between the adoption of trade promotion authority in the Trade Act of 2002 (2002 Trade Act) and 2006, the United States adopted implementing legislation for seven FTAs (Singapore, Chile, Australia, CAFTA-DR, Bahrain, Morocco, and Oman). These FTAs include language from the Jordan FTA and parts of the NAAEC (for instance, on procedural guarantees and public submissions).³⁵⁴ For the first time in a U.S.

³⁴⁶ The three MEAs cited in NAFTA were the Convention on International Trade in Endangered Species of Wild Fauna and Flora, the Montreal Protocol on Substances that Deplete the Ozone Layer, and the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal.

³⁴⁷ [NAAEC](#), arts. 5, 14; NAFTA, arts. 104, 1114; Jinnah and Morin, [Greening Through Trade](#), 2020, 30–32; Charnovitz, “[The NAFTA Environmental Side Agreement](#),” 1994, 1–2.

³⁴⁸ Charnovitz, “[The NAFTA Environmental Side Agreement](#),” 1994, 6–9.

³⁴⁹ [NAAEC](#), annex 34. Monetary assessments are to be paid by the party complained against into a fund established by the NAAEC Council and “expended at the direction of the Council to improve or enhance the environment or environmental law enforcement in the Party complained against.”

³⁵⁰ While subject to the NAAEC dispute settlement process, environmental provisions were not subject to the normal NAFTA dispute settlement process.

³⁵¹ [NAAEC](#), art. 10.

³⁵² Exec. Order No. 13141, 64 Fed. Reg. 63169 (November 16, 1999); Salzman, “[Executive Order 13141](#),” 2001.

³⁵³ USTR, “[Final Environmental Review](#),” 2000; USITC, [Economic Impact on the United States](#), 2000; Harwood, “[The Jordan Free Trade Agreement](#),” 2002, 533.

³⁵⁴ CAFTA-DR, however, is unlike the others in its approach to public participation and more like the NAAEC. For example, the Singapore FTA includes an article requiring each party to maintain procedures for dialogue with the public on matters related to provisions of the environment chapter—such as whether a party is effectively enforcing its environmental laws. By contrast, CAFTA-DR provides for the establishment of an independent Secretariat to review public submissions contending that a party is failing to enforce its environmental laws.

FTA, they also include separate chapters on the environment. Enforcement mechanisms also have been strengthened, including the possible imposition of monetary assessments for violation of environmental laws.³⁵⁵ While the FTAs negotiated under the 2002 Trade Act recognize the role played by MEAs in addressing environmental challenges, including the use of tailored trade measures to achieve specific environmental objectives, they contain no obligations with respect to MEAs.³⁵⁶ The agreements also lack any obligations with regard to the content of parties' environmental laws.³⁵⁷

The May 10th Agreement required modifications to four agreements (Colombia, Panama, Peru, and Korea) that had been signed by the president but not yet approved by Congress.³⁵⁸ The May 10th Agreement strengthened the language for non-derogation from domestic environmental laws from a "strive" to a "shall" obligation not to waive or otherwise derogate from environmental laws.³⁵⁹ In addition, it required environmental obligations to be subject to dispute settlement under the FTA on the same basis as all other FTA obligations; previously, use of dispute settlement was limited to the obligation to effectively enforce environmental laws and provided for a party found in violation to pay a monetary assessment that could then be used for environmental capacity building directed toward that party, as opposed to trade sanctions.³⁶⁰ The agreement also required the insertion of an obligation that each party adopt, maintain, and implement laws and regulations to fulfill its obligations under seven specified MEAs.³⁶¹ The May 10th Agreement also required the addition of provisions countering illegal logging in PTPA and biodiversity provisions to the Peru and Colombia FTAs.³⁶²

Environmental Provisions in USMCA

The USMCA environment chapter builds upon early FTAs, including those reflecting the May 10th Agreement. It includes provisions on effective enforcement of environmental laws, adopting and maintaining measures necessary to fulfill certain MEA obligations, and an obligation not to waive or derogate from environmental laws to encourage trade between the parties.³⁶³ The USMCA environment chapter also covers an array of specific environmental issues, including the ozone layer, ship pollution, air quality, marine litter (including microplastics), biodiversity, invasive alien species, the marine

³⁵⁵ See, for example, [U.S. Singapore FTA](#), art. 18.3.

³⁵⁶ See, for example, [U.S.-Singapore FTA](#), art. 18.8. Many members of Congress voted against the 2002 Trade Act because, among other reasons, they did not believe the negotiating objectives on labor and environment went far enough. See Congressional Research Service, "[Trade Promotion Authority](#)," April 2, 2003, 5–9.

³⁵⁷ This limitation would be addressed in the future May 10th Agreement FTAs.

³⁵⁸ USTR, "[Bipartisan Trade Deal](#)," May 2007.

³⁵⁹ See, for example, [U.S.-Colombia agreement](#), art. 18.3.

³⁶⁰ USTR, "[Bipartisan Trade Deal](#)," May 2007; Jinnah and Morin, [Greening Through Trade](#), 2020, 35–36.

³⁶¹ See, for example, [PTPA](#), art. 18.2. The seven MEAs were the Convention on International Trade in Endangered Species of Wild Fauna and Flora (1973); the Montreal Protocol on Substances that Deplete the Ozone Layer (1987); the Protocol of 1978 Relating to the International Convention for the Prevention of Pollution from Ships (1978); the Convention on Wetlands of International Importance Especially as Waterfowl Habitat (1971); the Convention on the Conservation of Antarctic Marine Living Resources (1980); the International Convention for the Regulation of Whaling (1946); and the Convention for the Establishment of an Inter-American Tropical Tuna Commission (1949).

³⁶² See case study on the PTPA Forest Sector Governance Annex in chapter 4 of this report.

³⁶³ The MEA provision requires the parties to adopt, maintain, and implement all measures needed to fulfill obligations under the seven agreed-upon MEAs, and to add additional environmental or conservation agreements to the list if agreed. [USMCA](#), arts. 24.4.1, 24.4.3, 24.8.

environment (including illegal, unreported, and unregulated fishing), wildlife trafficking, and forests.³⁶⁴ For instance, the provision on wildlife trafficking requires that each party must treat transnational trafficking of wildlife protected under its laws as a serious crime, as defined in the United Nations Convention on Transnational Organized Crime.³⁶⁵ While stating their support for the enforceable provisions in USMCA, some industry representatives have suggested additional measures may need to be adopted to better ensure that U.S. manufacturers are not put at a disadvantage relative to companies in countries with weaker environmental laws.³⁶⁶

Following the negotiations with Congress in 2019, similar to the labor provisions discussed above, the revised USMCA includes a presumption that a failure to effectively enforce a party's own environmental laws or take measures necessary to fulfill MEA obligations affects trade and investment.³⁶⁷ The USMCA Implementation Act also establishes an Interagency Environment Committee for Monitoring and Enforcement and authorizes the placement of environment-focused attachés in Mexico City to monitor compliance with the agreement. To strengthen border environment cooperation, it authorizes grants under the U.S.-Mexico Border Water Infrastructure Program and the Trade Enforcement Trust Fund and recapitalizes the North American Development Bank.³⁶⁸

Good Regulatory Practices

USMCA was the first trade agreement to contain a chapter on Good Regulatory Practices (GRPs) though earlier agreements included GRP provisions in TBT chapters. USMCA's GRP chapter sets forth specific GRP obligations "relating to the planning, design, issuance, implementation, and review of the Parties' respective regulations" and acknowledges that application of GRPs can facilitate trade while contributing to parties' abilities to achieve legitimate public policy objectives.³⁶⁹ Industry representatives who support GRP, and transparency-related provisions more generally, state that the ability to comment on and participate in foreign technical regulations and standards development due

³⁶⁴ As mandated in TPA 2015, USMCA does not address or mention climate change, although it references "clean technologies for improving environmental and economic performance, and the role forests play in "carbon storage."

³⁶⁵ [USMCA](#), art. 24.22 6(b); Laurens et al., "[NAFTA 2.0](#)," 2019.

³⁶⁶ Steel company Nucor stated that "[t]he enforceable provisions of USMCA represent a step forward in preventing competitive advantages based on lax . . . environmental standards." However, Nucor suggested that, where necessary, the imposition of carbon border tax adjustments on U.S. imports be considered to ensure that U.S. manufacturers are not disadvantaged against companies in countries with weaker environmental laws. See Nucor, written submission to USITC, November 6, 2020, 7–8. Similarly, the Southern Shrimp Alliance testified at the hearing that U.S. fishers must "compete with imported seafood that has been harvested without similar environmental regulations." USITC, hearing transcript, October 6, 2020, 303 (testimony of John Williams, Southern Shrimp Alliance).

³⁶⁷ [USMCA](#), arts. 24.4.1 footnote 5, 24.8 footnotes 6 and 7; [USMCA Implementation Act](#), H.R. Rep. No. 116–358, pt. 1, at 7 (2019).

³⁶⁸ USMCA [Implementation Act](#), 19 U.S.C. §§ 4711–4717 and 19 U.S.C. §§ 4731–4732.

³⁶⁹ [USMCA](#), art. 28.2.2.

to GRP provisions helps prevent trade barriers. This participation is less costly and more efficient than working to remove barriers after they have been created.³⁷⁰

U.S. Free Trade Agreements

KORUS included GRP as a topic for potential joint cooperation initiatives and for monitoring by the Automotive Working Group.³⁷¹ It defined GRPs as practices that (1) serve clearly identified policy goals, and are effective in achieving those goals; (2) have a sound legal and empirical basis; (3) take into consideration the distribution of a regulation's effects across society, taking economic, environmental, and social effects into account; (4) minimize costs and market distortions; (5) promote innovation through market incentives and goal-based approaches; (6) are clear, simple, and practical for users; (7) are consistent with the Party's other regulations and policies; and (8) are compatible as far as possible with domestic and international competition, trade, and investment principles.³⁷²

USMCA is the first U.S. trade agreement to include a separate chapter on GRPs.³⁷³ Industry representatives generally support this development.³⁷⁴ The chapter includes obligations on regulatory coordination and planning, transparent development of regulations, regulatory impact assessment, and retrospective reviews, among others. For example, the chapter requires each party to publish a list of planned regulations each year and includes detailed provisions to ensure meaningful opportunities for the public to comment on proposed regulations, including by publishing the text of proposed regulations and underlying data and analysis relied upon to support the regulation, such as a risk assessment.³⁷⁵ Other good regulatory practices addressed include internal consultation, coordination, and review; opportunities for persons to suggest issuance, modification or repeal of regulations;³⁷⁶ and using information that is reliable and of high quality to develop regulations.³⁷⁷ The chapter also formed a "Committee of Good Regulatory Practices."³⁷⁸

Some of the GRP provisions impose requirements, while others encourage certain actions. For example, the chapter requires the annual publication of a list of proposed regulations, the publication of regulations on a website, and opportunity for public comment. The chapter encourages the parties to conduct regulatory impact assessments.³⁷⁹

³⁷⁰ USITC, hearing transcript, October 7, 2020, 357–59 (testimony of Ed Brzytwa, American Chemistry Council); USITC, hearing transcript, October 7, 2020, 366–67, 387–88 (testimony Robert Maron, Distilled Spirits Council); USITC, hearing transcript, October 6, 2020, 102–103 (testimony of John Murphy, U.S. Chamber of Commerce).

³⁷¹ [KORUS](#), chap. 9, art. 9.4:1 and annex 9-B, 2.d.

³⁷² [KORUS](#), chap. 9, art. 9.10.

³⁷³ The USMCA chapter is similar to provisions in the Comprehensive and Progressive Agreement for Trans-Pacific Partnership and the Canada-EU FTA. USITC, [U.S.-Mexico-Canada Agreement](#), April 2019, 256.

³⁷⁴ American Chemistry Council, written submission, November 6, 2020, 11; Aluminum Association, written submission, November 6, 2020, 6.

³⁷⁵ [USMCA](#), chap. 28, arts. 28.6 and 28.9.

³⁷⁶ [USMCA](#), chap. 28, arts. 28.4 and 28.14.

³⁷⁷ [USMCA](#), chap. 28, art. 28.5.

³⁷⁸ USITC, [U.S.-Mexico-Canada Agreement](#), April 2019, 257.

³⁷⁹ [USMCA](#), chap. 28, art. 28.18; USITC, [U.S.-Mexico-Canada Agreement](#), April 2019, 257.

Dispute Settlement

The United States is a longstanding proponent of effective state-to-state dispute settlement provisions to resolve disputes with trading partners at the WTO and in U.S. FTAs. However, the United States, and other WTO members, also contend that the WTO dispute settlement system is in need of substantial reform.³⁸⁰ As set forth below, industry representatives appearing before the Commission generally agree that reforms are needed; however, many also prioritize finding solutions to these challenges as soon as possible so that the rules-based trading system can resume functioning effectively. Industry representatives also strongly support an increased emphasis on the monitoring and enforcement of trading partners' commitments under FTAs.

Uruguay Round Agreements

A central objective of the Understanding on Rules and Procedures Governing the Settlement of Disputes (DSU) is to provide security and predictability to the trading system through a rules-oriented system to resolve disputes.³⁸¹ The Dispute Settlement Body (DSB), which is composed of representatives of all WTO members, is responsible for overseeing the DSU. The DSB establishes panels, adopts panel and Appellate Body (AB) reports, surveils the implementation of rulings, and authorizes countermeasures when a member does not comply with a ruling, among other functions. The AB is to be a standing body of seven persons serving four-year terms, who are not affiliated with any government and have demonstrated expertise in international trade law.³⁸²

The first step in a formal dispute is bilateral consultations between the parties; these consultations follow the commercial and diplomatic dialogues that also are expected to occur before the launch of a dispute.³⁸³ A majority of WTO disputes never go beyond the consultation stage.³⁸⁴ If the parties fail to settle the dispute within 60 days from the consultation request, the complainant may request the formation of a panel to adjudicate the dispute.³⁸⁵ Panels typically are made up of three panelists who are not citizens of the parties involved and are often chosen from a roster of qualified individuals maintained by the WTO Secretariat.³⁸⁶ At the conclusion of the case, the panel recommends a decision to the DSB, which the DSB adopts unless all WTO members agree to block the recommendation. The DSU also provides for AB review of panel reports if there is an appeal.³⁸⁷ After the panel or AB report is adopted, and if a measure of a party is found not in compliance with that party's obligations, the DSB oversees the implementation of the ruling. The party found not in compliance proposes how it will bring its measure into compliance in a reasonable period of time. If the party fails to comply, the parties negotiate compensation pending implementation and, if there is still no agreement, the DSB may authorize the suspension of concessions or other obligations under the covered agreements.³⁸⁸ If the

³⁸⁰ USTR, “[Report on the Appellate Body](#),” February 28, 2020, 1.

³⁸¹ WTO, [Understanding on Rules and Procedures Governing the Settlement of Disputes \(DSU\)](#), art. 3.

³⁸² WTO, [DSU](#), art. 17.

³⁸³ WTO, [DSU](#), arts. 3 and 4.

³⁸⁴ WTO, “[The process —Stages in a Typical WTO Dispute](#),” accessed April 12, 2021.

³⁸⁵ WTO, [A Handbook on the WTO](#), 2017, 51.

³⁸⁶ WTO, [DSU](#), art. 8.

³⁸⁷ WTO, [DSU](#), art. 17.

³⁸⁸ WTO, [DSU](#), art. 22; Cimino-Isaacs, Fefer, and Fergusson, [World Trade Organization](#), August 21, 2020, 19.

responding party objects to the amount of suspension of concessions, which is typically the case, the matter shall be referred to arbitration.³⁸⁹ If the parties disagree about whether a party has complied, a panel may be established to consider the matter.³⁹⁰

The DSU states that the period from the date of establishment of the panel by the DSB until the date the DSB considers the panel or appellate report for adoption, shall as a general rule not exceed nine months where the panel report is not appealed or 12 months where there is an appeal, except upon agreement of the parties or where an extension of time has been provided.³⁹¹ In practice, however, few cases are resolved in a year.³⁹² For appeals, the time period between the filing of an appeal and circulation of the AB report generally shall not exceed 60 days; the AB is required to inform the DSB when it cannot meet this deadline. The DSU further states that in no case shall the proceedings exceed 90 days.³⁹³ In practice, however, the average time for circulation of AB reports is about 98 days, not counting certain complex cases.³⁹⁴

Almost 600 disputes have been referred to the DSB since 1995, with the United States the most active user of the system.³⁹⁵ The United States has been a complainant in 124 cases and a respondent in 156 cases, followed by the EU (complainant: 104 cases and respondent: 88 cases); Canada is the next most frequent complainant (40 cases); and China holds third place as respondent (45 cases).³⁹⁶ Complainants win almost all cases. On average, respondents (including the United States) lose in over 90 percent of cases.³⁹⁷ Reportedly, losses are common for at least two reasons. First, WTO litigation requires substantial time and resources; countries choose their battles carefully and focus on those cases they expect to win. Second, the United States and other members have raised concerns that the panels and AB, in various ways, have imposed obligations on respondents that were not intended or agreed upon by the members.³⁹⁸

Witnesses before the Commission stated their support for the dispute settlement system, including its value in resolving difficult disputes, promoting a rules-based system, and as a tool to prompt voluntary resolutions.³⁹⁹ For example, according to the National Association of Manufacturers (NAM), “a strong,

³⁸⁹ WTO, [DSU](#), art.22.6

³⁹⁰ WTO, [DSU](#), art. 21.5.

³⁹¹ WTO, [DSU](#), art. 20.

³⁹² On average, panel proceedings in disputes initiated by the United States from 1995 to 2000 lasted 330 days. By contrast, panel proceedings lasted 522 days on average in U.S. offensive disputes from 2015 to 2020. USTR, “[Report on the Appellate Body](#),” February 28, 2020, 22; WTO, “[The Process—Stages in a Typical Dispute](#),” accessed February 4, 2021.

³⁹³ WTO, [DSU](#), art. 17.5.

³⁹⁴ The time frame for disputes on prohibited subsidies under the Agreement on Subsidies and Countervailing Measures is shorter: 30 days as a general time frame and 60 days as a maximum. WTO, [A Handbook on the WTO](#), 2017, 124–25.

³⁹⁵ WTO, “[Dispute Settlement Activity—Some Figures](#),” accessed January 8, 2021.

³⁹⁶ WTO, “[Follow Disputes and Create Alerts](#),” accessed February 22, 2021 (values based on searches of these countries as complainants and respondents).

³⁹⁷ Kucik, “[The Crisis in Geneva](#),” June 2020, 6.

³⁹⁸ Kucik, “[The Crisis in Geneva](#),” June 2020, 6; USTR, “[Report on the Appellate Body](#),” February 28, 2020, 55–64.

³⁹⁹ USITC, hearing transcript, October 7, 2020, 339 (testimony of Robert Maron, Distilled Spirits Council); USITC, hearing transcript, October 7, 2020, 344 (testimony of Lance Jungmeyer, Fresh Produce Association of the Americas); and USITC, hearing transcript, October 7, 2020, 347 (testimony of Ed Bryzwa, American Chemistry Council).

functioning WTO and a modern global trading system are critical for the United States to push back on areas in which our trading partners are not complying with the letter and spirit of their WTO commitments.”⁴⁰⁰ However, NAM and other industry representatives also recognize a need to improve WTO enforcement tools and address longstanding problems, particularly with the AB.⁴⁰¹

For many years, the United States and other countries have raised concerns that the WTO dispute settlement system, and particularly the AB, were not functioning according to the rules agreed by its members. These concerns include that the AB ignores mandatory deadlines for deciding appeals; allows individuals on the AB to continue deciding appeals after their terms expire; has made findings of fact although authorized only to address legal issues; has issued advisory opinions on issues not necessary to the resolution of disputes; has insisted that dispute settlement panels treat their interpretations as binding precedent; and has otherwise overreached its authority, particularly in the area of trade remedies.⁴⁰² According to USTR, rather than leaving gaps in the negotiated agreements to be filled by the members themselves in future talks, “[t]he Appellate Body has attempted to fill ‘gaps’ in [the] agreements, reading into them rights or obligations to which the United States and other WTO [m]embers have never agreed.”⁴⁰³ Based on these concerns, the United States did not agree to launch the process to fill vacancies on the AB, which is currently unable to review appeals given the vacancies.⁴⁰⁴

U.S. Free Trade Agreements

State-to-state dispute settlement procedures in U.S. FTAs generally follow the pattern of dispute settlement under the DSU and thus provide for (1) initial consultations; (2) a dispute panel if consultations fail to resolve the dispute; (3) an implementation period if the challenged Party is found to be in violation of an obligation; and (4) remedies for noncompliance, including the suspension of trade benefits.⁴⁰⁵ Unlike disputes at the WTO, however, FTAs do not provide for the appeal of panel decisions.

Dispute settlement provisions in FTAs have become more specific and detailed over time. For example, while the U.S.-Jordan FTA simply requires the parties to meet and develop rules of procedures to govern disputes, later agreements detail particular requirements that such rules must include. Thus, KORUS requires that the rules ensure a right to at least one hearing, an opportunity to provide initial and rebuttal submissions, hearings and submissions that are open to the public subject to confidentiality protections, and that panels consider requests to provide written views from non-governmental parties

⁴⁰⁰ NAM, written submission to USITC, October 2, 2020, 5.

⁴⁰¹ NAM, written submission to USITC, October 2, 2020, 5; USITC, hearing transcript, October 6, 2020, 131–32 (testimony of John Murphy, U.S. Chamber of Commerce); USITC, hearing transcript, October 7, 2020, 340 (testimony of Robert Maron, Distilled Spirits Council); Nucor Corporation, written submission to USITC, November 6, 2020, 15–17.

⁴⁰² USTR, “[Report on the Appellate Body](#),” February 28, 2020, 1.

⁴⁰³ USTR, “[Report on the Appellate Body](#),” February 28, 2020, 2

⁴⁰⁴ USTR, “[2021 Trade Policy Agenda](#),” March 2021, 166; see also USITC, hearing transcript, October 7, 2020, 345, 363–64 (testimony of Nathaniel Rickard, Southern Shrimp Alliance); Nucor Corporation, written submission to USITC, November 6, 2020, 15–17.

⁴⁰⁵ However, trade agreements negotiated after the Trade Act of 2002 but before the May 10th Agreement of 2007 provide that only monetary assessments, and not the suspension of trade benefits, are available in cases involving labor or environmental claims. This limitation is not present in the agreements with Peru, Korea, Colombia, Panama, or USMCA. See appendix E, table E.10.

in their territories.⁴⁰⁶ The 2019 revisions to USMCA further require that the rules of procedure include rules of evidence to ensure the parties have the right to submit testimony in-person or through other means; the right to submit anonymous or redacted testimony; that panels have the authority to request documents or information; and that panels accept stipulations in advance of hearings.⁴⁰⁷

Notwithstanding robust mechanisms, state-to-state dispute settlement is infrequent under U.S. FTAs and those cases that are brought typically are resolved through consultations.⁴⁰⁸ Three cases have been decided under NAFTA's Chapter 20 Dispute Settlement provisions.⁴⁰⁹ In part, the disuse of the Chapter 20 mechanism has been attributed to actions to block or delay panel proceedings by refusing to appoint individuals to the roster of panelists.⁴¹⁰ Other than under NAFTA, the United States has brought only one case to formal dispute settlement under an FTA—an unsuccessful challenge to labor practices in Guatemala under CAFTA.⁴¹¹ Industry representatives state, however, that comprehensive FTAs with dispute settlement provisions are more valuable than agreements without such provisions. Even if formal proceedings are not instituted, the ability to credibly threaten to do so, and to make use of pre-dispute consultations, may assist in resolving matters.⁴¹² Moreover, some industry representatives and stakeholders support increased efforts by the United States to use FTA enforcement mechanisms to obtain trading partners' compliance with commitments.⁴¹³

With the goal of preventing panel blocking, the 2019 revisions to USMCA's dispute settlement provisions empower the complaining party to appoint panelists if the defending party refuses to participate in the procedure for choosing them, thus removing this potential obstacle.⁴¹⁴ USMCA revisions also add a new facility-specific enforcement mechanism, as discussed above in the labor section. These provisions seek

⁴⁰⁶ [KORUS](#), art. 22.10. Similar provisions are in other FTAs as well. See appendix E, table E.10.

⁴⁰⁷ [USMCA](#), art. 31.11.

⁴⁰⁸ Some stakeholders raise the uneven requirements of different FTA provisions as a barrier to enforcement proceedings. For example, while IPR provisions require trading partners to put in place specific civil and criminal laws against infringement that private actors can rely on, labor and environment provisions are considered less rigorous and reliant on the "whim of the government" for enforcement. USITC, hearing transcript, October 6, 2020, 116 (testimony of Lori Wallach, Public Citizen's Global Trade Watch).

⁴⁰⁹ The cases involved (1) a U.S. challenge to Canada's maintenance of duties on certain dairy products, (2) a Mexican challenge to a U.S. safeguard action against corn brooms, and (3) a Mexican challenge to a U.S. refusal to permit Mexican truck access at the U.S. border. Gantz, "[The United States and NAFTA Dispute Settlement](#)," June 2009, 388–89.

⁴¹⁰ Gantz, "[The United States and NAFTA Dispute Settlement](#)," June 2009, 391.

⁴¹¹ Revisions to USMCA that create a presumption that alleged labor and environmental violations occur in a manner affecting trade or investment are intended to address the hurdle faced in this dispute, and allow the successful use of trade agreement enforcement provisions with regards to labor and environmental commitments. [USMCA Implementation Act](#), H.R. Rep. No. 116–358, pt. 1, at 4–5 (2019).

⁴¹² USITC, hearing transcript, October 6, 2020, 129 (testimony of Jake Colvin, NFTC); USITC, hearing transcript, October 6, 2020, 132 (testimony of John Murphy, U.S. Chamber of Commerce); National Association of Manufacturers, written submission to USITC, October 2, 2020, 3–4.

⁴¹³ USITC, hearing transcript, October 6, 2020, 129 (testimony of Jake Colvin, NFTC); USITC, hearing transcript, October 6, 2020, 132 (testimony of John Murphy, U.S. Chamber of Commerce); National Association of Manufacturers, written submission to USITC, October 2, 2020, 3–4; USITC, hearing transcript, October 6, 2020, 82 (testimony of Eric Gottwald, AFL-CIO); IIPA, written submission to USITC, November 6, 2020, 6–7.

⁴¹⁴ [USMCA](#), art. 31.8.1.

to remove obstacles and enhance enforcement under the agreement.⁴¹⁵ In December 2020, the United States initiated its first action under USMCA, a request for consultations with Canada regarding its administration of dairy tariff-rate quotas.⁴¹⁶ Also, as noted in chapter 4 of this report, the United States recently invoked the facility-specific enforcement mechanism in two cases involving alleged workers' rights violations in Mexico.

⁴¹⁵ [USMCA Implementation Act](#), H.R. Rep. No. 116–358, pt. 1, at 4 (2019). USITC, hearing transcript, October 6, 2020, 117 (testimony of Andy Green, Center for American Progress).

⁴¹⁶ USTR, [2021 Trade Policy Agenda](#), March 2021, 50.

Chapter 3

Estimates of the Economic Impact of the Agreements

Trade agreements affect the economies of the partner countries through many channels.⁴¹⁷ Economic models have traditionally been designed to capture the effects that come from 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 can shift a country's production toward products in which its domestic firms are better able to compete in international markets. This reshaping of the economy can increase productivity, encourage new investment, and reduce the prices consumers face. It can also generate adjustment costs, including job loss, and distributional effects, with the same trade agreement having different impacts on different individuals, regions, and firms of a country. Trade agreements also contain provisions in such areas as the environment and labor, whose effects are not easily captured by standard economic models.⁴¹⁸

This 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. Due to data limitations, the Commission's economy-wide analysis does not include the effects of U.S. agreements signed under Uruguay Round.⁴¹⁹ The analysis includes methods originally developed in academic studies, along with updates and modifications, where appropriate, to 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 agreements' effects on the U.S. economy as a whole, as well as stand-alone models examining the effects of specific provisions in agreements and sector-specific analyses.

Analytical Approach

The Commission developed several models to estimate the economic effects of U.S. trade agreements. It relied on methods developed in the academic literature to study such effects, modifying the approaches in certain cases to focus on the impacts of specific U.S. agreements on the U.S. economy. Not every agreement was included in every model; in particular, USMCA was not included because it

⁴¹⁷ Throughout this report, reciprocal trade agreement (RTA) refers to an agreement between two or more partners to liberalize tariffs and services, including free trade areas, customs unions, and economic integration agreements on services. U.S. free trade agreements (FTAs), which include trade promotion agreements, are RTAs, as are similar foreign agreements that do not include the United States. This report uses the terms "U.S. trade agreement" or "U.S. FTA" to refer to RTAs that include the United States as a party.

⁴¹⁸ See chapter 5 for a discussion on the impact of environmental provisions in U.S. agreements and case study 3 in chapter 4 for a discussion on labor rights.

⁴¹⁹ To determine the effects of U.S. agreements signed under the Uruguay Round, the Commission's economic models require bilateral data on trade flows and trade barriers in the years leading up to Uruguay round. However, such data are often limited and incomplete in practice and so the Commission focused on only estimating the economic effects of U.S. bilateral agreements signed under TPA.

just recently entered into force, and other U.S. agreements could not be included if they were missing some key provisions relevant to the underlying analysis (table 3.1).

The economic models used in this report mostly rely on relationships in historical data to estimate the relationship between the agreements and economic outcomes such as trade in goods and services, investment, and foreign affiliate sales, while accounting for other coinciding determinants of trade and investment. These models draw on the gravity modeling framework and were designed to isolate the incremental impact of the trade agreements on the U.S. economy, even when the trade agreements in question are not the most significant factor driving trade and overall economic conditions. This framework is well suited for modifications and extensions that allow for examination of the effects of different aspects of trade policy, including tariff and nontariff barriers.

The models presented in the chapter fall into two general categories: economy-wide models and stand-alone models that focus on specific provisions and sectors.⁴²⁰ The first group of economic models is used to quantify the effects of the agreements on the U.S. economy as a whole. These models estimate the effects of all bilateral and regional U.S. trade agreements covered in this report, including their impact on U.S. GDP, income, trade flows, employment, wages, investment, and welfare.⁴²¹ First, a set of gravity models that relates trade and investment between two countries to country-specific factors and bilateral trade and investment costs is used to estimate the impact of the U.S. agreements on cross-border trade in goods and services and foreign direct investment (FDI). Estimated effects from the gravity models are used to determine the reductions in trade and investment costs between the United States and its trading partners as a result of an agreement. The estimated cost reductions are used in the Commission's economy-wide model to simulate a counterfactual scenario in which U.S. trade agreements are not in force and estimate the economy-wide effects of the agreements at the aggregate and sector levels.

The second group of models is provision- and sector-specific (stand-alone) models that illustrate the effects of specific provisions of the trade agreements or the effects of certain agreements on specific sectors of the economy. The estimates from the stand-alone models are not incorporated into the model of economy-wide effects described above. The provision-level analysis uses gravity models to focus on the impact of provisions related to services trade, intellectual property rights (IPRs), and digital trade found in most U.S. trade agreements.⁴²² This section of the report also includes a model that quantifies the reduction in trade policy uncertainty on U.S. imports from a U.S. trading partner moving from a unilateral preferential program to an FTA, using the U.S.-Colombia agreement as an example. The Commission also used a stand-alone model to quantify the impact on the U.S. automotive sector of provisions in the modified U.S.-Korea FTA involving changes made to the staging of tariffs on U.S. imports of light trucks.

⁴²⁰ In order to obtain results, the gravity models presented in this chapter make use of data on all RTAs whether or not the U.S. is a party. The results of the gravity models are then used to estimate the effects of U.S. FTAs on the U.S. economy. For details see appendix F.

⁴²¹ The United States-Mexico-Canada Agreement was not included in the economy-wide model because it only recently entered into force.

⁴²² The stand-alone models are extensions of the economy-wide gravity models that examine certain provisions or sectors in greater detail than the economy-wide gravity models allow for.

Lastly, the Commission provides a brief update and discussion of its recent analysis of the automotive rules of origin found in the United States-Mexico-Canada Agreement (USMCA), the successor agreement to the North American Free Trade Agreement (NAFTA). This update is based on new developments in the industry and the latest available data.

Table 3.1 U.S. agreements covered by individual Commission models

USMCA = United States-Mexico-Canada Agreement, NAFTA = North American Free Trade Agreement, KORUS II = United States-Korea Free Trade Agreement, modified.

Model focus	Coverage of U.S. bilateral and regional agreements
Effects on barriers to cross-border trade in goods	All except USMCA
Effects on barriers to cross-border trade in services	All except U.S.-Israel and USMCA
Effects on barriers to investment	All except U.S.-Israel, U.S.-Jordan, U.S.-Bahrain, and USMCA
Economy-wide effects	All except USMCA
Effects on cross-border trade in services from specific services provisions	All except U.S.-Israel and USMCA
Effects on trade from IPR provisions	All except USMCA
Effects on cross-border trade in services from digital trade provisions	All except U.S.-Israel, NAFTA, and USMCA
Effects on trade from a reduction in trade policy uncertainty	U.S.-Colombia
Effects on U.S. truck industry from KORUS-II	U.S.-KORUS II
Effects on U.S. auto industry from USMCA (update)	USMCA

Note: Due to data limitations, only the analysis on the effects on barriers to cross-border trade in goods covers U.S. agreements signed under the Uruguay Round.

Summary of Estimates

Overall, based on a model that assumes the economy is at its long-run full employment level, the agreements have had a small, positive effect on the U.S. economy. To the extent quantifiable, agreements have led to an increase in U.S. real GDP of \$88.8 billion (0.5 percent) and aggregate U.S. employment by 485,000 full-time equivalent (FTE) jobs (0.3 percent) in 2017.⁴²³ Trade agreements have had a positive effect on U.S. imports and exports as well, especially with its FTA partners. The gains in jobs were not distributed evenly, with the biggest gains in employment estimated for college-educated male workers (table 3.2).

⁴²³ In the Commission's economy-wide model, the effects of the agreements on U.S. employment and wages are quantified only for the long run. Given the long-term horizon of the model, labor markets are assumed to be at full employment. At the same time, it also assumes that workers who were not employed but not actively looking for work (i.e. not part of the labor force) can be pulled into the labor force with higher real wages. If real wage gains are found, overall employment will increase.

Beyond these economy-wide impacts of U.S. agreements, a number of models focus on how specific provisions in U.S. agreements have increased trade in the sectors most associated with those particular provisions.⁴²⁴ Agreements with certain services provisions were more successful in facilitating cross-border trade in services than others that lacked those provisions, while digital trade provisions had more impact on sectors that were able to deliver their services digitally. The effects of agreements with IPR provisions that exceed the requirements of the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) are more ambiguous, with other commitments potentially driving the increase in trade in IPR-intensive and non IPR-intensive sectors. For specific U.S. agreements, the U.S.-Colombia agreement led to a significant reduction in trade policy uncertainty for Colombian firms resulting in the United States importing from more Columbian firms after the agreement entered into force, while modifications made to KORUS resulted in small, positive impacts on U.S. light truck production and prices. Table 3.3 summarizes the key findings from the Commission's analysis of specific provisions and agreements.

Table 3.2 Key findings: Economy-wide effects of U.S. agreements⁴²⁵

Type of economic impact	Findings
Effects on U.S. output	Real GDP increased by \$88.8 billion (0.5 percent).
Effects on U.S. income	Real income increased by \$98.3 billion (0.6 percent).
Effects on U.S. trade	Exports increased by \$37.4 billion (1.6 percent), and imports increased by \$95.2 billion (3.4 percent).
Effects on U.S. labor market	Employment increased by 485,000 full-time equivalent (FTE) jobs (0.3 percent); real wages increased by 0.3 percent.
Distributional effects	College-educated men saw the largest gains (190,000 FTE jobs), followed by college-educated women (150,000 FTE jobs). High school-educated men (110,000 FTE jobs), and high school-educated women (36,000 FTE jobs), experienced lower employment gains.

Source: USITC estimates.

Note: The USITC's estimates for the U.S. economy are reported using 2017 as the base year. Real income is computed as a welfare measure that includes consumers' purchasing power (i.e. "terms of trade" effects). Estimated economy-wide effects represent changes relative to the economic outcomes that would have existed absent the bilateral U.S. agreements. The economy-wide model is based on the long run, which assumes full employment.

⁴²⁴ Chair Kearns notes that, while these sector- and provision-specific methodologies may be limited to assessing trade impacts, trade expansion is not an end in itself; broader economic effects such as improvements in standards of living are. Additionally, as it pertains to the study's measurement of trade impacts, Chair Kearns recognizes the results in this chapter often do not distinguish between the effects of trade agreements on exports and imports. These two trade flows can have different economic effects, and he hopes future research will more consistently make this distinction.

⁴²⁵ Chair Kearns notes that in this model, gains in incomes and employment are likely if trade barriers are found to be lowered by trade agreements. Once the reductions in the price of imported goods are calculated from this decline in trade barriers, the questions are mainly the size of these gains and how they are distributed among the demographic subgroups identified. However, the resulting efficiency gains are not the only impact of trade agreements, particularly when, as is often the case, economies are not at full employment. Given the constraints of the methodology, it is possible that the impacts not measured were larger than the impacts that were measured.

Table 3.3 Key findings: Standalone effects of certain reciprocal trade agreement provisions and specific U.S. agreements

Type of economic impact	Findings
Effect of specific services provisions on cross-border trade in services	Agreements with services provisions that take a full liberalization approach, follow the U.S. approach to market access, and cover a full set of other substantive disciplines have a positive impact on cross-border trade in four of the seven services sectors considered.
Effects of TRIPS-plus provisions on trade in IPR-intensive sectors	Limited evidence of agreements with TRIPS-plus provisions increasing trade in IPR-intensive sectors. Relative to TRIPS, the additional effects of TRIPS-plus provisions on trade in IPR-intensive sectors are too small to be accurately detected.
Effects of digital trade provisions on cross-border trade in services	Agreements with digital trade provisions have a statistically significant positive impact on cross-border trade in six of seven of the services sectors considered.
Effects on trade policy uncertainty from the U.S.-Colombia agreement	U.S.-Colombia agreement reduced trade policy uncertainty for Colombian firms, leading to an increase in the number of varieties of imported goods by the United States from Colombia.
Effects on the U.S. truck industry from KORUS modification	KORUS modification had a limited impact on U.S. producers of trucks, with small increases in domestic production and profits.

Source: USITC estimates.

Estimates of the Impact on the Economy as a Whole

The Commission's economy-wide analysis estimates the effects of the bilateral and regional trade agreements on the U.S. economy as a whole. The estimates give an economy-wide view of the combined effects of these agreements on output and prices in the U.S. economy, both at the aggregate and sector levels, as well as on the incomes of U.S. consumers and U.S. workers. The model also estimates the distribution of these effects on different types of workers in the United States.

Impacts of the Agreements on Barriers to Cross-border Trade in Goods

Following the approach of Baier, Yotov, and Zylkin (2019),⁴²⁶ the Commission uses a gravity model of trade to estimate the tariff equivalents of the barriers to cross-border trade in goods that are removed because of U.S. trade agreements.⁴²⁷ The model is intended to capture the combined effects of all of the

⁴²⁶ Baier, Yotov, and Zylkin, “[On the Widely Differing Effects](#),” 2019.

⁴²⁷ The estimation utilizes data for all RTAs, but in most instances only the estimated effects of U.S. FTAs on U.S. trade are reported here. Only the effects on U.S. bilateral trade with its FTA partners are used as inputs in the Commission's economy-wide analysis.

provisions of these agreements on trade costs.⁴²⁸ The estimated tariff equivalents reflect the observed change in volume of trade between agreement partner countries that occurs from a reduction in trade barriers, including both tariffs and nontariff measures.

As expected, there is variation in the estimated reductions in barriers (expressed as “tariff equivalent reductions”) across U.S. agreements (table 3.4).⁴²⁹ Earlier U.S. agreements, such as U.S.-Israel and NAFTA, are estimated to have led to average tariff equivalent reductions of 15.9 percent and 8.1 percent, respectively. Conversely, more recent agreements such as U.S.-Singapore and U.S.-Australia are estimated to not have led to significant effects on trade barriers. Low most-favored-nation (MFN) tariffs, along with the composition of trade ultimately affected by tariff changes, are some potential factors that may help explain why certain agreements had little impact on U.S. bilateral trade flows.

A number of U.S. FTA partners had been previously eligible for U.S. trade preference programs, such as the Generalized System of Preferences (GSP) and the Caribbean Basin Economic Recovery Act (CBERA). These programs allowed the beneficiary countries to export to the United States duty free without needing a trade agreement. The Commission finds that U.S. FTAs had little impact on estimated barriers to trade with these developing countries. In the case of the U.S.-Panama FTA, the agreement actually had a negative impact on bilateral trade between the United States and Panama, possibly because it required Panamanian exporters to follow more restrictive rules of origin to maintain their goods’ duty-free status than when they were a GSP beneficiary. Still, U.S. trade with these FTA partners accounted for a relatively small share of total U.S. bilateral trade. Across agreements, U.S. trade under NAFTA substantially dwarfed U.S. trade with its other FTA partners, indicating that estimates of the economic effects from all U.S. FTAs signed under the Trade Promotion Authority (TPA) are likely driven by NAFTA.

⁴²⁸ The estimates capture the total effect of the agreements, including tariff changes, new or relaxed rules of origin, nontariff measures (SPS, TBT, and others), changes in policy uncertainty, investment provisions, IPRs, dispute resolution, labor rules, and anything else that contributed to changing trading behavior among member-country firms after the agreement entered into force.

⁴²⁹ Baier, Yotov, and Zylkin (2019) find similar heterogeneity in the impacts of U.S. FTAs, with some having a positive effect on trade flows, some having a negative effect, and some having no effect. See table 5.2 for a summary of their estimates for U.S. agreements.

Table 3.4 Estimates of the impact of U.S. trade agreements on barriers to cross-border trade in goods

In billions of dollars and percentages. CAFTA-DR = Dominican Republic-Central America FTA with the United States, encompassing Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, and the Dominican Republic. An asterisk (*) symbol = no significant reduction in barriers to trade from an FTA.

FTA	U.S. bilateral trade with FTA partners in 2017 (billion \$)	U.S. FTA has a significant effect on bilateral trade	Reduction in cross-border barrier calculated as tariff equivalent (%)
U.S.-Israel	25.4	Yes	15.9
NAFTA	1074.7	Yes	8.1
U.S.-Jordan	3.4	Yes	15.3
U.S.-Singapore	38.6	No	*
U.S.-Chile	25.3	Yes	9.9
U.S.-Australia	35.3	No	*
U.S.-Morocco	4.8	Yes	13.6
U.S.-Bahrain	3.0	Yes	6.0
U.S.-CAFTA-DR	54.6	Yes	5.3
U.S.-Oman	2.9	Yes	11.9
U.S.-Peru	14.6	Yes	7.6
KORUS	125.2	Yes	3.5
U.S.-Colombia	31.9	No	*
U.S.-Panama	9.9	Yes	-6.1

Source: Bilateral trade data from Aguiar et al., "[GTAP 11 Data Base](#)," 2021 and USITC estimates.

Notes: Agreement is categorized as having a significant effect on U.S. bilateral trade when the agreement is statistically significant at the 10 percent significance level in the Commission's gravity model of trade in goods. USITC estimates of tariff equivalent reductions in cross-border barriers for the U.S.-Israel, NAFTA, U.S.-Jordan, and U.S.-Singapore agreements are based only on trade in manufactured goods. The estimates of tariff equivalent reductions in cross-border barriers for all other U.S. agreements are based on trade in all goods.

The Commission's estimates of the effects of U.S. FTAs on goods trade are based on the two-way trade flows between the members of each FTA.⁴³⁰ That is, these estimates represent the average change in bilateral trade flows between the United States and its FTA partner caused by changes to import barriers for either party; the reductions in barriers are not captured independently for each country's imports. For many agreements, the import barriers between the United States and its FTA partner were not uniform, with U.S. exports facing higher restrictions than U.S. imports. In such cases, the Commission's estimated average reduction in trade barriers due to that FTA should be considered as a lower bound for U.S. exports and as an upper bound for U.S. imports.

Along with the estimated impact of U.S. FTAs on aggregate trade flows, the Commission also estimated the impact of each U.S. agreement at the sector level, as defined by the Global Trade Analysis Project (GTAP).⁴³¹ These agreement-specific reductions in barriers at the GTAP sector level were estimated in much the same way as aggregate flows and served as inputs in the Commission's economy-wide analysis. More details on these sector- and agreement-specific estimates are available in appendix F.

Impacts of the Agreements on Barriers to Cross-border Trade in Services

⁴³⁰ For instance, the Commission's estimated 8.1 percent reduction in cross-border trade barriers due to NAFTA is based on six bilateral trade flows each year: U.S. exports to Mexico, U.S. exports to Canada, Canada's exports to the United States, Canada's exports to Mexico, Mexico's exports to Canada, and Mexico's exports to the United States.

⁴³¹ Aguiar et al., "[GTAP 11 Data Base](#)," 2021.

Agreements that cover trade in services have proliferated over the last two decades, with obligations tending to deepen countries' multilateral commitments under the General Agreement on Trade in Services (GATS).⁴³² The United States has led in this particular development, with services provisions included in all of its recent trade agreements.⁴³³ Given their importance in U.S. agreements, this section updates, extends, and improves on the analysis in the Commission's 2016 TPA report that quantified the effects of U.S. FTAs on services trade.⁴³⁴

A panel gravity model of trade in services is used to estimate the average effect on barriers to services imports of U.S. agreements that include separate provisions for services.⁴³⁵ The estimations are conducted at the GTAP sector level.⁴³⁶ In its analysis, the Commission assumes that all RTAs with services provisions, both U.S. and non-U.S. agreements, have the same average effect on barriers to cross-border trade in services.⁴³⁷ Thus, the Commission's estimates of the reduction in the barriers to cross-border services trade should be considered a lower bound, since U.S. FTAs tend to have broader sectoral coverage and commitments on services trade than non-U.S. FTAs. To capture some of the differences between U.S. and non-U.S. agreements in their treatment of services trade, the Commission also conducted a separate provision-level analysis, which appears later in this chapter. The standalone analysis, conducted at the provision level, focuses on differences in the liberalization approach and definitions used as well as differences in the inclusion of certain obligations.

Agreements with services provisions are associated with statistically significant reductions in trade barriers in most of the GTAP services sectors considered. Estimates are shown below as tariff equivalents (table 3.5). A positive impact from agreements with services provisions is observed on cross-border trade across core services sectors—including financial services and other business services that either tend to be subject to a higher level of trade restrictions⁴³⁸ or specifically fall under the sector

⁴³² Gootiiz et al., "[Services](#)," 2020, 113; Roy, "[Services Commitments](#)," November 9, 2011.

⁴³³ Except for the U.S.-Israel agreement, all U.S. agreements signed under TPA contained services provisions.

⁴³⁴ USITC, [Economic Impact of Trade Agreements](#), 2016.

⁴³⁵ The gravity model is based on Baier and Bergstrand, "[Do Free Trade Agreements](#)," 2007. The gravity model controls for country-specific determinants of international trade flows, including the level of aggregate expenditures and prices in each of the countries, as well as time-invariant bilateral factors such as geographic proximity and common language between trading partners.

⁴³⁶ The Commission focused on the following six GTAP services sectors (referred to as core services sectors): communication, construction, insurance, financial services, business services, and wholesale and retail trade. Other GTAP services categories (travel, transport, heritage and recreational services, health services, education services, and other government services) were excluded from the analysis, as they tend to be outside the scope of trade agreements. A majority of the agreements in the Commission's sample, for instance, omit "air traffic rights" (cross-border air transport) from either the chapter on services trade and/or the investment chapter. Likewise, based on survey estimates of U.S. trade, a number of these services are predominantly supplied via mode 2, or consumption abroad (travel of consumers to supplier's territory), including travel, health, and education services; most U.S. agreements do not include provisions on movement of natural persons. World Bank, "[Deep Trade Agreements](#)," accessed November 17, 2020; Mann, "[Measuring Trade in Services](#)," 2019.

⁴³⁷ Restricting all agreements to have the same average effect on trade is often assumed in empirical studies. See for example, Baier and Bergstrand, "[Do Free Trade Agreements](#)," 2007.

⁴³⁸ For example, among the top five most restrictive sectors across countries in the STRI database (as measured by the "Average STRI" score in 2019) are legal and accounting services (which fall under "Business Services"). See OECD, "[OECD Services Trade Restrictiveness Index](#)," January 2020.

categories where trade agreements strengthen GATS commitments.⁴³⁹ A significant impact is not observed for construction services, likely because a commercial presence abroad is typically needed to provide these services in foreign markets; the Commission’s data on cross-border services trade do not include sales for a domestic firm having a commercial presence abroad (effects of RTAs on foreign affiliate sales is addressed in a standalone model presented later in the chapter).

Table 3.5 Estimates of the average impact of an agreement with services provision on barriers to cross-border trade

In billions of dollars and percentages. An asterisk (*) = no significant reduction in barriers to trade from an FTA.

Services sector	U.S. bilateral trade with FTA partners in 2017 (billion \$)	An agreement has a significant effect on bilateral trade	Reduction in cross-border barrier calculated as tariff equivalent (%)
Communications	11.0	Yes	18.4
Construction	1.3	No	*
Insurance	15.3	No	*
Financial services	20.4	Yes	9.6
Business services	37.0	Yes	11.7
Wholesale and retail	7.4	Yes	6.0

Source: Data for the “U.S. bilateral trade with FTA partners” category come from Aguiar et al., “[GTAP 11 Data Base](#),” 2021. Data or responses for the two other categories come from USITC calculations.

Note: Agreement is categorized as having a significant effect on U.S. bilateral trade when the agreement is statistically significant at the 10 percent significance level in the Commission’s gravity model of trade in services.

The estimated reduction in trade barriers from an agreement with services provisions depends in part on how high the barriers were in a sector before liberalization and to what extent the barriers were actually addressed by the provisions.⁴⁴⁰ Results indicate that some services sectors, such as communications and business services, started with much larger barriers to cross-border trade. Thus, these sectors benefit more from an RTA than other sectors, such as insurance, which started with smaller barriers and therefore see relatively small decreases in barriers following liberalization. Across services sectors, the largest impact, in terms of value, from a RTA with services provisions was found in the business services sector, with an estimated reduction of 11.7 percent in barriers on cross-border trade of \$37.0 billion (table 3.5). The Commission’s economy-wide analysis incorporates these observed differences in tariff equivalent reductions across services sectors for U.S. FTAs that contain services provisions.

Impacts of the Agreements on Foreign Direct Investment

Based on the existing economic literature, U.S. bilateral and regional trade agreements can have either a positive or a negative impact on U.S. 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

⁴³⁹ More than half of the agreements in the Commission’s sample include a sector-specific chapter for financial, telecommunications, or air transport services (for specific subcategories of air transport) which improves upon GATS commitments (see Gootiiz et al., “[Services](#),” 2020, 127–28). See also Lamprecht and Miroudot, “[The Value of Market Access](#),” March 28, 2018, 15.

⁴⁴⁰ The Commission examines the impact on cross-border services trade from specific services provisions and categories of services provisions in U.S. FTAs as a stand-alone analysis “Impacts of Specific Services Provisions on Trade in Services” for this report.

cross-border trade achieved by the agreements, such as tariff liberalizations, may make exports a more profitable way to serve the foreign market than before. The reduction in barriers could thus have a negative impact on FDI by lowering the cost of trade relative to FDI. Given these opposing effects on FDI, the direction and significance of the net impact of the agreements on FDI will depend on these factors' relative importance. As discussed in chapter 5, the economic literature generally finds mixed empirical evidence on trade agreements having a significant effect on FDI.⁴⁴¹

To update previous estimates in the literature, including previous Commission analyses, the Commission used a panel gravity model of bilateral FDI stocks to specifically focus on trade agreements with investment provisions.⁴⁴² The model estimates the impact of reciprocal trade agreements (RTAs) on FDI over the period 1980–2012. The estimations fully control for economic characteristics of the source and host countries (such as their market sizes, legal environments, and tax regimes), along with the bilateral determinants of investment (such as geographic proximity and cultural ties), through the use of fixed effects. The estimates also account for the presence of bilateral investment treaties (BITs), which could be another factor driving investment between country pairs. With this approach, the Commission's analysis isolates the effect of trade agreements based on changes in the stock of FDI and trade agreement status between country pairs over time; the analysis does not try to assess the relative importance of all of the determinants of cross-border investment. Additionally, the effect of an agreement with investment provisions on FDI may change over time. To account for the phase-in effects of an RTA, the Commission's model is further modified to include various lags, up to five years.

Consistent with the literature, an RTA, in general, does not have a significant impact on FDI stocks. However, the model finds that RTAs with investment provisions have a positive, significant effect on total FDI stock (for all industries combined). This suggests that the investment-promoting aspects of RTAs containing investment provisions outweigh the other investment-diverting aspects of trade agreements.⁴⁴³ Indeed, model estimates show that trade agreements with investment provisions have led, on average, to a 14.7 percent increase in host country FDI stock.⁴⁴⁴ Further, the average effect of RTAs with investment provisions on FDI increases to 18.6 percent when the model includes a five-year lag to capture delayed responses following an agreement. Since most U.S. FTAs include investment provisions, these model estimates indicate that U.S. FTAs have had a significant and positive effect on inbound FDI in the United States and in its FTA partners.⁴⁴⁵

Due to data limitations, this analysis is not able to estimate the effects on FDI from U.S. FTAs at a more disaggregated sector level. The impact of RTAs with investment provisions may differ across sectors, and investment provisions may be especially important for certain sectors with a high risk of expropriation

⁴⁴¹ See the “Investment Provisions” section in chapter 5 for an overview of the main findings in this literature.

⁴⁴² Bergstrand and Egger, “[A Knowledge-and-Physical-Capital Model](#),” 2007.

⁴⁴³ Key investment provisions include most favored nation (MFN); national treatment; prohibition of expropriation; and a dispute settlement mechanism. For further discussion of these provisions as they relate to investment, see chapter 2.

⁴⁴⁴ Effects are calculated based on the estimated coefficients provided in appendix F, using the following formula: $[e^{\beta} - 1] \times 100$.

⁴⁴⁵ The United States has FTAs with investment provisions with the following countries: Australia, Canada, Chile, Colombia, Costa Rica, the Dominican Republic, Honduras, Korea, Mexico, Oman, Panama, Peru, and Singapore. The United States also has BITs with Bahrain and Jordan.

(e.g., sectors with large initial costs in capital expenditures).⁴⁴⁶ Due to these limitations, any heterogeneity across sectors is not captured by the Commission's model. Additionally, this analysis assumes that all RTAs with investment provisions, both U.S. and non-U.S. agreements, have the same average effect on FDI. However, most U.S. FTAs have more investment provisions than many non-U.S. RTAs. It may thus be the case that the Commission's estimated results are a lower bound for the United States.

Economy-wide Effects of the Bilateral and Regional Trade Agreements

Trade agreements generally reduce trade costs and increase trade flows. They have smaller, indirect effects on production and labor market outcomes in the U.S. economy. The Commission's estimates of economy-wide effects are based on simulations using GTAP's computable general equilibrium (CGE) model of international trade. A CGE model uses actual economic data to make a quantitative estimate of the way markets in an overall economy might react to changes in policy, technology, or other factors. In this report the CGE model is used to translate the impact on trade and investment barriers, estimated by the gravity models described above, into impacts on macroeconomic outcomes in the United States, including income, GDP, trade flows, employment, and wages.⁴⁴⁷

In the Commission's economy-wide model, the effects of the agreements on U.S. employment and wages are quantified only for the long run. Given the long-term horizon of the model, labor markets are assumed to be at full employment with no unemployment in the economy. While changes in trade policy do lead to adjustments in employment and wages in the short run, these transition costs are not captured in the Commission's economy-wide analysis due to modeling limitations.⁴⁴⁸ However, the Commission's economy-wide model does allow for the aggregate labor supply in each country to respond to changes in real wages rather than remaining fixed, as it is usually modeled within GTAP. Therefore, in the Commission's simulations, workers can leave the labor force if real wages decrease, and nonworking individuals can join the labor force if real wages increase. This adjustment in labor force participation is used to capture the impact of trade agreements on U.S. aggregate employment levels.

Using this analytical framework, the Commission estimated the economic effects for the United States of moving from the baseline scenario where all bilateral FTAs implemented by the United States under TPA are in place to a counterfactual scenario where these FTAs, and the resulting reductions in barriers to trade, are absent.⁴⁴⁹ The simulation is conducted using a dataset for the year 2017 from Version 11 of

⁴⁴⁶ While looking at BITs and not FTAs specifically, Colen et al. find that the investment provisions in BITs are most effective in sectors that have large initial costs, have low levels of firm-specific knowhow, and are prone to nationalization. Colen, Persyn, and Guariso, "[Bilateral Investment Treaties and FDI](#)," 2016.

⁴⁴⁷ Reductions in trade barriers are estimated at the GTAP sector level, while reductions in investment barriers are estimated at the aggregate level.

⁴⁴⁸ For a discussion of the difficulties of modeling labor market transitions caused by trade agreements, see Riker and Swanson, "[A Survey of Empirical Models](#)," 2016.

⁴⁴⁹ Due to data limitations, the Commission's economy-wide analysis does not include the effects of U.S. agreements signed under Uruguay Round.

the GTAP database, aggregated into 65 sectors and 30 regions.⁴⁵⁰ Results from these simulations represent the Commission's estimates of the economy-wide gains or losses as a result of the agreements.

Aggregate Effects

U.S. trade agreements had positive effects on the U.S. economy. To the extent quantifiable, agreements have led to increases in real GDP of \$88.8 billion (0.5 percent) and real income of \$98.3 billion (0.6 percent) (table 3.6). Real income is computed as a measure of economic welfare, which includes changes in U.S. consumers' purchasing power.⁴⁵¹ The economic gains shown in the table are driven by several factors, including economic efficiency gains, increases in U.S. employment, and growth in investment in the United States, which would expand the productive capital stock of the U.S. economy. The model estimates real wages increased by 0.3 percent, which expanded the labor supply, driving gains in employment of about 485,000 full-time equivalent (FTE) jobs (0.3 percent). All these estimated effects are relative to a counterfactual scenario in which the United States had no agreements with its FTA partners in the Commission's economy-wide simulations.

Table 3.6 Economy-wide effects of the U.S. bilateral and regional trade agreements

In billions of dollars and percentages. GDP = gross domestic product; FTE = full-time equivalent; n.c. = not calculable.

Economic outcome	Change	Change (%)
Real GDP (billion \$)	88.8	0.5
Real income (billion \$)	98.3	0.6
Capital stock (billion \$)	498.3	0.4
Real wages (billion \$)	n.c.	0.3
Employment (change in 1,000 FTE jobs)	484.8	0.3

Source: USITC calculations.

U.S. agreements had similarly positive impacts on total U.S. trade with the world (table 3.7). U.S. exports to the world increased by about \$37 billion (1.6 percent), while U.S. imports from the world increased by about \$95 billion (3.4 percent). In the Commission's economy-wide simulations, U.S. exports to FTA partner countries increased by about \$90 billion (12.9 percent), while its imports from FTA partners grew by about \$118 billion (15.2 percent). On the other hand, U.S. exports to non-FTA partner countries decreased by about \$52 billion (-3.1 percent) while imports from non-FTA partner countries slightly decreased by about \$22 billion (-1.1 percent). Thus, these agreements have led to significant diversion in U.S. trade, with the United States trading more with its FTA partners and less with the rest of the world in the baseline case (all U.S. agreements are in place) than in the counterfactual scenario (no U.S. agreements are present with its FTA partners).

⁴⁵⁰ The data are from GTAP Database version 11. The database is documented in Aguiar et al., “[An Overview](#),” 2019. Twenty-one of the regions represent the United States and its trade partners in bilateral and regional free trade agreements. See appendix F for the full list of regions.

⁴⁵¹ As a welfare measure, real income captures both gains to the real GDP (which measures production and the allocative efficiency of resources in the domestic economy) and benefits realized through changes in international prices (“terms of trade” effect).

Table 3.7 Changes in U.S. exports and imports from the U.S. bilateral and regional trade agreements
In billions of dollars and percentages.

U.S. Trade	Change in exports (billion \$)	Change in exports (%)	Change in imports (billion \$)	Change in imports (%)
U.S. trade with the world	37.4	1.6	95.2	3.4
U.S. trade with FTA partners	89.5	12.9	117.7	15.2
U.S. trade with non-FTA partners	-52.1	-3.1	-22.1	-1.1

Source: USITC calculations.

Broad Sector-level Effects

At the broad sector level, U.S. agreements have led to an increase in U.S. domestic production for most sectors with the exception of the mining and heavy manufacturing sectors (table 3.8).⁴⁵² In dollar terms, the output of the “non-core services” sector, or services sectors that are not directly addressed in trade agreements, expanded the most (\$74 billion), followed by core services (\$24 billion) and light manufacturing (\$12 billion). In percentage terms, output of the non-core services sector expanded the most (0.5 percent), followed by livestock (0.4 percent) and light manufacturing (0.3 percent). U.S. agreements have had a negligible impact on the mining sector (-0.01 percent), while production of U.S. industries in the heavy manufacturing sector decreased by \$8.3 billion (-0.2 percent) as compared to the baseline. For the manufacturing sector as a whole, including both light and heavy manufacturing, U.S. agreements led to a net increase in output (\$3.5 billion). The shift in U.S. production from heavy manufacturing to light manufacturing reflects the “general equilibrium” nature of the Commission’s economy-wide model. That is, sectors that benefit from liberalization expand production as they become more competitive in the world economy, while sectors that are hurt by or benefit less from liberalization reduce their output as resources that otherwise would have been used in these sectors move to the more competitive sectors.

Few broad sectors saw a net decline in employment from U.S. agreements in the Commission’s economy-wide simulations (table 3.8). Small reductions in employment, even with an increase in domestic production, are estimated for the mining sector (about 240 jobs) as a consequence of these industries substituting capital for labor. The largest gains in employment from U.S. agreements are seen in both the non-core services sector (about 324,000 jobs) and core services sector (about 122,000 jobs). On the other hand, the heavy manufacturing sector experienced only a small increase in jobs (about 500 jobs) from U.S. agreements. In terms of real wages, other services sectors see the largest gains (0.5 percent), followed by livestock (0.4 percent) and light manufacturing (0.3 percent). On the other hand, heavy manufacturing (0.1 percent) and mining (0.1 percent) see relatively small gains in real wages for their workers. Since the Commission’s economy-wide model assumes that U.S. aggregate production is always equal to its productive capacity, higher employment and wages in the light manufacturing and services sectors reflect labor and capital resources in the economy shifting to these industries as a result of U.S. agreements.

⁴⁵² See appendix F for estimated effects at the GTAP sector level. The designation of industries as heavy manufacturing or light manufacturing are also provided in this appendix.

Table 3.8 Changes in U.S. output, employment, and wages, on broad sector level from U.S. bilateral and regional trade agreements

In billions of dollars, number of full-time equivalent (FTE) jobs and percentages.

Broad sectors	Change in output (billion \$)	Change in output (%)	Change in employment (thousand FTE)	Change in employment (%)	Change in wages (%)
Grains and crops	0.15	0.07	0.39	0.07	0.20
Livestock	1.95	0.42	3.08	0.35	0.44
Mining and extraction	-0.05	-0.01	-0.24	-0.03	0.08
Light manufacturing	11.84	0.29	35.61	0.26	0.33
Heavy manufacturing	-8.30	-0.18	0.52	0.00	0.08
Core services	23.58	0.26	121.52	0.22	0.27
Non-core services	74.09	0.47	323.97	0.42	0.48

Source: USITC estimates.

While employment in most broad sectors expands overall, there is considerable heterogeneity between individual industries within these broad sectors.⁴⁵³ The largest drop in employment in a single industry is in computer, electronic, and optical products, one of the industries comprising the heavy manufacturing sector. Other industries that experienced sizable declines in employment are transportation equipment, other manufactures, and basic pharmaceutical products. The largest employment gains accrue to construction, human health and social work activities, and trade industries.

Although the Commission's economy-wide analysis does not try to estimate the differences in the impact of U.S. agreements across U.S. regions, there is growing evidence that economic effects of U.S. trade policy are dispersed regionally.⁴⁵⁴ While the non-core services sector is responsible for the majority of employment in all U.S. regions in 2017, there is variation in employment shares across regions in broad industry sectors (figure 3.1).⁴⁵⁵ Manufacturing employs a larger share of employees in the Great Lakes, Plains, and Southeast regions than in the rest of the country. Similarly, mining accounts for a larger share of employment in the Southwest and the Rocky Mountain regions than in the rest of the country. Lastly, New England and the Mideast regions have a higher share of workers employed in the services sectors. Given the observed variation in employment shares in these different regions, it is unlikely that the effects on employment and wages from U.S. agreements are distributed uniformly across these U.S. regions.

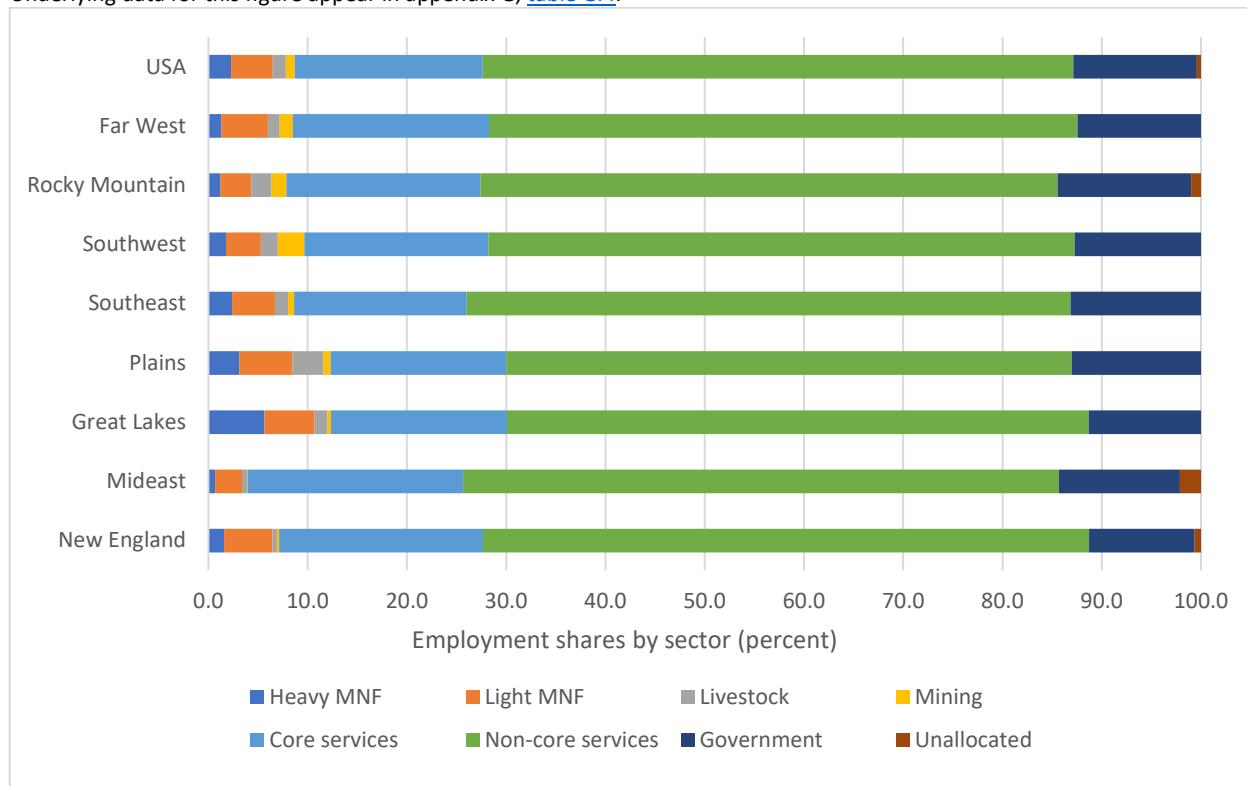
⁴⁵³ Estimated changes in employment on GTAP industry level are presented in appendix table F.14.

⁴⁵⁴ USITC, hearing transcript, October 7, 2020, 27–28 (testimony of Dr. Jeffrey Bergstrand).

⁴⁵⁵ The [Bureau of Economic Analysis](#) (BEA) of the U.S. Department of Commerce provides employment data for North American Industry Classification System (NAICS) across U.S. geographical areas. A concordance was performed between GTAP and NAICS to get the respective employment numbers at the broad sector level in 2017.

Figure 3.1 Employment shares of broad sectors across U.S. regions in 2017

MNF = manufacturing

Underlying data for this figure appear in appendix G, [table G.4](#).Source: USDOC, BEA, "[Employment by State](#)," accessed April 13, 2021 and USITC estimates.

Note: U.S. states within each region, as defined by the Bureau of Economic Analysis (BEA) of the U.S. Department of Commerce, are as follows: New England (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont); Mideast (Delaware, District of Columbia, Maryland, New Jersey, New York, and Pennsylvania); Great Lakes (Illinois, Indiana, Michigan, Ohio, and Wisconsin); Plains (Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, and South Dakota); Southeast (Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, and West Virginia); Southwest (Arizona, New Mexico, Oklahoma, and Texas); Rocky Mountain (Colorado, Idaho, Montana, Utah, and Wyoming); and Far West (Alaska, California, Hawaii, Nevada, Oregon, and Washington).

Effects on Different Types of U.S. Workers

The Commission's economy-wide model used data from the 2017 Current Population Survey (CPS) to disaggregate U.S. workers into 20 types based on their educational attainment, occupation, and gender. Along with two sexes, there are two education types: high school and college. The high school category includes workers who received a high school diploma or less. The college category includes workers who have more than a high school education, including those who started college but did not finish. The occupation types used in the Commission's model match the five broad occupation categories in the CPS, with some reclassifications.⁴⁵⁶

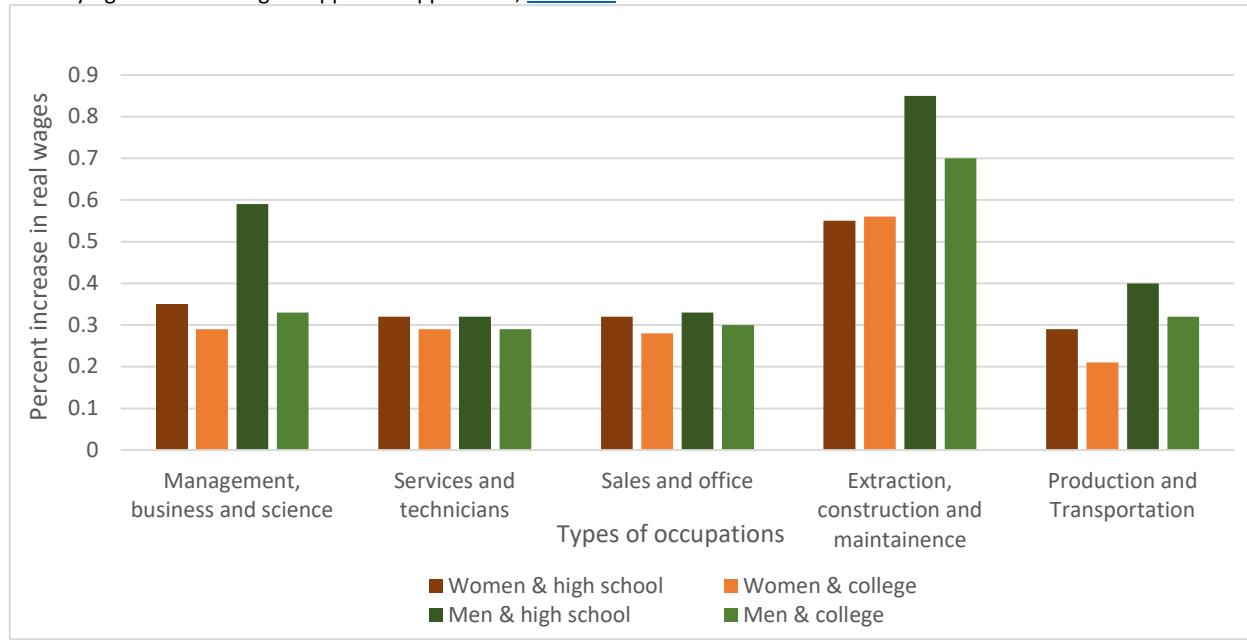
⁴⁵⁶ Occupation 1 includes management, business, and science occupations. Occupation 2 includes services occupations and technicians. Occupation 3 covers sales and office occupations. Occupation 4 includes occupations relating to the natural resources, construction, extraction, maintenance, and repair. Occupation 5 encompasses production, transportation, and materials-moving occupations.

U.S. trade agreements led to gains in employment and real wages, although with some differences by labor type. Some of the observed differences in wages and employment effects across labor types are due to trade agreements having a heterogeneous impact on different domestic industries. Since the share of each type of worker employed usually varies across industries, the heterogeneous effects on industries from an FTA will also have a differential impact on workers. Sectors that expand as a result of an FTA will experience higher demand for the types of workers that they employ, leading to higher wages and employment for these workers, compared to sectors that contract as a result of the FTA.

In general, workers across different labor types saw small increases in real wages due to U.S. FTAs (figure 3.2). Within a given occupation type, there were relatively few differences in wage effects, although men saw slightly higher gains than women. As the model assumes men are less responsive to wage changes than women,⁴⁵⁷ a higher increase in wages is required to induce them to enter the labor market than female workers for the same occupation. Across occupations, the largest wage increases are estimated to be for workers in extraction, construction, and maintenance jobs (these workers see gains in the range of 0.55–0.85 percent across gender and education types). The relatively large effect in wages for occupations in this sector is driven by a higher level of domestic investment, as well as resources being reallocated from manufacturing sectors to non-tradeable services sectors as a result of U.S. FTAs; the Commission did not find that cross-border trade in construction services itself was directly affected by U.S. agreements.

Figure 3.2 Effects of U.S. bilateral and regional trade agreements on U.S. real wages by gender, occupation, and education levels

Underlying data for this figure appear in appendix G, [table G.5](#).



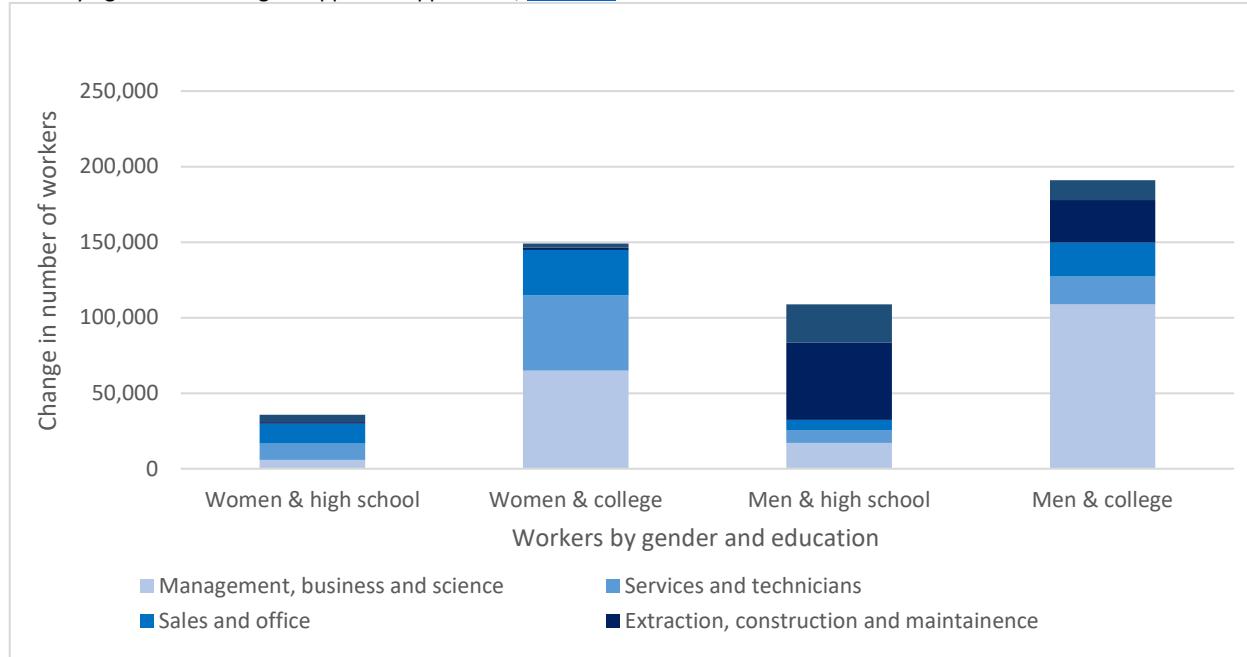
Source: USITC estimates.

⁴⁵⁷ As discussed in Evers, de Mooij, and van Vuuren, “[What Explains the Variation](#),” 2006, a consistent finding in the literature is that a comparable change in wages has a stronger effect on female workers’ participation rates than on the participation rates for male workers.

The Commission's model estimates that U.S. agreements resulted in employment gains of about 485,000 jobs—but the gains are not evenly distributed across labor types (figure 3.3). Most of the employment gains have accrued to college-educated men (about 190,000 jobs), followed by college-educated women (about 150,000 jobs).⁴⁵⁸ Gains for these labor types is a result of higher overall demand in the economy for high-skilled employees to work in management, business, and science occupations (about 197,000 jobs), services and technician occupations (about 87,000 jobs), and sales and office occupations (about 73,000 jobs). Compared to their college-educated counterparts, high school-educated men and high school-educated women experience lower employment gains from U.S. agreements—about 110,000 and 36,000 jobs, respectively.⁴⁵⁹ Gains for high school-educated workers are concentrated in extraction, construction, and maintenance occupations (about 82,000 jobs) and production and transportation occupations (about 160,000 jobs), with high school-educated men gaining a larger share of these jobs than high school-educated women.⁴⁶⁰

Figure 3.3 Effects of U.S. bilateral and regional trade agreements on U.S. employment by gender, occupation, and education levels

Underlying data for this figure appear in appendix G, [table G.6](#).



Source: USITC estimates.

⁴⁵⁸ Overall employment gains for workers of a given labor type mask considerable heterogeneity across sectors. For example, college-educated men employed in management, business, and science occupations experience large losses in employment in the heavy manufacturing sector, but these losses are more than offset by employment gains in the other services sector.

⁴⁵⁹ U.S. trade agreements were estimated to have minimal impact on the overall shares of workforce by labor type. The share of high school-educated men employed in extraction, construction, and maintenance occupations increased the most by 0.02 percent points. See table F.11 for more details.

⁴⁶⁰ Hakobyan and McLaren, “[NAFTA and the Wages of Married Women](#),” 2018, also find that NAFTA led to lower blue-collar wage growth for women than for men. See chapter 5 for an extended review of their paper, as well as related studies examining the effect on U.S. workers from trade agreements.

Stand-alone Estimates

This section presents estimates of the trade effects for provisions in U.S. agreements covering trade in services, trade in IPRs, and digital trade; the effects of the U.S.-Colombia FTA on trade policy uncertainty; and the impact on the auto sector of modifications to the U.S.-Korea agreement. These economic effects are not explicitly incorporated into the Commission’s economy-wide model but are instead quantified using a separate group of econometric models described in this section.

Impacts of Specific Services Provisions on Trade in Services

Background

An important feature of trade in services is the diversity across service subsectors, in terms of their underlying commercial characteristics and varying degrees and types of trade restrictions and regulations, which shape how the services are provided across borders.⁴⁶¹ For example, travel and property and casualty insurance services are provided predominantly through one mode of supply, while architecture and engineering can be supplied through multiple modes.⁴⁶² The goal of this analysis is to examine services trade comprehensively, by examining the effects of RTAs with services provisions on both cross-border services trade (which captures modes 1, 2, and 4) and foreign affiliate sales (which approximates mode 3).⁴⁶³ Given heterogeneity across services sectors, a related goal is to analyze services at the most detailed subsector level permitted by the data.

There is also substantial variation observed within RTAs that contain services provisions. This diversity ranges from how these RTAs address the four modes of services trade, to the liberalization approach they adopt, to which services and substantive provisions they include.⁴⁶⁴ Combined with the significant limitations affecting services trade data, this heterogeneity across services sectors and among services RTAs have likely contributed to the varying results found in the literature on the effects of RTAs on services trade.⁴⁶⁵ The cross-border services trade model in this section complements the economy-wide analysis presented earlier in this chapter by assessing whether heterogeneity in the terms of services

⁴⁶¹ See Khachaturian and Oliver, “[The Role of ‘Mode Switching’](#),” February 2021, 15.

⁴⁶² For the four modes of supply for services trade, see WTO, “[Basic Purpose and Concepts—Definition of Services Trade and Modes of Supply—Page 1](#),” accessed March 9, 2021. Mode 1 is defined as services supplied across borders (e.g., digitally); mode 2, as the travel of consumers to suppliers; mode 3, as suppliers’ commercial presence in foreign markets; and mode 4, as the travel of a service supplier to the consumer. Travel is predominantly supplied by mode 2, while property and casualty insurance services are predominantly supplied by mode 3. Architecture and engineering services can be supplied through modes 1, 3, and 4: plans can be drafted in a central office and provided digitally across borders in conjunction with temporary travel or establishing a more permanent local presence to monitor construction.

⁴⁶³ Foreign affiliate sales occur when a firm based in one country establishes a local affiliate in another country and supplies goods or services through that affiliate.

⁴⁶⁴ See Gootiiz et al., “[Services](#),” 2020.

⁴⁶⁵ For example, in a study by Benz and Jaax (2020) on the effect of RTAs on cross-border trade, results from their cross-section estimation differs from the results in their panel estimation, partly due to the underlying sample of RTAs included. Benz and Jaax, “[The Costs of Regulatory Barriers](#),” 2020.

provisions across agreements can lead to differential effects.⁴⁶⁶ The economy-wide model presented earlier in this chapter did not distinguish between the types of services provisions in trade agreements.

Separately, the foreign affiliate sales model in this section assesses both the overall impact of services RTAs and the potentially differential impact of specific provisions or groups of provisions across services RTAs.⁴⁶⁷ A better understanding of the effects of RTAs on foreign affiliate sales is important, as this mode of trade represents the majority of U.S. services supplied and received, but data limitations typically do not allow for an in-depth quantitative analysis on foreign affiliate sales.⁴⁶⁸ Additionally, previous work has not found a consistent relationship between RTAs and foreign affiliate sales of services.⁴⁶⁹

Methodology and Data on Trade in Services

This section describes three models. First, the Commission extended the gravity model of trade in services to determine the impact on cross-border trade in services from specific services provisions and categories of services provisions described below. As with the analysis presented above, data on cross-border trade in services are from the Commission’s International Trade and Production Database for Estimation (ITPD-E).⁴⁷⁰

Two additional gravity models analyze the impact of RTAs with services provisions as well as the impacts of the three groups of provisions described below on foreign affiliate sales of services (which correspond to mode 3 trade) across countries.⁴⁷¹ Data on foreign affiliate sales are presented for three subsectors—finance and insurance, professional services, and wholesale and retail services—across 91 countries for the years 2010–18.⁴⁷² For a full discussion of the methodology and model used in this analysis see appendix F.

Classification of Specific Services Provisions

Data on the breadth and depth of coverage of trade agreements and services provisions used in this analysis is from the World Bank’s Deep Trade Agreements (DTAs) dataset.⁴⁷³ Three groups of features of trade agreements and services provisions are examined in the analysis: those defining and relating to

⁴⁶⁶ As these estimates are not intended to capture all of the services provisions that affect cross-border trade, they are not incorporated into the economy-wide model.

⁴⁶⁷ Provisions found in the chapter of trade agreements that bear on cross-border trade in services, as well as in the investment chapter and other parts of trade agreements, either directly or indirectly impact the provision of services via commercial presence.

⁴⁶⁸ See Mann, “[Measuring Trade in Services by Mode of Supply](#),” August 2019, 17–20, for information on U.S. trade in services by mode of supply in 2016.

⁴⁶⁹ See, for example, Grünfeld and Moxness (2003), which finds a positive and significant effect of RTAs on mode 3 services trade, and Benz and Jaax (2020), which finds a negative and significant relationship between RTAs and services foreign affiliate sales in some sectors, and no effect in others. Grünfeld and Moxness, “[The Intangible Globalization](#),” 2003; Benz and Jaax, “[The Costs of Regulatory Barriers](#),” 2020.

⁴⁷⁰ Borchert et al., “[The International Trade and Production Database](#),” August 2020.

⁴⁷¹ As with data limitations on cross-border services trade, the Commission focuses on estimating an average effect on trade in services from all RTAs with services provisions, both U.S. and non-U.S. agreements.

⁴⁷² See appendix F for more information on the data sources and construction of the data as well as the gravity approach, which differs from other models in this chapter.

⁴⁷³ World Bank, “[Deep Trade Agreements](#),” November 2020.

liberalization approach, those defining market access approach, and those incorporating other substantive commitments. Most U.S. trade agreements since NAFTA, except the U.S.-Jordan agreement, consistently include the full liberalization approach, U.S. approach to market access obligations, as well as the full or partial set of other disciplines (which represent each of the areas modeled and analyzed below) (see table 3.9). This observation underscores the relative homogeneity, as well as breadth and depth, of U.S. agreements in terms of services provisions.⁴⁷⁴

Table 3.9 Select services provisions and groups of provisions in U.S. and non-U.S. trade agreements
Liberalization approaches, market access approaches, and other disciplines.

Provision	U.S. agreements	Non-U.S. agreements	Total
Full liberalization approach	11	23	34
Partial liberalization approach	1	47	48
U.S. market access approach	11	14	25
GATS/other market access approach	1	56	57
Full other disciplines	10	17	27
Partial other disciplines	1	18	19
No other disciplines	1	35	36

Source: USITC calculations.

Note: This table provides information for 82 agreements with services provisions (12 U.S. and 70 non-U.S.), shown in appendix table F.3, that are represented in the merged datasets. World Bank, “[Deep Trade Agreements](#),” accessed November 17, 2020; Borchert et al., “[The International Trade and Production Database](#),” August 2020. All U.S. RTAs except U.S.-Jordan have a full liberalization approach (U.S. Jordan has a partial liberalization approach). All U.S. RTAs except U.S.-Jordan define market access according to the U.S. approach (U.S. Jordan adopts the GATS approach to market access). All U.S. RTAs except U.S.-Jordan and U.S.-Bahrain include a full set of other substantive commitments (U.S.-Bahrain includes partial set of such disciplines and U.S.- Jordan does not include such commitments).

Each group of services provisions is defined as follows:

- **Liberalization Approach.** An agreement is included in the category named “full liberalization approach” if it has a negative list structure, as well as “ratchet” and “standstill” provisions.⁴⁷⁵ Negative list agreements typically include an accompanying ratchet provision, which indicates that future liberalizations by parties to the agreement are legally bound by the agreement. Negative list agreements also often include a standstill provision, which indicates that reservations to member countries’ obligations will not become more restrictive in the future. Inclusion in a second (constructed) category, called “partial liberalization,” indicates that an agreement has either a negative list approach, but without ratchet and standstill provisions; a positive list structure, irrespective of ratchet or standstill provisions; or a different approach to liberalization.⁴⁷⁶ Unless expansive sectoral exceptions have been made,

⁴⁷⁴ The U.S.-Israel FTA does not contain services provisions.

⁴⁷⁵ Under “negative list” agreements, obligations apply across all service sectors, except if member countries have made specific exemptions. On the other hand, under “positive list” agreements, obligations are bound for sectors that are specifically identified in member countries’ schedules.

⁴⁷⁶ A majority of agreements with a positive list and other types of approaches do not include ratchet and standstill provisions. The DTA database “other” category includes combinations of positive and negative list agreements, five of which are included in this analysis (e.g., the EU-Serbia agreement). Certain agreements that are “positive list” only with respect to a specific obligation (e.g., NAFTA with respect to its market access obligation for services) are coded in the DTA database only as negative list. World Bank, “[Deep Trade Agreements](#),” accessed November 17, 2020.

negative list agreements have broader sectoral coverage and commitments than positive list agreements. A full liberalization approach as defined here is expected to directly impact both cross-border services trade and foreign affiliate sales.

- **Market Access Approach.** Most agreements with services provisions contain both national treatment and market access obligations. The World Bank DTAs dataset differentiates how the market access obligation is defined across agreements.⁴⁷⁷ The form of the market access obligation in an agreement is coded as following either the U.S. definition or the GATS/other approach. Within U.S. trade agreements, market access obligations are typically listed within the chapter on cross-border trade in services. These obligations cover all of the market access limitations in GATS, with the exception of foreign equity.⁴⁷⁸ While the U.S. approach to market access is focused on nondiscriminatory limitations (excluding foreign equity limitations), the GATS approach is focused on quantitative market access limitations, including foreign equity.⁴⁷⁹ Since distinctions on market access approach are focused on investment-related limitations, a more direct impact is expected on foreign affiliate sales relative to cross-border trade. However, cross-border services may also be impacted where these services are complementary to services supplied through foreign affiliates.⁴⁸⁰
- **Other Disciplines.** Substantive disciplines may be full, partial, or completely absent. Agreements are included in the category “full other substantive disciplines” when they include a full set of six specific types of provisions. The first two types are (1) provisions which prohibit imposing a local presence requirement as a precondition to supplying cross-border services, and (2) a general or sector-specific obligation(s) not to require nationality or residency requirements for senior managers and/or members of the board of directors. The other four provisions include obligations not to apply performance requirements that relate to (1) exports, (2) local content, (3) technology transfer, and (4) other areas.

The category “partial other substantive disciplines” consists mostly of agreements with only one of the six disciplines present (typically either the local presence requirement or the senior manager/board of directors provision), as well as a handful of agreements which have more than one but less than six of the provisions. The category “No Substantive Disciplines” indicates that none of the provisions are present in the agreements.⁴⁸¹ Within U.S. trade agreements, the prohibition on local presence requirements is typically listed within the chapter covering cross-border trade in services and is expected to directly impact a services exporter’s ability to provide services across borders. The obligation relating to senior managers and the board of directors, as well as the obligations pertaining to performance

⁴⁷⁷ For more information on the impact of market access and national treatment obligations, see Lamprecht and Miroudot, “[The Value of Market Access](#),” March 28, 2018.

⁴⁷⁸ GATS Article XVI specifies that members may not maintain limitations on market access unless a specific exception is made across the following areas: the number of service suppliers, the value of service transactions or assets, the number of service operations or quantity of output, the number of natural persons supplying a service, the type of legal entity or joint venture, and the participation of foreign equity.

⁴⁷⁹ Under the U.S. approach, foreign equity limitations would be considered violations of the national treatment obligation. U.S. government representative, email message to USITC staff, December 18, 2018.

⁴⁸⁰ See Khachaturian and Oliver, “[The Role of ‘Mode Switching’](#),” February 2021.

⁴⁸¹ Many were missing or “not applicable” observations but otherwise had services provisions and were assumed to be 0.

requirements, are typically included in the investment chapter and expected to directly impact the provision of services through foreign affiliates and indirectly impact the ability to provide services across borders.

Effect of Specific Services Provisions on Cross-border Trade in Services

The Commission finds that services RTAs that include a full liberalization approach, the U.S. approach to market access, and a full set of other substantive disciplines (relative to a baseline when no services RTA is present, or when services RTAs do not contain the specified groups of provisions from above) have positive and significant impacts on cross-border trade in four of the seven core services sectors: business services, financial services, insurance services, and IT and telecom services (table 3.10).⁴⁸²

For example, the average effect of services RTAs with a full liberalization approach on business services trade is 86.5 percent over the baseline case. By contrast, services RTAs with a partial liberalization approach are found not to have a significant impact on the same sector.⁴⁸³ The average effects on services trade from adopting full liberalization, the U.S. approach to market access, and the full set of other substantive disciplines shown in the table below can also be interpreted as capturing the effects of U.S. agreements, given that almost all U.S. agreements have these characteristics.

Significant or expected effects are not consistently observed in the remaining three core services sectors: construction services, charges for the use of intellectual property, and trade-related services. One reason for the inconsistency of observed effects may be partly the nature of the service itself—e.g., construction services is not primarily traded via the cross-border mode, which is the focus of this analysis. Or the inconsistent effect may be partly attributed to the relevance of the estimated provisions; for instance, IPR provisions may figure more prominently in the category of charges for intellectual property. The latter point underscores two important limitations of this analysis. First, the provisions whose effects were estimated in this analysis represent a subset of a broader set of potential provisions which may have significant effects on services trade. Second, estimated effects may be offset by potential correlations between provisions, groups of provisions, or approaches across trade agreements.⁴⁸⁴

⁴⁸² The analysis is conducted at the ITPD-E sector level. Most of these sectors correspond to the GTAP sectors described above.

⁴⁸³ Across the four sectors (business services, financial services, insurance services, and IT and telecom), a similar pattern is typically observed across the three groups of provisions: effects from partial liberalization, GATS/other market access approach and either partial or no other substantive disciplines are either not significant or significant but lower in magnitude compared with effects from a full liberalization, U.S. market access approach, and full set of other substantive provisions. The exception is business services where a stronger impact is observed from a services RTA with a partial set of other substantive disciplines.

⁴⁸⁴ For example, the Commission does not present results on impacts of provisions covering mutual recognition and movement of persons where U.S. agreements have limited obligations. (For more information on temporary entry provisions, see the case study in chapter 4). About two-thirds of services RTAs in the analysis with a negative list approach define market access according to the U.S. approach, and a slightly higher share includes the full set of other substantive disciplines.

Table 3.10 Provision-level effects on cross-border trade in services

In percentages over the baseline case. An asterisk (*) = no significant reduction in barriers to trade in services from a reciprocal trade agreement (RTA).

Services sectors	Effect						
	Effect from services RTAs with full liberalization approach	Effect from services RTAs with partial liberalization approach	RTAs with U.S. market access approach	Effect from services	Effect from services	Effect from services	Effect from services
				RTAs with GATS/other market access approach	RTAs with full set of other substantive disciplines	RTAs with partial set of other substantive disciplines	RTAs with no other substantive disciplines
Business services	86.5	*	85.5	47.0	84.4	87.6	*
Charges for intellectual property	*	*	*	26.4	*	55.6	*
Construction	*	*	776.7	*	*	*	*
Financial services	97.0	*	88.9	*	97.2	*	*
Insurance	56.4	*	58.7	*	51.3	*	*
IT and telecom	79.3	37.4	93.5	*	78.6	*	*
Trade-related services	*	*	*	*	142.8	-78.7	98.2

Source: USITC calculations.

Note: Percentage effects are relative to a baseline comparison to trade effects when no services RTA is present or when services RTAs do not contain specified groups of provisions. Effects are calculated based on the estimated coefficients provided in appendix F using the following formula: $[e^\beta - 1] \times 100$. Effects are not additive; for example, the average effect of services RTAs with a full liberalization approach on business services (86.5 percent) is independent of the average effect of services RTAs with a U.S. definition of market access (85.5 percent).

Effect of Agreements with Services Provisions on Foreign Affiliate Sales of Services

Membership in an RTA with services provisions, relative to a baseline of countries without a services RTA, has a positive and significant effect on member countries' foreign affiliate sales across each of the available subsectors: finance and insurance, professional services, and wholesale and retail services (table 3.11). For example, relative to a baseline of countries without a services RTA, the average increase in finance and insurance sales attributable to membership in a services RTA is 350 percent. This effect could reflect the high fixed costs of commercial establishment and the importance of binding trade policy for foreign affiliate sales.

It is important to note that this data sample for foreign affiliate sales covers both fewer countries (91) and fewer years (2010–18) than other models in this report. Developed countries also make up a larger proportion of this sample than in other models, as these countries are more likely to collect and report foreign affiliate sales data.⁴⁸⁵ Given these data limitations, this analysis does not include country-pair effects that are often employed in the literature to control for the self-selection of countries into an

⁴⁸⁵ Foreign affiliate sales data also have a much higher proportion of missing or suppressed data than the ITPD-E dataset used in many of the other gravity models in this report.

RTA.⁴⁸⁶ The large positive effects for foreign affiliate sales may thus be overstated since they are based on a comparison between countries with RTAs and countries without an RTA, and not on the impact of joining an RTA which is usually estimated in other studies.⁴⁸⁷

Table 3.11 Services reciprocal trade agreements (RTA) effects on foreign affiliate sales in services

In percentages.

Services sector	Effect of membership in services RTAs (%)
Finance and insurance	350
Professional services	274
Wholesale and retail	449

Source: USITC calculations.

Note: Percentage effects are relative to a baseline comparison to trade effects for country pairs where no services RTA is present. Effects are calculated based on the estimated coefficients provided in appendix F using the following formula: $[e^{\beta} - 1] \times 100$.

Effect of Specific Services Provisions on Foreign Affiliate Sales in Services

The Commission finds that services RTAs with a full liberalization approach, U.S. approach to market access, and full set of other substantive disciplines, relative to a baseline when either no services RTA is present or is present but without the specified groups of provisions, have positive and significant impacts on foreign affiliate sales in all estimated services sectors (table 3.12). For example, the average effect of services RTAs with a full liberalization approach on foreign affiliate sales of finance and insurance is 343.7 percent.

The average impact in two of the three sectors of a services RTAs with a partial liberalization approach is either not significant or significant but lower in magnitude compared with effects from a full liberalization approach. The same pattern is observed across all three sectors for the effects of market access approach of trade agreements and across two of the three sectors for the impacts from other substantive disciplines provisions. The two exceptions are seen in finance and insurance services where a stronger impact is observed from a services RTA with a partial liberalization approach or an FTA with no other substantive commitments, respectively.⁴⁸⁸

⁴⁸⁶ As discussed in Baier and Bergstrand, “[Do Free Trade Agreements?](#)” 2007, countries likely join RTAs for a number of reasons including their current levels of trade and investment with the partner country. Failure to account for such unobserved factors can lead to biased estimates of the effects of RTAs on trade and investment.

⁴⁸⁷ For more information on these limitations see appendix F.

⁴⁸⁸ RTAs with a partial liberalization approach to market access primarily follow positive list structure. These results could indicate that partial liberalization RTAs are more targeted to liberalizing finance and insurance sectors than the broader full-liberalization category.

Table 3.12 Provision-level effects on foreign affiliate sales in services

In percentages. An asterisk (*) = no significant reduction in barriers to trade in services from a reciprocal trade agreement (RTA).

Services sectors	Effect							
	from services		Effect from RTA		Effect from services		Effect from RTA	
	Effect from services RTA with full liberalization approach	Effect from services RTA with partial liberalization approach	RTA with U.S. market access approach	GATS/other market access approach	with full set of other substantive disciplines	with partial set of other substantive disciplines	with no other substantive disciplines	
Finance and insurance	343.7	366.5	236.0	*	315.8	*	573.3	
Professional services	369.3	*	344.6	*	369.7	*	*	*
Wholesale and retail	569.9	201.0	535.3	120.1	556.7	78.2	291.2	

Source: USITC calculations.

Note: Percentage effects are relative to a baseline comparison to trade effects when no services RTA is present or when services RTAs do not contain specified groups of provisions. Effects are calculated based on the estimated coefficients provided in Appendix using the following formula: $[e^\beta - 1] \times 100$. Effects are not additive, for example the average effect of services RTAs with a full liberalization approach on finance and insurance services (343.7 percent) is independent of the average effect of services RTAs with a U.S. definition of market access (236.0).

Effects of Intellectual Property Rights Provisions

Background

The United States and other countries have entered into RTAs with IPR provisions that exceed the requirements of the WTO's Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS). These new requirements are referred to as TRIPS-plus agreements. It is difficult to predict the effects of these stronger IPR protections using economic theory alone as a starting point. They may have a market-expansion effect by reducing the risk of infringement, thereby increasing the willingness of IPR owners to develop new products and sell them at home and in foreign markets. On the other hand, they may have a market-power effect, helping IPR owners to limit new entrants or competition and raise prices by granting exclusive rights.⁴⁸⁹ The effects of the added protections under TRIPS-plus are relatively understudied.⁴⁹⁰ The following empirical analysis attempts to address this gap.

Methodology and Data

The Commission used a gravity approach that estimates whether TRIPS-plus provisions in U.S. and non-U.S. RTAs affect both total trade and trade in IPR-intensive and non-IPR-intensive goods and services. In order to isolate the effect of RTAs with TRIPS-plus provisions from RTAs with less stringent IPR requirements, the model considers whether countries are part of an RTA with no IPR provisions, an RTA that contains any IPR provisions but not TRIPS-plus provisions, or an RTA that contains TRIPS-plus

⁴⁸⁹ Maskus and Ridley, “Intellectual Property-Related Preferential Trade Agreements,” December 2019, 11.

⁴⁹⁰ The literature on the effects of patent protections in TRIPS, and the limited empirical literature on TRIPS-plus provisions, are summarized in chapter 5. Chapter 2 includes a description of key TRIPS-plus provisions, which cover not just patents but also copyrights, trademarks, trade secrets, enforcement, and other IPR issues.

provisions. RTAs with TRIPS-plus provisions are also separated into U.S. FTAs and non-U.S. RTAs, to focus on the effect of U.S. agreements. The model also reflects variations in the timing of countries' participation in RTAs, as well as separates sectors according to whether or not they are IPR-intensive. These choices are intended to allow the model to capture the distinct effects of IPR provisions rather than the effects of other RTA provisions. The use of fixed effects to control for unchanging relationships between trading partners during the sample period also means that the effects of TRIPS-plus provisions represent additional increases in trade on top of any increases resulting from countries' membership in TRIPS.

The Commission used trade data from the Commission's ITPD-E database. ITPD-E contains data about bilateral exports and imports in 170 goods and services sectors for 243 countries for the years 2000–2016. Data on TRIPS-plus provisions in RTAs, as well as IPR provisions which are not TRIPS-plus, comes from Morin and Surbeck (2020).⁴⁹¹ These data cover 324 agreements, 201 of which have some IPR provisions but no TRIPS-plus provisions, and 74 of which have TRIPS-plus provisions, including 13 U.S. FTAs and 61 non-U.S. RTAs.⁴⁹² A sector is considered IPR-intensive based on the U.S. Department of Commerce's identification of industries with above-average IPR intensity (based on counts of patents and trademarks relative to employment in the industry sector). The Department of Commerce's analysis also includes copyright-intensive services sectors, defined as those primarily responsible for the creation or production of copyrighted materials.⁴⁹³

Impact of RTAs Containing TRIPS-plus Provisions

The Commission finds that the effects of membership in RTAs with TRIPS-plus provisions are ambiguous. On the one hand, RTAs with TRIPS-plus provisions have a positive and statistically significant effect on members' total trade across all sectors. However, such RTAs typically include other substantial tariff and nontariff commitments which can also increase trade. To further explore this issue, the Commission examined the effects of RTAs with TRIPS-plus provisions separately on trade in IPR-intensive sectors and non-IPR-intensive sectors. While RTAs with TRIPS-plus provisions are found to have a positive and statistically significant effect on trade in IPR-intensive sectors, they have a larger effect on non-IPR-intensive sectors than on IPR-intensive sectors.⁴⁹⁴ Thus, there is limited evidence of TRIPS-plus

⁴⁹¹ Morin and Surbeck, "[Mapping the New Frontier](#)," January 2020.

⁴⁹² Only RTAs that were listed by the WTO from the Morin and Surbeck dataset were used, in order to create a more consistent sample with other models in this report. USMCA is not part of the dataset, as it was not effective until 2020, and the U.S.-Israel agreement is classified as having some IPR provisions but no TRIPS-plus provisions. Results were similar when this model was estimated on all agreements in the Morin and Surbeck dataset. Of the 61 non-U.S. RTAs with TRIPS-plus provisions, 30 have the European Commission or European Free Trade Association as a member.

⁴⁹³ USDOC, "[Intellectual Property and the U.S. Economy](#)," 2016, 7; WIPO, [Guide on Surveying the Economic Contribution](#), 2015, 47–56. More details are available in appendix F.

⁴⁹⁴ Separating results by IPR-intensive and non-IPR-intensive sectors follows the presentation in Campi and Dueñas, "[Intellectual Property Rights, Trade Agreements](#)," 2019. These results were similar to those from separate estimations carried out using trade in all sectors with an interaction between an indicator variable which denoted membership in an RTA with TRIPS-plus provisions and whether a sector was IPR-intensive (as an alternative to estimating the model on different sub-samples). The coefficient of the interaction variable was negative and significant, so that membership in an RTA with TRIPS-plus provisions was associated with a smaller increase in trade in IPR-intensive sectors than in non-IPR-intensive sectors. This alternative approach followed that taken in Maskus and Ridley, "[Intellectual Property-Related Preferential Trade Agreements](#)," December 2019.

provisions actually increasing trade in IPR-intensive sectors, as other commitments in RTAs may be driving the positive effects on trade for both IPR-intensive and non-IPR-intensive sectors. As reflected in the literature, TRIPS has already increased trade in IPR-intensive sectors such that the additional effects of TRIPS-plus provisions may be relatively small.

All RTAs with TRIPS-plus provisions are not identical. To specifically examine the effects of U.S. agreements, RTAs containing TRIPS-plus provisions were separated into two groups: U.S. FTAs and non-U.S. RTAs.⁴⁹⁵ Similar to the overall results, both U.S. FTAs and non-U.S. RTAs have a positive and statistically significant effect on total trade, as well as on trade in IPR-intensive and non-IPR-intensive sectors estimated separately. Across all three samples (trade in all sectors, trade in IPR-intensive sectors, and trade in non-IPR-intensive sectors), the effects of membership in U.S. FTAs with TRIPS-plus provisions are greater than for non-U.S. RTAs with TRIPS-plus provisions. This suggests that U.S. FTAs may have greater trade-enhancing effects, as compared to non-U.S. RTAs, although this model again is unable to disentangle the effects of TRIPS-plus provisions from other commitments. U.S. FTAs contain substantial tariff and nontariff provisions that may be driving these results, as reflected in other estimations of the effects of U.S. FTAs in this chapter.

In addition to the difficulties in disentangling the effects of TRIPS-plus provisions from those of other RTA provisions, three caveats are important to note. First, the approach used to identify IPR-intensive sectors, and to match the identified sectors with the product classifications in the trade dataset, does not yield exact results. Industries identified as IPR-intensive all contain subsectors; some are likely to be more IPR-intensive; others, to be less IPR-intensive.⁴⁹⁶ As such, these sectors may be too broad to distinguish between products affected by TRIPS-plus provisions (which are often quite specific) and those that are not. Second, the model results give the average effect of having an RTA with TRIPS-plus commitments. In cases where specific TRIPS-plus provisions are being implemented more effectively than the average, they may have a stronger effect than the average effect shown here.⁴⁹⁷ Third, stronger IPR provisions may change the preferred way in which firms choose to supply their products in a particular market. To the extent that these provisions lead to greater cross-border licensing of IPR services, which may substitute for some amount of trade in IPR-intensive products, it could also affect the results described above.⁴⁹⁸

⁴⁹⁵ All U.S. FTAs in scope for this report have TRIPS-plus provisions, with the exception of U.S.-Israel, which was signed in 1985, before TRIPS existed. Thus, results presented in this section for U.S. FTAs apply to all U.S. FTAs except the U.S.-Israel agreement.

⁴⁹⁶ “Charges for IPR services” is an example of a subsector that is particularly IPR-intensive, as it exclusively involves IPR transactions. By contrast, the U.S. Commerce Department classifies semiconductors and other electronic components as IPR-intensive; however, due to sectoral aggregation these products are included in the broader category of electronic valves and tubes in the IPTD-E dataset, which likely includes non-IPR-intensive goods as well.

⁴⁹⁷ For example, the United States uses a wide range of bilateral and multilateral tools to promote IPR protection and enforcement. Among other measures, it engages with trading partners annually through its “Special 301” and “Notorious Markets” reviews to address specific concerns about the adequacy and effectiveness of IPR laws. See USTR, [2020 Special 301 Report](#), April 2020.

⁴⁹⁸ When this model was estimated on individual sectors, membership in an RTA with TRIPS-plus provisions had a positive and significant effect on charges for IPR services, which includes firms’ licensing of IPR to their affiliates abroad. However, other RTA provisions such as those concerning data flow also affect this category. See appendix F.

Effects of Digital Trade Provisions on Services Trade

Background

The internet has transformed international trade in services by creating an almost costless channel for firms to deliver many types of services across borders.⁴⁹⁹ Still, there is variation across services sectors in the degree to which services are delivered online (hereafter called “digital intensity”). While some services, like software design, can be provided easily via the internet, other services such as construction, which require a physical presence of individuals at the site, are not readily traded digitally across borders. In addition, technological developments have increased the uptake of internet-based trade in services, leading to increases in digital intensity for most services sectors over time. For example, in management consulting, developments in videoconferencing technology have allowed many providers to shift from traveling to the client site to providing services entirely online.⁵⁰⁰

Given these technological advances, the United States has included provisions on digital trade in all of its agreements, starting with the U.S.-Jordan RTA. These provisions, which may appear either as a stand-alone chapter or as part of an e-commerce chapter, cover trade in a wide range of digital products and services.⁵⁰¹ This analysis seeks to discern whether the inclusion of digital trade provisions in trade agreements affects trade in services for six services sectors, and whether the effect of digital trade provisions depends on the digital intensity of a services sector.

Methodology and Data

This section focuses on estimating the impact of RTAs with digital trade provisions on trade for the same seven services sectors used in the analysis of services-specific provisions in trade agreements: construction; insurance and pension services; financial services; charges for the use of intellectual property; telecommunications, computer, and information services; other business services; and trade-related services.

To illustrate differences in use of digital technology, which may be indicative of the impact of the digital trade provisions on different services sectors, the Commission follows the methodology in Ferracane and van der Marel (2018). That is, it measures digital intensity for each services sector as the sector’s total purchases of telecommunications and computer services (in U.S. dollars) divided by the number of full-time equivalent (FTE) workers employed by the sector.⁵⁰² From 2000 to 2016, the average digital spending per employee of these services sectors increased by almost \$2,000/FTE, from \$9,500/FTE to \$11,400/FTE. Of the seven sectors covered, the most digitally intensive on average was telecommunications (telecom), computer, and information services, followed by other business services (figure 3.4).

⁴⁹⁹ Freund and Weinhold, “[The Effect of the Internet on International Trade](#),” 2004, 173.

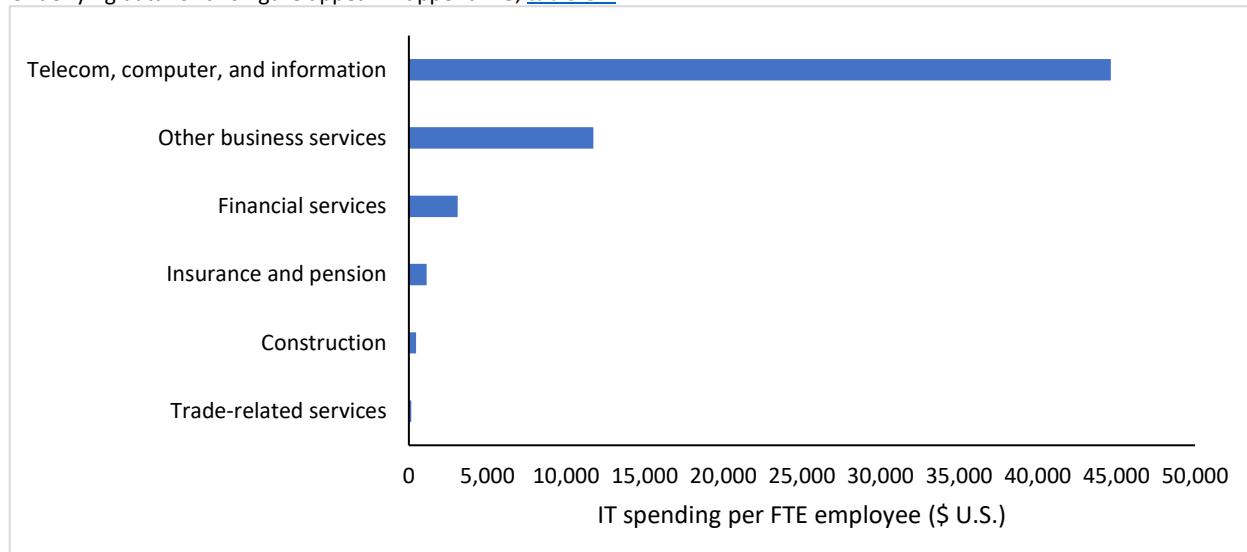
⁵⁰⁰ USITC, [Recent Trends in U.S. Services Trade](#), April 2021.

⁵⁰¹ For a complete description of e-commerce and digital trade provisions by U.S. agreements, see chapter 2.

⁵⁰² Ferracane and van der Marel, “[Do Data Policy Restrictions](#)” 2018; USDOC, BEA, “[The Use of Commodities by Industries-Summary version](#),” accessed August 7, 2020.

Figure 3.4 Average digital intensity by services sector 2000–2016, IT spending per full-time equivalent (FTE) employee, in dollars

Underlying data for this figure appear in appendix G, [table G.7](#).



Source: USITC calculations using data from USDOC, BEA, "Table 6.5D. Full-Time Equivalent Employees by Industry," July 30, 2019, and USDOC, BEA, "[The Use of Commodities by Industries—Summary version](#)," accessed August 7, 2020.

Note: Digital Intensity data not available for charges for use of intellectual property.

A gravity model is used to estimate the effect of RTAs with digital trade provisions on services trade. Data on services trade are obtained from the ITPD-E database and cover 2000–2016.⁵⁰³ The Trade Agreements Provision on Electronic-Commerce and Data database is used to provide information on digital trade provisions for 83 agreements which entered into force between 2000 and 2016.⁵⁰⁴ The indicator "digital trade RTA" is a broad measure which equals one when a reciprocal trade agreement (RTA) has any provision related to digital trade.⁵⁰⁵ Controls for EU membership and membership in RTAs that do not include digital trade provisions are included in the model.⁵⁰⁶ In addition to bilateral agreements, the General Agreement on Trade in Services (GATS) and the Information Technology Agreement may also affect the level of services trade between members of these agreements. However,

⁵⁰³ Borchert et al., "[The International Trade and Production Database](#)," 2020.

⁵⁰⁴ Burri and Polanco Lazo, "[Digital Trade Provisions](#)," 2020. Based at the University of Lucerne, the database also includes information on more recent agreements, but the services trade dataset analyzed is limited to 2000–2016. As a result, this analysis does not encompass the impacts of recent major trade agreements such as USMCA and CPTPP.

⁵⁰⁵ In particular, this measure equals one where an agreement contains "provisions on e-commerce", where the keywords used to identify e-commerce provisions are: computerized, cyber, digital, electronic, electronic commerce, e-commerce, e-government, information and communication, ITC, internet, online, paperless and telecommunication. This measure does not take the strength of the provisions into account, although both of the individual provisions considered in the appendix distinguish between soft and hard commitments.

⁵⁰⁶ These controls are sourced from Gurevich and Herman, "[The Dynamic Gravity Dataset](#)," 2018.

since both agreements entered into force before 2000, the impact of being part of these agreements is controlled for by the country-pair fixed effects.⁵⁰⁷

Impact of Digital Trade Provisions in Free Trade Agreements

Overall, RTAs with at least one digital trade provision have a significant positive impact on trade in six of the seven services trade flows considered. In all cases, RTAs that do not include digital trade provisions are not considered significantly related to services trade. Table 3.13 presents a summary of the trade effects from RTAs with digital trade provisions (full estimates of the gravity model are presented in the appendix F).

Of the seven sectors considered, trade-related services and construction services have the lowest digital intensity and are also the least impacted by digital trade provisions in RTAs. On the other side, financial services and telecommunications, computer, and information services see the largest increases to trade associated with digital trade provisions. Moreover, both financial services and insurance and pension services see larger increases in trade than expected under RTAs with digital trade provisions given their lower levels of digital intensity relative to other business services and telecommunications, computer, and information services. It could suggest that cross-border trade in financial and insurance services is more digitally intensive than the finance and insurance industry as a whole, for both domestic and international trade.

Table 3.13 Digital trade provisions in reciprocal trade agreements, changes in trade

In percentages. An asterisk (*) = no significant change in trade for that sector.

Services sector	RTAs with digital trade provisions
Trade-related services	*
Construction	30.7
Charges for intellectual property	54.7
Other business services	69.4
Insurance and pension	74.0
Telecommunications, computer, information	115.8
Financial services	122.3

Source: USITC calculations. Effects are calculated based on the estimated coefficients provided in appendix F, using the following formula: $[e^\beta - 1] \times 100$.

Since all U.S. RTAs in the sample include digital trade provisions, these estimated sector effects are assumed to also represent the effect of the United States signing RTAs with digital trade provisions. However, there are two caveats to this approach, which indicate that it might be either over- or underestimating the effect of these provisions. First, because the data sample does not cover USMCA, it may not fully capture the relationship between digital trade provisions and trade, as USMCA has the most extensive digital trade provisions of all U.S. agreements. Second, RTAs with digital trade provisions

⁵⁰⁷ Country-pair fixed effects in a gravity model control for all time-invariant characteristics of a relationship between an importing country and an exporting country. In this case, since GATS and the Information Technology Agreement have both been in force for the entire data sample period, membership does not vary over time, so the country-pair fixed effects are sufficient to control for membership in either agreement. For more technical details on the econometric specification of this model, see appendix F.

may also include other provisions that affect trade in services, making it difficult to isolate the impact of the digital trade provisions themselves.⁵⁰⁸

Transition from a U.S. Preference Program to a U.S. FTA

Background

One of the effects of trade agreements is a reduction in trade policy uncertainty (TPU). The impact on trade from this reduction in uncertainty has been found to be significant, with empirical studies showing an effect even in cases when a trade agreement results in only small changes in applied tariff rates.⁵⁰⁹ Changes in trade policy uncertainty help explain why U.S. FTAs can have a sizable impact on the number of varieties of goods imported by the United States even when there are only small changes in applied tariffs.

This analysis estimates the reduction in TPU resulting from the U.S.-Colombia Trade Promotion Agreement. The agreement was signed in 2006 and entered into force in 2012. Before the agreement entered into force, Colombia was a beneficiary of several U.S. preference programs,⁵¹⁰ which gave Colombia largely tariff-free access to U.S. markets. In 2005, 90 percent of U.S. imports by value from Colombia and 90 percent of tariff lines were duty-free.⁵¹¹ The agreement reduced uncertainty for Colombian firms by making the existing duty-free access permanent. The reduction in uncertainty explains some of the changes in U.S. imports from Colombia as the result of the agreement.

The agreement also expanded duty-free access. Under the agreement, of Colombian products entering the United States, 99 percent of qualifying industrial goods and textile tariff lines and 89 percent of agricultural tariff lines became duty-free upon implementation of the agreement.

The United States is one of Colombia's leading trading partners.⁵¹² The United States imports crude oil, coal, other petroleum products, precious and semiprecious stones, coffee, tea, and flowers from Colombia, while Colombia imports manufactured goods, some agricultural goods, and services from the United States.

⁵⁰⁸ In particular, factors such as the growth of the internet over the period, and potential collinearity between digital trade provisions and overall services liberalization in RTAs could also be driving this result.

⁵⁰⁹ Handley and Limão, “[Trade and Investment under Policy Uncertainty](#),” 2015.

⁵¹⁰ These preference programs include the Andean Trade Promotion Act (ATPA) since 1991 and the Andean Trade Promotion and Drug Eradication Act (ATPDEA) since 2002. Both ATPA and ATPDEA required periodic renewal at different intervals, thereby introducing uncertainty about continuation of these programs and Colombia's continuing duty-free access to the U.S. market.

⁵¹¹ USITC, [U.S.-Colombia Trade Promotion Agreement](#), 2006, xv. and USITC, [The Impact of Andean Trade Preference Act](#), 2004, footnote 28.

⁵¹² In 2005, the year before the U.S.-Colombia agreement was signed, 39 percent of Colombia's exports went to the United States, and 29 percent of Colombia's imports were supplied by the United States. Villarreal, “[U.S.-Colombia Trade Promotion Agreement](#)” 2006.

Methodology and Data

To estimate the reduction in TPU resulting from the U.S.-Colombia agreement, the Commission used a model that describes firms' decisions to export. This analysis closely follows the methodology of Handley and Limão (2015). In the model, firms decide whether to export taking into consideration the possibility that tariff rates may change in the future. Before the agreement, Colombian firms in the sectors that received preferential treatment had to consider the possibility that preferences might be cancelled or not renewed. In this case, Colombian firms exporting to the United States would have to pay the U.S. most-favored-nation (MFN) tariff.

To understand the model, it is helpful to consider two Colombian products. For the first product, the U.S. preferential tariff and its MFN tariff are both zero. For the second product, the preferential tariff is zero, while the MFN tariff is 10 percent. To start exporting either of these products to the United States, a Colombian firm needs to pay a sunk investment cost. If there is uncertainty about renewal of preferences, potential exporters may decide not to start exporting because their exporting business may become unprofitable should the tariff rise. However, the two Colombian products above are affected by tariff uncertainty unequally. While the exporter of the first product would not be affected by non-renewal of the preference program, the exporter of the second product stands to lose if preferences are not renewed. In fact, the second product may not be exported to the United States at all if the probability of losing preferences is believed to be high. When the TPU is reduced or removed, the second product may begin to be exported. Meanwhile, the decision to export the first product is not affected by changes in TPU. Therefore, the agreement stimulates Colombian exports of the second product much more than exports of the first product. The greater the pre-agreement uncertainty about preferences, the greater the impact of the agreement on the second product would be.

The difference between a preferential tariff and the MFN tariff for the same product is called the preference margin. Based on the example above, given the pre-agreement uncertainty, we expect the U.S.-Colombia agreement to have increased exports of products with high preference margins more than products with low preference margins, after controlling for the increase in Colombian exports due to the agreement's lowering of trade barriers. The greater the pre-agreement uncertainty, the greater would be the impact of the agreement on the products with high preference margins relative to the products with low preference margins. The Commission's model uses the observed difference in export increases across products to estimate the probability of losing preferences before the agreement is signed.

The Commission's model uses the applied U.S. tariffs for Colombian imports and the U.S. MFN tariffs at the 8-digit Harmonized Tariff Schedule of the United States (HTS) subheading level to determine the preference margins for Colombian firms before the agreement.⁵¹³ The Commission's model also uses confidential data from the Customs Net Import File (CNIF) to obtain information on the participation of Colombian firms in exports to the United States and the number of Colombian products exported to the United States. The transaction-level data contain the HTS 10-digit code, the value of the transaction, and

⁵¹³ Both tariffs are levied on an ad valorem basis—charged as a percentage of the value of imported good. The source for the tariff data is USITC's DataWeb which is provided at the HTS 8-digit subheading level.

the name of the Colombian producer/exporter. Each year, there are approximately 15,000 transactions. The focus of the Commission's analysis is on trade in goods.

Impact on TPU due to the U.S.-Colombia Agreement

There is a significant difference in the export growth of products with different preference margins. Specifically, the agreement resulted in more Colombian products being exported to the United States that had higher pre-agreement preference margins than those that had low preference margins. In addition, the results show that the agreement generated more exports to the United States of Colombian products subject to greater tariff reductions, as expected. Several robustness checks were performed to investigate the sensitivity of the results to the estimation methodology. The results were found to be robust in these checks.

The model estimates the probability of reversal of preferences before the U.S.-Colombia agreement at 36 percent, meaning that before the agreement went into force, Colombian firms believed that there was a 36 percent chance of losing preference program benefits and permanently reverting to U.S. MFN tariffs. Thus, the implementation of the U.S.-Colombia agreement resulted in a significant reduction of the TPU.

Effect of the KORUS Modification on the U.S. Truck Industry

Background

On March 27, 2018, the United States and Korea reached an agreement on proposed modifications to KORUS.⁵¹⁴ Modifications to the staging of duty treatment on imports of light trucks (HTS 8704.21 and HTS 8704.31) were part of the agreement. Under the original KORUS agreement, the elimination of duties on the affected motor vehicles was scheduled to begin in phases on January 1, 2019, and to be completed by January 1, 2021. Under the 2018 modifications, the elimination of duties would be deferred until 2041.

This section provides an analysis of the potential economic impact of the delay to the staged tariff reductions on the U.S. truck industry. It compares economic outcomes in the U.S. truck market, which Korean firms currently do not serve, with a counterfactual simulation where staged tariff reductions originally proposed under KORUS take place, potentially making the U.S. market more attractive for Korean firms. The analysis presented in this section represents an extension of previous estimates of the probable economic effect of KORUS tariff modifications presented in a Commission factfinding report issued in June 2018.⁵¹⁵ The key extension featured in this report relates to firms' production location decisions. Following an analysis of factors influencing firms' optimal production locations, the model in this report assumes most Korean trucks sold in the U.S. market would likely be produced in the United States, regardless of tariff rate policy.

⁵¹⁴ USTR, "[Joint Statement](#)," March 28, 2018.

⁵¹⁵ In June 2018, USITC released estimates of the probable economic effects of the proposed truck tariff modifications. USITC, [U.S.-Korea FTA: Advice on Modifications](#), June 2018.

In 2019, U.S. consumers purchased more than 3 million pickup trucks, spending more than \$91 billion.⁵¹⁶ The U.S. market for trucks is predominantly made up of domestic production and products supplied by trade with Canada and Mexico, due to the integration of the North American motor vehicle industry and supply chains since the implementation of NAFTA. In addition to this North American supply chain integration, which gives the U.S. truck industry an important comparative advantage, U.S. imports of trucks are subject to an MFN ad valorem tariff of 25 percent; this tariff serves as a significant barrier to U.S. truck imports. Three firms, Fiat Chrysler Automobiles (FCA), Ford, and General Motors, have captured most of the U.S. truck market, with a combined market share of approximately 85 percent in 2019.⁵¹⁷ Three other firms that are headquartered in Japan (Honda, Nissan, and Toyota) also supply the United States from North America-based production facilities and account for the remaining 15 percent of the U.S. truck market.⁵¹⁸

Although several Korean producers currently supply the U.S. passenger vehicle market through both exports and U.S.-based production, Korean firms supply few to no trucks to the U.S. market. Several established Korean passenger car producers (Hyundai and SsangYong) reportedly plan to enter the U.S. light truck market.⁵¹⁹ At the time of this analysis, light vehicle producer Hyundai had established vehicle production facilities in the United States and other parts of North America, but also exported certain automobiles from Korea. In preparation for selling its new Santa Cruz pickup truck in the United States beginning in 2021, Hyundai has completed a \$410 million investment in its Montgomery, Alabama, production plant.⁵²⁰ Given Hyundai's imminent entry into the U.S. truck market, the models of the likely impact of KORUS truck tariff modifications presented in this section include Hyundai's entry in the truck market in its baseline market calibration. SsangYong, the other Korean producer reportedly considering entering the U.S. truck market, does not produce any vehicles in the United States, but exports vehicles including pickup trucks to non-U.S. markets such as Europe.

Methodology and Data

The Commission conducted this analysis using an industry-specific partial equilibrium (PE) model of the United States market for light trucks.⁵²¹ The PE model uses detailed data on sales, prices, and production locations of 13 truck models produced by six different vehicle manufacturers to represent the U.S. truck market. To determine the likely economic effect of the tariff modifications, the PE model runs a counterfactual analysis of the U.S. truck market in which tariff modifications did not take place and truck imports from Korea receive duty-free treatment. Simulations from these counterfactual scenarios are

⁵¹⁶ USITC estimates using MSRP and vehicle sales data from Wards Intelligence, "[U.S. Vehicle Sales by Vehicle Type and Source, 1931–2020](#)," 2020 (online, subscription required).

⁵¹⁷ USITC estimates using MSRP and vehicle sales data from Wards Intelligence, "[U.S. Vehicle Sales by Vehicle Type and Source, 1931–2020](#)," 2020 (online, subscription required).

⁵¹⁸ USITC estimates using MSRP and vehicle sales data from Wards Intelligence, "[U.S. Vehicle Sales by Vehicle Type and Source, 1931–2020](#)," 2020 (online, subscription required).

⁵¹⁹ Eisenstein, "[Hyundai Greenlights Santa Cruz Pickup](#)," November 13, 2019; Rechtin, "[SsangYong Delaying U.S. Launch](#)," March 6, 2019.

⁵²⁰ Reuters, "[Hyundai to Make Santa Cruz Pickups](#)," November 13, 2019.

⁵²¹ Partial equilibrium models look at only one or a few markets within an economy to make a quantitative estimate of the way they might react to changes in policy, technology, or other factors; other product and input markets are assumed to remain constant.

then compared with actual economic outcomes reflecting the tariff extensions enacted in the U.S. truck market.

The Commission's PE model includes several features. To begin, this model incorporates imperfect competition, so that truck producers are able to set prices for their vehicle models in order to maximize profits across all vehicle models.⁵²² Firms pricing under imperfect competition allow the model to capture the relatively high market shares of truck producers observed in the U.S. truck market. On the demand side, consumers are assumed to view the different truck models as substitutable, with consumer demand responding only to changes in the relative prices of truck models.⁵²³ The final key feature of the model relates to the entry of new Korean producers in the counterfactual scenario of U.S. truck tariffs being reduced. In the counterfactual scenarios presented here, the model assumes only one Korean firm (SsangYong) enters the U.S. truck market through exports.⁵²⁴

Since Korean firms currently do not produce trucks for the U.S. market, the model must make assumptions about Korean entrants' marginal costs and about U.S. consumer preferences towards the entrants' new truck models. To deal with uncertainty surrounding the proxy assumptions of these parameters, the Commission provides a range of possible scenarios informed by industry knowledge of the U.S. truck market. As part of this scenario analysis, the Commission provides a likely upper bound of economic effects in which the Korean entrant is assumed to be among the lowest variable cost producers and to have consumer demand that matches the most popular non-U.S. truck model. The lower-bound counterfactual scenario assumes that the Korean firm will be among the highest marginal cost producers and shares levels of demand that are similar to the least popular non-U.S. truck model.

Impact on U.S. Truck Market from KORUS Modification

In the upper-bound counterfactual scenario, the Korean firm is assumed to produce trucks with the industry's lowest marginal costs and to capture about 1 percent of the U.S. truck market upon entry. Under this scenario, American producers would have seen a reduction of 30,360 trucks sold and a 1.2 percent decline in profits if there were no KORUS truck tariff extensions.⁵²⁵ The estimated economic effects of KORUS truck tariff modifications are slightly larger in this scenario than in the lower-bound counterfactual scenario.

⁵²² The model featured in this analysis contains constant elasticity of substitution (CES) demand, joint pricing, and Bertrand-style competition assumptions similarly to the models proposed in Montgomery and Riker, "[Concentrated Markets Ownership](#)," January 2020, and Daun and Montgomery, "[Cross-Border Ownership](#)," September 2020.

⁵²³ Consumer demand is derived from a standard CES assumption, commonly featured in industry-specific PE models. Based on discussions with industry experts at USITC, modeling scenarios presented in this section assume an Armington elasticity of substitution of 3.0 for trucks in the U.S. market. This represents a midpoint between empirical estimates of substitutability of passenger cars (HTS 8703) and trucks (HTS 8704) estimated in Soderbery, "[Trade Elasticities, Heterogeneity, and Optimal Tariffs](#)," September 1, 2018, 44–62.

⁵²⁴ Industry experts at USITC looked at a number of factors, such as production and transportation costs, before identifying the most likely market entry strategy (exports or production in North America) for each Korean firm reportedly interested in serving the U.S. truck market.

⁵²⁵ Estimated economic effects of upper and lower-bound counterfactual scenarios can be found in table F.30 of the modeling appendix.

In the lower-bound scenario, the estimated economic effect of KORUS truck tariff modifications on North American truck producers is smaller. Had truck tariffs been eliminated as scheduled under KORUS, the Korean firm would have captured 0.5 percent of the U.S. truck market upon entry. In response to the firm's entry, North American consumers would have purchased 12,143 fewer North American-produced trucks. Total profits for North American producers would have fallen by 0.6 percent had the KORUS truck tariffs not been extended. In both scenarios, North American producers would have reduced their prices slightly.

The likely economic impact of KORUS truck tariff modifications are smaller than the most likely scenario presented in the Commission's previous analysis of these tariff modifications.⁵²⁶ The KORUS truck tariff modifications are estimated to have a smaller economic effect due to the modeling approach adopted in the current analysis. Namely, the model in this report assumes that most Korean trucks sold in the U.S. market would likely be produced in the United States, regardless of tariff rate policy. This assumption was informed by an analysis of other key vehicle market features such as transport costs that influence decisions about where to site vehicle production. Additional details on the analysis performed to determine likely truck production locations for Korean firms can be found in appendix F.

Update on Automotive Rules of Origin in USMCA

This section provides an update on the Commission's 2019 economic analysis of the automotive rules of origin (ROOs) in USMCA, considering important policy changes that have occurred since that analysis. Then it summarizes shifts in the automotive industry in the short period since the agreement was signed.

Summary of the Economic Model Estimates in the USMCA Report

The Commission's 2019 analysis of USMCA includes an analysis of North American markets for new light vehicles, using detailed data on the sales, pricing, production, and engine and transmission sourcing in each member country for 393 vehicle models sold in North America and produced by 22 North American manufacturers.

According to that analysis, compliance with the new ROOs would lead to an increase in U.S. imports of light vehicles from overseas (i.e., from outside of North America) due to an increase in the cost of North American vehicle production that would reduce its international competitiveness.⁵²⁷ The magnitudes of these effects would vary across vehicle types, depending on the manufacturers' sourcing and the

⁵²⁶ USITC, [U.S.-Korea FTA: Advice on Modifications](#), June 2018, 11. In the most likely scenario, USITC estimated the North American truck producers would avoid a reduction of 45,000 trucks sold per year, 14,640 more trucks than the upper-bound scenario presented in the analysis performed for this report.

⁵²⁷ Chair Kearns notes, as he did in the USITC's USMCA study, that while the study assumed that the least trade restrictive ROO is the most optimal, other considerations are important. A more restrictive ROO may be needed to ensure the benefits of the FTA accrue to those incurring its obligations. Furthermore, economic gains from more stringent ROOs are more likely to occur in the presence of slack, or insufficient demand, in the economy.

sourcing of competitors in the same segment of the market. The estimates ranged from almost no effect on U.S. imports of pickup trucks from overseas to a 3.9 percent increase in U.S. imports of small cars. The analysis concluded that compliance with the new ROOs would lead to an increase in U.S. employment in the production of core parts. Specifically, the model estimated a 29,700 full-time equivalent increase in U.S. employment in engine and transmission production.⁵²⁸

Policy Changes since the Commission's 2019 USMCA Report

There have been several important policy developments since the Commission's April 2019 report, *United States-Mexico-Canada Agreement: Likely Impact on the U.S. Economy and Specific Industry Sectors*, that are relevant to the predictions of the economic analysis. These include December 2019 revisions to the agreement that increased the enforceability of labor provisions; automotive manufacturers' alternative staging plans that delay the economic effects of the new automotive ROOs; and a significant reduction in the likelihood of section 232 tariffs on U.S. automotive imports.

Revisions to the USMCA before Passage

Given the December 2019 revisions to USMCA, labor value content requirements in the automotive ROOs and other labor provisions in the Labor chapter are more likely to have a positive impact on U.S. employment in parts production, since these provisions are more likely to be enforced. In the model in the Commission's 2019 report, the labor provisions were estimated to contribute to the relocation of parts and vehicle production from Mexico to the United States; however, the model did not include estimates of the change in production costs due to these labor provisions.⁵²⁹ It is possible that these labor provisions will reduce prices and increase competitiveness if the provisions for collective bargaining in Mexico eliminate distortions in the location of production, as described in Riker (2020).⁵³⁰ The expectation that North American manufacturers will relocate production to comply with the new ROOs suggests that this is the case. Regardless of whether more stringently enforced labor provisions increase production costs in Mexico or reduce production costs in the United States, both forces will contribute to the relocation of production from Mexico to the United States.

Alternative Staging Plans

USMCA did not enter into force until July 2020, so adjustments in the industry to date have been mostly anticipatory. In addition, there are multiple reasons to expect that adjustment to the new ROOs will be delayed for several years. First, the alternative staging plans of North American manufacturers significantly extend the timeline for full implementation of the ROOs. While the alternative staging plans

⁵²⁸ The model also estimated a relatively small, partly offsetting reduction in U.S. employment in vehicle production due to the increase in the costs of U.S. production as a result of the new ROO. The employment reduction would total 1,600 FTEs.

⁵²⁹ The labor provisions referenced here are not to be confused with the automotive labor value content requirements, which were incorporated into the model in the Commission's 2019 report.

⁵³⁰ Riker, "[Modeling the Effects of Labor Standards](#)," December 2020. In this model, a firm might choose to maximize its profits by locating production in a country that does not allow collective bargaining in order to avoid splitting its surplus with its workers, even if this reduces the total surplus by reducing its supply efficiency.

for specific vehicle manufacturers are confidential, it is likely that most (if not all) of the vehicle manufacturers applying for alternative staging requested more time to comply with automotive ROOs than the original tariff schedule of three years.⁵³¹ Second, investments in production location and sourcing tend to be large and to occur every few years rather than continuously. Adjustments are usually made when new car lines are introduced.

Possibility of Section 232 Tariffs of U.S. Automotive Imports

In recognition of the possibility that section 232 tariffs might be implemented on U.S. automotive imports, the modeling in the 2019 report featured two alternative modeling scenarios, one with all firms complying with the new ROOs and another with firms not complying. Even though it is costly to adjust supply chains and the 2.5 percent tariff preference was small, firms had an incentive to comply with the new ROOs to avoid potentially large section 232 tariffs on U.S. automotive imports. Section 232 tariffs would have provided an additional incentive to produce in North America, since North American producers that complied with the ROOs might have been exempted from the section 232 tariffs, as they were for the steel and aluminum section 232 tariffs. The industry now views a section 232 action on U.S. automotive imports as unlikely, and this increases the relevance of the noncompliance scenario reported in the appendix to the 2019 report.⁵³² In the noncompliance scenario, the effects on trade and on U.S. employment in the industry are much smaller.

Developments in Automotive Production and Trade Since 2017

The USITC's model in the 2019 USMCA report projected that there would be a shift of vehicle production and parts sourcing from overseas into North America to supply the regional markets.⁵³³ The labor provisions would create additional incentives for firms to shift vehicle production and parts sourcing *within* the region, from Mexico to the United States.

There have been some adjustments in the industry since the agreement was originally signed in November 2018. These are reflected in industry trends from 2017 to 2019 (the most recent available data), as highlighted below. The industry is starting to move in the direction that the economic model in the 2019 report projected.

⁵³¹ Vehicle manufacturers with approved alternative staging plans include Cooperation Manufacturing Plant Aguascalientes (COMPAS), FCA North America Holdings LLC, Ford Motor Company, Honda North America, Inc., Hyundai Motor America, Kia Motors Manufacturing Georgia, Kia Motors Mexico, Mazda North America, Nissan North America Inc., Tesla Inc., Toyota Motor North America Inc., Volkswagen Group of America, Inc., and Volvo Car Corporation. USTR, "[Alternative Staging](#)," accessed March 5, 2021.

⁵³² Lawder, "[Trump Can No Longer Impose 'Section 232' Auto Tariffs](#)," November 19, 2019.

⁵³³ USITC, [U.S.-Mexico-Canada Trade Agreement](#), April 2019, 87.

Highlights from Recent Industry Data

The share of U.S. car sales supplied from overseas vehicle production rose slightly, from 24.2 percent in 2017 to 24.8 percent.⁵³⁴ This is consistent with the model’s prediction that U.S. imports from overseas would rise as a result of the new ROOs.

Production locations for specific vehicles, however, have shifted in both directions. Several specific models have reported a shift from overseas to North American production (e.g., Honda Fit, Hyundai Accent, Hyundai Elantra, KIA Rio, BMW 3 series, and Volvo 60-Series), though others have reported a shift in the other direction (e.g., Buick Regal to Germany). Most car lines have reported no change to date.

Engine and transmission sourcing data show a much clearer trend of shifting production from overseas to North America. In terms of engine sourcing, several carlines reported a shift from overseas to North American sourcing (e.g., Hyundai Accent, KIA Forte, and KIA Rio); some have reported a shift in the other direction, from North American to overseas production (Mercedes S-Class, Fiat 500, and VW Golf); and one has reported a shift from the United States to Mexico (Nissan Altima). Most car lines have reported no change in engine sourcing to date. In terms of transmission sourcing, several car lines have reported a shift from overseas to North American sourcing (e.g., Ford GT, Buick LaCrosse, KIA Forte, KIA Rio, and Nissan Maxima), and one reported a shift to overseas sourcing (Buick Regal). Again, most car lines have reported no change in transmission sourcing to date. This shift from overseas to North America is reflected to some extent in U.S. parts manufacturing. U.S. employment in this industry increased from 744,500 workers in 2017 to 761,300 workers in 2019.⁵³⁵

Also, there may have been a shift within North America to the United States. The shift is not necessarily due to USMCA, but it is consistent with the direction of the changes predicted by the model.⁵³⁶ At the level of individual car makes, the outcomes have been mixed. Some makes have increased production in the United States (Tesla, Volvo, Toyota, and KIA), while others have reduced production there (Ford, Subaru, Mercedes, and Nissan). At the same time, some have increased production in Mexico (BMW, Mercedes, KIA, and Jaguar), while others have reduced production in Mexico (Volkswagen, Mazda, and Ford). Several have reduced production in all countries in North America (Fiat Chrysler Automotive, General Motors, and Honda). Overall, however, in addition to the increase in U.S. employment in parts manufacturing noted above, U.S. employment in vehicle assembly (code number 3361 in the North

⁵³⁴ Ward’s Intelligence, “[U.S. Car and Light Truck Sales by Model by Month, 2019](#),” February 24, 2021; Ward’s Intelligence, “[U.S. Car and Light Truck Sales by Model by Month, 2017](#),” February 15, 2019; Ward’s Intelligence, “[North America Vehicle Production by Model, 2015–2019](#),” April 7, 2020; Ward’s Intelligence, “[Mexico Vehicle Sales by Model, 2016–2020](#),” March 7, 2021; Ward’s Intelligence, “[Canada Vehicle Sales by Model, 2016–2020](#),” March 1, 2021.

⁵³⁵ BLS, [Current Employment Statistics](#), (accessed March 15, 2021). Accessed using “series report” from NAICS industry 3362 (CEU3133620001) and 3363 (CEU3133630001).

⁵³⁶ Ward’s Intelligence, “[U.S. Car and Light Truck Sales by Model by Month, 2019](#),” February 24, 2021; Ward’s Intelligence, “[U.S. Car and Light Truck Sales by Model by Month, 2017](#),” February 15, 2019; Ward’s Intelligence, “[North America Vehicle Production by Model, 2015–2019](#),” April 7, 2020; Ward’s Intelligence, “[Mexico Vehicle Sales by Model, 2016–2020](#),” March 7, 2021; Ward’s Intelligence, “[Canada Vehicle Sales by Model, 2016–2020](#),” March 1, 2021. For total vehicle production, the U.S. share also rose, from 64.1 percent to 64.8 percent.

Impact of the Trade Agreements, 2021 Report

American Industry Classification System) increased from 218,900 workers in 2017 to 237,200 workers in 2019.

Chapter 4

Case Studies on the Economic Impact of Selected Trade Agreement Provisions

This chapter contains seven case studies that analyze the U.S. economic effects of U.S. multilateral, regional, and bilateral trade agreements (free trade agreements or FTAs). Most of the case studies in this chapter focus on individual provisions or types of provisions that are common within U.S. agreements. These include tariff reductions; the establishment of agricultural tariff-rate quotas; and provisions that address technical barriers to trade (TBTs), labor, environment, and digital trade. Case studies focus on the impacts of particular provisions and agreements on the United States based on the perspectives of different industry stakeholders, nongovernmental organizations, academic authors, and governments. Although the case studies consider a range of economic impacts, including effects on employment, investment, output, the environment, and firm profits, the emphasis tends to be on trade flows.

Taken as a whole, these case studies illustrate the varied effects that provisions in agreements have had across diverse industries. Some of the case studies describe how U.S. trade agreements have expanded and maintained market access through both tariff and nontariff provisions, which both lowered barriers to trade and also reinforced market certainty that such free trade regimes will remain in effect. As a result, U.S. FTAs have often been accompanied by increased trade in goods, services, and digital products, and in some cases have also contributed to the increased flow of investment and labor across borders. However, increases in trade under these agreements have not occurred in a vacuum: other economic factors and policies unrelated to the agreements have also played a major role—and in some cases a more significant role—in directing the flow of trade.

Other case studies describe rules to address systemic problems within U.S. FTA partners' supply chains, particularly related to workers' rights and the environment. Although these practices occur in other countries, they can affect the U.S. economy if they cause foreign production to become more cost competitive relative to U.S. industries and workers, if they put downward pressure on U.S. standards, or contribute to global-scale negative environmental trends (particularly climate change). The success of two provisions examined in this report—one under the U.S.-Peru FTA to combat illegal logging and deforestation in Peru and the other in a NAFTA side agreement to improve collective bargaining rights in Mexico—have been limited. However, more recent developments under the United States-Mexico-Canada Agreement (USMCA) provide the opportunity for improvement in terms of the ability of agreements to address labor and environment concerns. For instance, robust labor and environment provisions under USMCA have established new mechanisms for combating these problems, although it is still too early to assess the impact of these new measures.

Although the case studies cover a diverse variety of issues, each case study (1) identifies and explains an individual provision or type of provision frequently included in the agreements, including, where appropriate, a description of the context in which these provisions were negotiated; (2) describes the

U.S. sector or trade flow that is primarily affected by the provision, and also discusses other key market concepts that are important for understanding the impacts of the provision; and (3) analyzes the impacts of the provision on aspects of the U.S. economy. For all studies, the impacts are placed within the context of broader market and policy factors that also contribute to the trends described, as the direct effects of agreement provisions are often difficult to discern independently of these other factors.

The first two case studies cover provisions that address specific national policies and practices of trading partners that affect U.S. exports and imports. The first demonstrates how U.S. exports of light vehicles to Korea substantially increased as a result of a provision in the U.S.-Korea Free Trade Agreement (KORUS) that allows a certain quantity of vehicles meeting U.S. safety regulations to be sold in that market. This case study also puts the potential costs of foreign TBTs into focus by looking at how chemical regulatory requirements based on the European Union (EU) regulation on Registration, Evaluation, Authorisation, and Restriction of Chemicals (EU REACH), a challenging set of EU requirements for U.S. exporters, are being adopted by other trading partners around the world. The second case study shows how the Forestry Annex in the U.S.-Peru Trade Promotion Agreement (PTPA) contributed to reforms of Peru's environmental regulatory system and likely caused reductions in U.S. imports of forest products from Peru. These provisions, however, likely did not reduce illegal logging or deforestation overall in Peru.

The third and fourth case studies deal with labor-related provisions in North American agreements. The third case study finds that labor provisions included in a side agreement to the North American Free Trade Agreement (NAFTA) likely did not impact Mexican workers' ability to engage in collective bargaining. Mexican wage rates in the manufacturing sector are far lower than in the United States, due in part to weakness in the ability of Mexican workers to unionize. This wage disparity incentivized U.S. investment shifts toward Mexico in certain sectors. This case study also explores how NAFTA's successor, USMCA, contains provisions designed to improve Mexican workers' ability to engage in collective bargaining. If properly adhered to and enforced, these provisions could address some of the shortcomings of the earlier agreement, although it is too early to evaluate. The fourth case study shows how temporary entry provisions have impacted the movement of labor across North American borders and examines the potential impacts of this movement on certain U.S. industries.

The fifth case study discusses the effects of a provision—included in many U.S. agreements—that prohibits partners from imposing customs duties on electronic transmissions. These provisions, along with similar provisions in other non-U.S. agreements, support and reinforce the moratorium agreed to at the World Trade Organization (WTO) and help maintain the free and unencumbered flow of digital products, which is considered critical by industries that rely heavily on this trade. Relevant U.S. FTA provisions and non-FTA agreements (such as the WTO moratorium) can be mutually reinforcing by building international consensus about the rules governing digital trade. This is particularly important for services and other digitally intensive sectors, where imposition of such duties would create significant compliance costs and increase uncertainty for firms—reducing, in turn, their competitiveness vis-à-vis local firms in foreign markets.

The final two case studies show how tariff reductions and the certainty associated with tariff reduction commitments can expand market access and create opportunities for U.S. producers. The sixth case study demonstrates how U.S. exporters of yellow corn were able to gain tariff advantages in Peru and Colombia relative to other global corn exporters due to expanded tariff-rate quota ceilings and

reductions in out-of-quota tariffs—under U.S. FTAs with those countries. The seventh case study describes how U.S. exports of energy products gained a tariff advantage in Korea. Following important technological developments in the energy industry and a major expansion in U.S. supply, the tariff advantage contributed to a major increase of these exports. This case study also examines how “national treatment” provisions may have led to expanded investments and additional contracts for U.S. sales of liquefied natural gas to Korea.

Case Study 1: U.S. Automotive Safety Standards in KORUS

Technical regulations and standards can have a significant effect on trade flows. This case study focuses on certain automotive safety standards in the Confirmation Letter on Specific Autos Regulatory Issues in the U.S.-Korea Free Trade Agreement (“confirmation letter”) and these standards’ effect on U.S. vehicle exports.⁵³⁷ It finds that U.S. exports of motor vehicles to Korea increased markedly after Korea began allowing imports of U.S.-originating vehicles that meet U.S. safety standards, as described in the letter. The first section of this case study describes technical regulations and standards in general. The second section provides a brief overview of challenges related to automotive safety standards in other countries, and how they can affect U.S. vehicle manufacturers. This section also describes the agreement with Korea and explains how it was intended to benefit manufacturers producing vehicles in the United States. The final section examines U.S. vehicle exports after the agreement went into place, considering whether the subsequent increase in U.S. exports can be attributed to the agreement.

Most countries that have automotive safety standards base their standards on either U.S. Federal Motor Vehicle Safety Standards (FMVSS) or United Nations Economic Commission for Europe (UNECE) Regulations.⁵³⁸ When a country does not accept vehicles made to FMVSS, costs rise for U.S. vehicle manufacturers wanting to export vehicles to that country (see box 4.1 below).⁵³⁹ Korea uses its own set of safety standards; KORUS seeks to mitigate the impact this has on U.S. automotive exports by allowing FMVSS to apply to a limited number of U.S.-produced vehicles exported to Korea. Furthermore, later modifications to the agreement have twice increased the number of U.S.-originating vehicles that can be exported to Korea using FMVSS. U.S. exports of vehicles to Korea have increased substantially since the agreement was signed. However, the EU still accounts for a significantly larger share of Korean vehicle

⁵³⁷ U.S.-Korea Free Trade Agreement, “[Chap. 9, Confirmation Letter \(Specific Autos Regulatory Issues\)](#),” June 30, 2007.

⁵³⁸ The official title for UNECE Regulations was changed to “UN Regulations” after countries outside of Europe joined in the late 1990s, but USITC uses “UNECE” to make it clear that the standards are not global but shared by countries primarily in Europe. FMVSS are developed and enforced by the National Highway Transit Safety Administration.

⁵³⁹ Industry representative, telephone interview by USITC staff, October 20, 2020; CAR, “[Potential Cost Savings and Additional Benefits of Convergence](#),” July 2016, 1; Freund and Oliver, “[Gains from Harmonizing US and EU Auto Regulations](#),” June 2015, 1; Martin, “[Automotive Safety Standards—an Issue of Conformance](#),” February 7, 2019.

imports than the United States, and Korea remains one of the most closed markets to imports from any source among industrialized countries.⁵⁴⁰

Technical Barriers to Trade

As explained in chapter 2, technical regulations and standards are measures that establish product characteristics or their related processes and production methods as well as packing, marking, and labeling requirements as they apply to products, processes, or production methods. Conformity assessment procedures (such as product testing or certification) are procedures used to determine if a product conforms to technical regulations and standards. These measures are used by governments to achieve a variety of public policy objective such as protecting national security, human health or safety, animal or plant life or health, and the environment and preventing “deceptive practices.”⁵⁴¹ TBT provisions in trade agreements aim to ensure that technical regulations, standards and conformity assessment procedures are nondiscriminatory and do not create unnecessary barriers to trade.⁵⁴² Most U.S. trade agreements contain TBT chapters, and there may also be annexes or side letters covering specific industries or TBTs.

Automotive Safety Standards

Automotive safety standards are not harmonized globally and are very complex in nature. Countries that have such standards tend to accept vehicles produced under either FMVSS or UNECE Regulations, or both (see box 4.1 for a comparison of these standards).⁵⁴³ Other countries have safety standards that are based on either the FMVSS or UNECE regulations, but have some modifications.⁵⁴⁴ Still others, such as Korea and China, have their own standards that are not strictly based on one system or the other. These country-specific standards often incorporate some parts of FMVSS, UNECE, or both, as well as unique domestic standards.⁵⁴⁵

⁵⁴⁰ A comparison of 43 countries for which there is both import and domestic sales data found Korea to have the second-lowest import-to-sales ratio in 2020 among OECD member countries with substantial automotive production and was the seventh lowest overall. Japan was the OECD member with a lower import-to-sales ratio. One OECD vehicle producer (Mexico) was excluded from this analysis due to its automotive trade statistics not being recorded in a convertible unit of measurement. IHS Markit, [Global Trade Atlas database](#), HS 8703 and 8704, accessed June 1, 2021; OICA, “[Sales Statistics](#),” all vehicles, accessed June 1, 2021.

⁵⁴¹ Technical regulations are mandatory measures enforceable by law, while technical standards are voluntary measures. WTO, “[Agreement on Technical Barriers to Trade](#),” accessed November 9, 2020.

⁵⁴² [Bipartisan Congressional Trade Priorities and Accountability Act of 2015](#), 19 USC 4201, Sec. 102(b)(7).

⁵⁴³ UNECE Regulations are made up of three agreements, the 1958 Agreement, the 1997 Agreement, and the 1998 Agreement. The United States is a party to the 1998 Agreement but not the other two. CAR, “[Potential Cost Savings and Additional Benefits of Convergence](#),” July 2016, 4–5.

⁵⁴⁴ In USMCA, the United States successfully negotiated for continued recognition of FMVSS in Mexico. Industry representative, telephone interview by USITC staff, October 20, 2020.

⁵⁴⁵ CAR, “[Potential Cost Savings and Additional Benefits of Convergence](#),” July 2016, 7.

Box 4.1 U.S. Federal Motor Vehicle Safety Standards vs. UNECE Regulations

U.S. FMVSS and UNECE Regulations are the two most commonly used sets of automotive safety standards globally. According to one study, these two sets of standards may have comparable performance and outcomes even if the standards have technical differences.^a These differences in standards between trade partners can significantly increase the cost of exporting vehicles into that market by requiring additional testing, and sometimes vehicle modifications, without a significant increase in vehicle safety.^b Testing whether a vehicle meets a specific set of standards can cost several million dollars. If a manufacturer then needs to make changes to the vehicle to meet the standards, those changes must go through the design and testing process, adding even more to the cost.^c

One of the more significant differences between the FMVSS and UNECE Regulations is in their testing processes. FMVSS use self-certification, while UNECE Regulations use a process known as type approval. Under self-certification, a vehicle manufacturer certifies that its vehicle meets FMVSS standards.^d The National Highway Transit Safety Administration (NHTSA) conducts audits of new vehicles it purchases from dealerships to ensure compliance. UNECE Regulations use type approval, which is pre-market testing of a vehicle's safety (using vehicles submitted by the manufacturer) witnessed by a government authority, often performed at a third-party testing site.^e In order for a vehicle to be approved under both sets of standards, it must be completely tested using the procedures under each standard, meaning that to sell a vehicle in the United States and the EU a vehicle manufacturer must conduct two different sets of tests.^f

FMVSS and UNECE Regulations also use different testing procedures and requirements. These standards affect the design of many parts both inside and outside of the vehicle, as well as what testing and approvals are required. For example, FMVSS and UNECE Regulations have different testing procedures for determining the performance of rear seat belts.^g Also, one industry representative characterized UNECE Regulations as more specific.^h For example, the UNECE Regulations have a number of lighting standards (ranging from different types of front illumination beams to devices for lighting up rear registration plates), whereas FMVSS only has one standard. Industry representatives, however, consider the safety of passengers and pedestrians to be largely the same with vehicles produced to either standard.ⁱ

The process for developing new standards is also very different between the two regimes. Under FMVSS, the development is performance- and data-oriented, meaning that most standards focus on how a vehicle or part performs in a certain situation (such as a side impact). It also attempts to be technology-neutral (e.g., not specifying specific airbag configurations, pillar locations, etc.). UNECE Regulations are often technology-focused, with specific technologies approved for use (e.g., side curtain airbags). U.S. law also requires that new FMVSS standards be technologically feasible and economically practicable.^j

Further, because FMVSS regulations focus on the performance of the vehicle in specific tests, a vehicle manufacturer can add a technology, such as antilock brakes, if it improves vehicle safety performance without explicit approval from NHTSA. UNECE's type approval requirement on many components means that many components must be separately approved by the regulatory authority before they can be installed in a vehicle.^k

^a One study in 2015 comparing the two sets of standards found more risk for some types of crashes with U.S. vehicles, and more risk for other types of crashes with EU vehicles, but overall they were very similar. Flannagan et al., "[Comparing Motor-Vehicle Crash Risk of EU and U.S. Vehicles](#)," 2015, 1; Freund and Oliver, "[Gains from Harmonizing US and EU Auto Regulations](#)," June 2015, 2–5.

^b Martin, "[Automotive Safety Standards—an Issue of Conformance](#)," February 7, 2019.

^c Industry representative, telephone interview by USITC staff, October 20, 2020.

- ^d CAR, “[Potential Cost Savings and Additional Benefits of Convergence](#),” July 2016, 4.
- ^e Martin, “[Automotive Safety Standards—An Issue of Conformance](#),” February 7, 2019.
- ^f Industry representative, telephone interview by USITC staff, October 20, 2020; industry representative, telephone interview by USITC staff, October 21, 2020; Flannagan et al., “[Comparing Motor-Vehicle Crash Risk of EU and U.S. Vehicles](#),” 2015, 1; Freund and Oliver, “[Gains from Harmonizing US and EU Auto Regulations](#),” June 2015, 2–5.
- ^g Pruitt and Wietholter, “[Comparison of Seat Belt Elongation Requirements](#),” January 22–24, 2020.
- ^h Industry representative, telephone interview by USITC staff, October 20, 2020.
- ⁱ Industry representative, telephone interview by USITC staff, October 20, 2020; UNECE, “[Simplification of Lighting and Light-Signalling Regulations](#),” April 2016, 8; USDOT, “Federal Motor Vehicle Safety Standards; Lamps, Reflective Devices, and Associated Equipment,” October 12, 2018.
- ^j National Motor Vehicle and Safety Act of 1966, 49 U.S. Code § 30111—Standards (a and b).
- ^k Industry representative, telephone interview by USITC staff, October 21, 2020.

Before the KORUS agreement, vehicle manufacturers wanting to export to Korea faced a dilemma: they were unlikely to meet the sales volumes required to justify the costs of homologation (the process of modifying a vehicle to meet local standards) for the Korean market, but without homologation they could not export the vehicles to Korea.⁵⁴⁶ Industry sources state that for export markets with unique standards, it is only cost effective to export vehicles that are likely to sell in significant quantities, allowing manufacturers to amortize the costs across tens of thousands of vehicles.⁵⁴⁷ Korea has its own unique automotive safety standards that are distinct from both FMVSS and UNECE Regulations.⁵⁴⁸ These standards, combined with environmental standards and other issues (such as anti-import campaigns and tax audits of purchasers of imported vehicles), historically made it very difficult for U.S. (or other imported) vehicles to compete in the Korean market.

Korean Automotive Market

The Korean automotive market has historically been dominated by domestically produced vehicles. When the KORUS agreement was signed in 2007, imports from all sources made up less than 8 percent of all automotive sales in Korea (table 4.1). This share has increased in recent years, and imports made up over 20 percent of total sales in Korea for the first time in 2019. The EU-Korea agreement entered into force in 2011, and it likely has contributed to the increased import share as it commits Korea to recognition of the UNECE safety standards, which effectively grants mutual recognition to EU exports.⁵⁴⁹

Table 4.1 Automotive sales and imports in Korea, 2005–19

In thousands of vehicles and percentages.

Year	Total vehicle sales (1,000)	Total vehicle imports (1,000)	Import share (%)
2005	1,145	52	4.5
2006	1,177	69	5.9
2007	1,279	99	7.7
2008	1,246	97	7.8
2009	1,462	79	5.4
2010	1,511	116	7.7
2011	1,586	135	8.5

⁵⁴⁶ Industry representative, telephone interview by USITC staff, October 20, 2020.

⁵⁴⁷ Industry representative, telephone interview by USITC staff, October 20, 2020; Martin, “[Automotive Safety Standards—An Issue of Conformance](#),” February 7, 2019.

⁵⁴⁸ USITC, “[U.S.-Korea Free Trade Agreement: Potential Economy-Wide and Selected Sectoral Effects](#),” September 2007, 3–76.

⁵⁴⁹ EU-Korea Free Trade Agreement, “[Annex 2-C: Motor Vehicle and Parts](#),” 2011.

Year	Total vehicle sales (1,000)	Total vehicle imports (1,000)	Import share (%)
2012	1,532	169	11.0
2013	1,544	205	13.3
2014	1,662	280	16.9
2015	1,834	346	18.9
2016	1,823	317	17.4
2017	1,830	310	16.9
2018	1,827	337	18.4
2019	1,795	382	21.3

Sources: IHS Markit, [Global Trade Atlas database](#), HS 8703 and 8704, accessed October 8, 2020; OICA, "Sales Statistics," all vehicles, accessed October 19, 2020.

The Korean Motor Vehicle Safety Standards (KMVSS), while different from both the U.S. FMVSS and UNECE Regulations, more closely align with the UNECE Regulations (however, KMVSS use self-certification).⁵⁵⁰ For each of the standards shared between Korea and the EU, there is no need for the exporter to re-test for that standard.⁵⁵¹ It is not surprising then, that of all the vehicles that are imported annually, as shown in figure 4.1, the majority clearly come from the EU (even though the figure shows only two EU member countries), followed by Japan and the United States. German vehicles alone accounted for 32.9 percent of Korean imports, and EU countries collectively accounted for 56.2 percent (215,007 vehicles) in 2019.⁵⁵² More than half of U.S. total exports of vehicles to Korea are cars and SUVs with engines larger than 1.5 liters. Another 15 percent are electric cars and SUVs.⁵⁵³

⁵⁵⁰ Koo and Park, "[Automotive in Korea](#)," April 4, 2019.

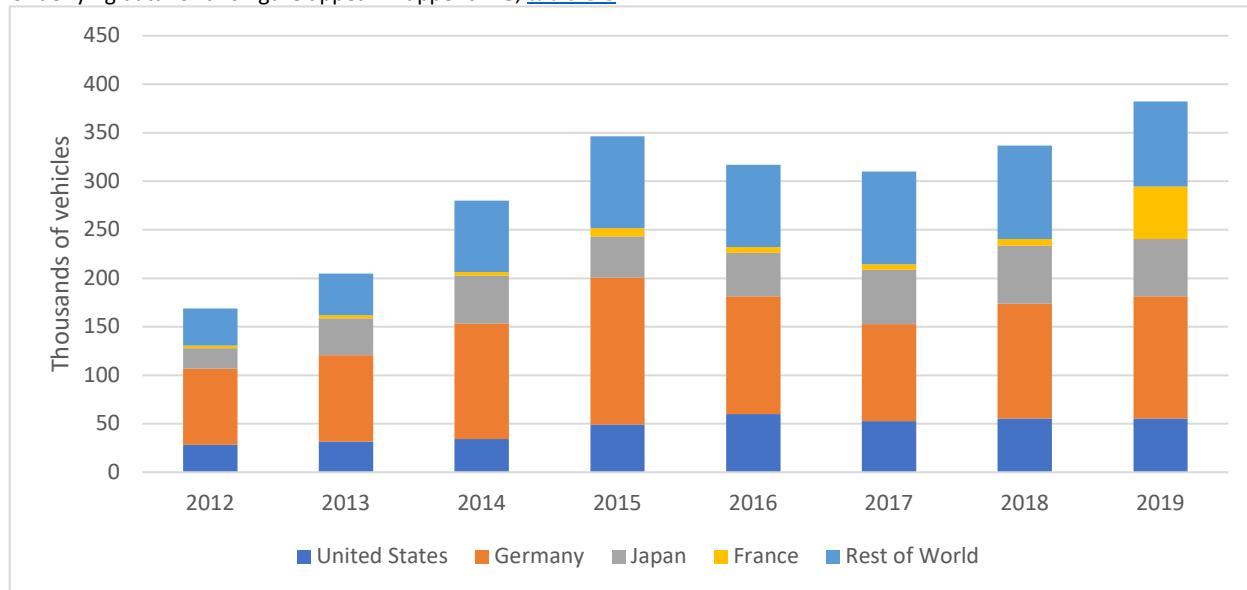
⁵⁵¹ Since Japanese manufacturers also export to the EU, they may also benefit from Korean acceptance of EU standards.

⁵⁵² EU total does not include Korean imports from the United Kingdom. IHS Markit, [Global Trade Atlas database](#), HS heading 8703 and 8704, accessed October 8, 2020.

⁵⁵³ USITC, [DataWeb](#), accessed December 1, 2020, 8703.23 and 8703.24 (vehicles for the transport of persons with engines 1.5L and higher) make up over 31,000 units (53.6 percent), and 8703.80 (electric vehicles for the transport of persons) make up over 9,000 units (15 percent).

Figure 4.1 Korean vehicle imports, by top source countries, 2012–19, thousands of vehicles

Underlying data for this figure appear in appendix G, [table G.8](#).



Source: IHS Markit, [Global Trade Atlas database](#), HS 8703 and 8704, accessed October 8, 2020.

Note: Figure is total quantity of both 8703 and 8704, so includes medium-sized and heavy trucks as well.

Economic Effects

The KORUS agreement created an allowance for U.S. automotive producers under which they could export vehicles to the Korean market that met the U.S. FMVSS instead of the KMVSS.⁵⁵⁴ The agreement, however, imposed a cap on the number of vehicles permitted under this exception. The initial allowance was 6,500 vehicles annually per U.S. exporter, but this allowance has been increased twice since then (see figure 4.2 below).⁵⁵⁵ It was first increased to 25,000 vehicles in 2010 before KORUS entered into force, and then it was further increased to 50,000 vehicles during the 2018 KORUS modifications.⁵⁵⁶ When the cap was extended to 25,000 units in 2010, language was added to the agreement about Korean transparency in developing taxes and regulations, as well as a motor vehicle safeguard trade remedy. In return, the United States agreed to reduce its tariffs on vehicles imported from Korea.⁵⁵⁷

⁵⁵⁴ In addition to agreements on safety standards, there was an agreement on emissions regulatory treatment for limited amounts of U.S. imports in the original agreement, and an automotive working group was created to help resolve regulatory issues. U.S.-Korea Free Trade Agreement, “[Chapter 9: Technical Barriers to Trade](#),” 2007, 9-9; U.S.-Korea Free Trade Agreement, “[Chap. 9, Confirmation Letter \(Specific Autos Regulatory Issues\)](#),” June 30, 2007.

⁵⁵⁵ The original 6,500 allowance is in the “confirmation letter” that accompanied Chapter 9 of KORUS. U.S.-Korea Free Trade Agreement, “[Chap. 9, Confirmation Letter \(Specific Autos Regulatory Issues\)](#),” June 30, 2007.

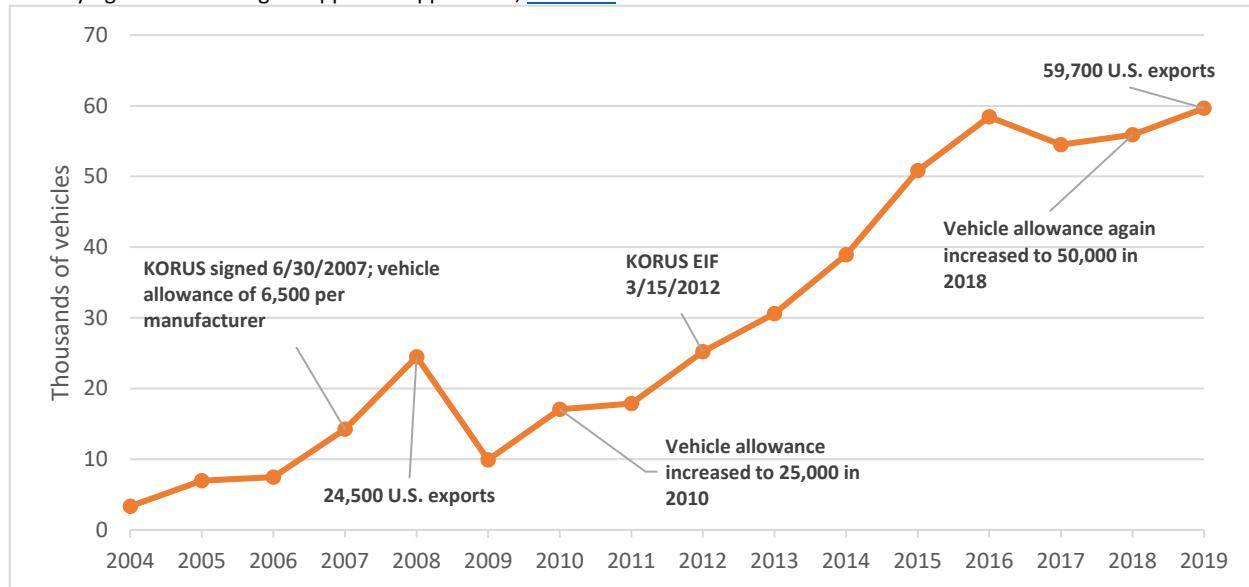
⁵⁵⁶ USITC, “[U.S.-Korea Free Trade Agreement: Passenger Vehicle Sector Update](#),” March 2011, 3; USTR, “[Fact Sheet on U.S.-Korea Free Trade Agreement Outcomes](#),” accessed October 23, 2020.

⁵⁵⁷ The 2.5 percent tariff on passenger vehicles was eliminated over a three-year period ending in 2014. The 25 percent tariff on both light and heavy trucks will be eliminated in year 30 of entry into force of the agreement. Since the agreement entered into force, U.S. imports of vehicles from Korea ranged between 6.3 and 8.3 percent of total imports, and were 7.1 percent in 2019. KORUS, “[Chapter 2 National Treatment and Market Access of Goods](#),” 2-13; KORUS, “[Annex 2-B-1 US Tariff Schedule](#),” 190; KORUS, “[U.S. General Notes](#),” 1; IHS Markit, “[Global Trade Atlas database](#),” HS 8703 and 8704, accessed October 8, 2020.

In the 12 years since KORUS was initially signed, U.S. automotive exports to Korea, as well as the U.S. share of total Korean automotive imports, have gone up markedly (figures 4.2 and 4.3). As shown below, after the initial agreement was signed in 2007, the volume of U.S. vehicles exported to Korea increased in 2008 but then dipped during the recession in 2009. However, from 2009 onward, U.S. automotive exports steadily rose over the ensuing years (increasing in all but one year), with the volume of exports in 2019 more than doubling (a 136.8 percent increase) what they were in 2012, when the agreement entered into force. However, as mentioned previously, Korea's automotive imports from all sources increased during this time. The U.S. share of Korean imports initially peaked in 2012 at 16.8 percent, before declining for a few years and ultimately peaking again in 2016 at 18.9 percent. In recent years, the German and French shares of Korean imports have steadily risen (figure 4.1). Therefore, while it is likely that the increases in U.S. exports to Korea could not have occurred without the KORUS allowances in place, it is also likely that other factors contributed to these increased exports and the makeup of Korean automotive imports.

Figure 4.2 U.S. total exports to Korea, thousands of vehicles (2004–19)

Underlying data for this figure appear in appendix G, [table G.9](#).

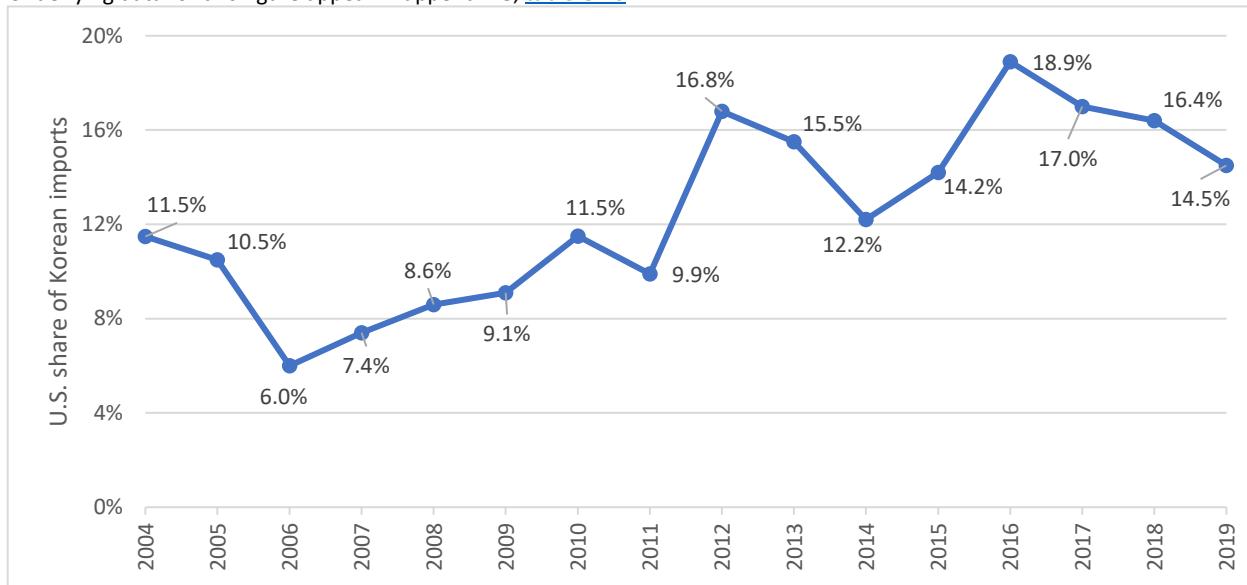


Source: USITC DataWeb/Census [HS heading 8703 and 8704](#), accessed October 15, 2020.

Note: Figure reflects the total quantity of U.S. exports classified under both HS 8703 and HS 8704, so includes medium and heavy trucks as well. "EIF" = entry into force.

Figure 4.3 U.S. share of Korea's vehicle imports, 2004–19

Underlying data for this figure appear in appendix G, [table G.10](#).



Source: IHS Markit, [Global Trade Atlas database](#), HS heading 8703 and 8704, accessed October 8, 2020.

At the time of the first renegotiation of the vehicle allowance, annual U.S. exports to Korea averaged between 5,000 and 7,000 vehicles per company. Some sources state that the 25,000 vehicle allowance per manufacturer effectively granted mutual recognition to U.S. standards, at least until U.S. exports increased by a factor of four (figure 4.2).⁵⁵⁸ The more recent renegotiation in 2018 increased this vehicle allowance to 50,000 vehicles per company, but the impact of that is unclear. While exports did increase in 2019, it's worth noting that exports in 2017 and 2018 slightly lagged those in 2016, so it is uncertain whether or not the 2019 increase can be attributed to the policy change or other external factors, such as changes in demand or sourcing.⁵⁵⁹ Among vehicle manufacturers with production in the United States, only three firms had annual sales in Korea that totaled more than 50,000 units: GM (81,000 units), Daimler (78,000), and BMW (54,000). However, the majority of those vehicles were produced in Asia or Europe, so no U.S. manufacturers have reached the import cap.⁵⁶⁰

Box 4.2 provides a different perspective on standards and technical regulations, their trade costs, and the potential role of FTAs in addressing these issues, using a noteworthy example from the chemical industry.

⁵⁵⁸ Schott, “[KORUS FTA 2.0: Assessing the Changes](#),” December 2010; industry representative, telephone interview by USITC staff, October 20, 2020.

⁵⁵⁹ Ward’s Intelligence, “[Asia Vehicle Sales by Country and Company, 2019](#),” April 12, 2020.

⁵⁶⁰ GM Daewoo produced more than 400,000 units in Korea in 2019. Ward’s Intelligence, “[Asia Vehicle Production by Country and Manufacturer, 2019](#),” April 20, 2020.

Box 4.2 Impact of Global Replication of EU Chemical Regulations

Similar to global automotive standards, foreign regulations governing the marketing of chemicals are generally modeled after either the U.S. chemical regulatory system (the Toxic Substances Control Act of 1976, or TSCA) or the EU regulatory system (the EU regulation on Registration, Evaluation, Authorisation, and Restriction of Chemicals, or REACH). The two use diverging approaches to regulating chemicals.^a Increasingly, third-country markets—including Korea—have adopted or have considered adopting REACH-style regulatory systems which themselves diverge from the EU version of REACH, potentially reducing U.S. industries' global competitiveness in markets operating under these multiple approaches.

In the EU, chemicals generally need to be proven safe before being manufactured and marketed. But chemical registrants under REACH are said to face a greater burden of proof and more regulatory costs than under TSCA: compliance and testing costs for companies, particularly larger firms with substantial product portfolios, can amount to as much as hundreds of millions of dollars. Although most larger firms have implemented REACH, smaller firms find these costs particularly challenging.^b Moreover, firms and other observers have cited a number of administrative and regulatory concerns, including a lack of transparency, communication, and flexibility within the European Chemicals Agency.^c The increased costs and administrative challenges under REACH have reportedly decreased the number of chemicals available on the EU market as companies weigh compliance costs versus market returns.^d REACH also extends past U.S. exports of chemicals themselves to encompass chemicals used as inputs in a broad variety of exported final products ranging from pens to automobiles.^e

As other countries have implemented their own chemical regulatory systems, they have often considered TSCA and REACH as potential models, reportedly debating between implementing a chemical regulatory system in which the industry has the burden of proving a chemical is safe (as REACH does) versus a system with more government involvement (like TSCA in which more chemicals are presumed to be safe and the EPA participates substantially in requesting data and performing testing).^f The EU and some of the companies that participate in the EU market have actively encouraged adoption of REACH-like approaches globally since the implementation of REACH in 2007, in part because companies are said to prefer being able to operate under a similar regulatory approach in multiple markets.^g

Many countries, including Korea, the United Kingdom (UK), and Turkey,^h among others, have implemented REACH-like systems.ⁱ Both U.S. and foreign companies cite multiple concerns about this proliferation. Issues include the expectation that the companies will incur even higher costs because of the number of such systems and divergences between them; the need for companies to hire in-country legal representation (also called an “only representative”) in each market; the need for companies to obtain data for new registrations under each regulatory system;^j and the difficulty in communicating with regulators about REACH and the REACH-like systems.^k Industry associations and companies say the increased number of national REACH-like regulatory systems will effectively force companies to choose whether to participate in those markets, particularly the smaller markets.^l Even within the United States, states such as California have adopted regulatory reforms inspired by REACH.^m Countries including Mexico, Brazil, Colombia, Saudi Arabia, Vietnam, and others are also considering adopting new chemical regulatory systems, but industry sources say it is still unknown whether they will choose REACH-style systems or TSCA-style systems such as those in effect in the United States, Australia, and Canada.ⁿ

Some have suggested that the differing systems, and the potential costs associated with their divergences, can be addressed using the WTO and the TBT provisions of U.S. FTAs, particularly through

technical assistance and capacity building that help partners implement regulatory cooperation provisions.^o As an example, industry representatives highlight USMCA's chemical sectoral chapter, along with its TBT and good regulatory practices chapters. They state that these chapters can support regulatory cooperation across the highly integrated North American market for chemicals, in addition to encouraging risk-based approaches to establishing such regulations.^p According to these observers, such provisions are particularly prescient given that certain Mexican policymakers have reportedly expressed interest in developing a hazard-based chemicals management system modeled after REACH.^q By contrast, KORUS did not have provisions of this kind in place as K-REACH (the Korean equivalent of REACH) was being devised and implemented.^r

^a REACH relies to a greater extent on a “hazard-based” approach in evaluating chemical registrations, where certain chemicals are not approved for marketing when they are considered intrinsically hazardous to human health, regardless of the level of human exposure to those chemicals under normal use. By contrast, TSCA’s registration process focuses on a risk-based approach that incorporates the likelihood of human exposure to these chemicals in addition to their inherent hazards. ECHA, [“Understanding REACH,”](#) accessed October 23, 2020; USITC, hearing transcript, October 7, 2020, 329 (testimony of Robert Helminiak, SOCMA); industry representatives, telephone interviews by USITC staff, October 16, 21, 22, 27, and 30, 2020; industry representative, email message to USITC staff, November 3, 2020; White, [“TSCA,”](#) American Chemistry Council (ACC), June 24, 2020; Baldwin, [“Regulatory Cooperation,”](#) accessed November 6, 2020.

^b USITC, hearing transcript, October 7, 2020, 329 (testimony of Robert Helminiak, SOCMA); 354 (testimony of Jim DeLisi, Fanwood Chemical); and 353 (testimony of Ed Brzytwa, ACC); industry representatives, telephone interviews by USITC staff, October 16, 21, 22, 27, and 30, 2020; industry representatives, email messages to USITC staff, October 26, 2020, November 2, 3, and 4, 2020, and December 2, 2020; Reed, [“For One British Industry,”](#) updated January 27, 2021; USITC, [“Trade Barriers,”](#) March 2014, 3–5 and 3–6.

^c USITC, [“Trade Barriers,”](#) March 2014, 3–5 and 3–6; USITC, hearing transcript, October 7, 2020, 329 (testimony of Robert Helminiak, SOCMA); industry representatives, telephone interviews by USITC staff, July 24, 2020; October 22, 27, and 30, 2020.

^d Zainzinger, [“Brexit May Put Some Chemicals,”](#) December 2, 2020; Reed, [“For One British Industry,”](#) updated January 27, 2021.

^e Bradford, [“The Brussels Effect,”](#) 2020, 203; USITC, hearing transcript, October 7, 2020, 362 (testimony of Jim DeLisi, Fanwood Chemical).

^f Industry representative, email message to USITC staff, November 3, 2020; EU Commission, [“Commission Staff Working Document,”](#) March 5, 2018; ECHA, [“Understanding REACH,”](#) accessed October 23, 2020; Bradford, [“The Brussels Effect,”](#) 2020, 193. ACC stated that many countries have been interested in the North American TSCA model. USITC, hearing transcript, October 7, 2020, 356 (testimony of Ed Brzytwa, ACC).

^g Bradford, [“The Brussels Effect,”](#) 2020, 196; USITC, hearing transcript, October 7, 2020, 354 (testimony of Jim DeLisi, Fanwood Chemical).

^h Korea implemented the Act on the Registration and Evaluation of Chemicals (known as AREC or K-REACH) in 2013 and significantly revised it in 2019. Turkey, considered to be a fairly small chemical market, implemented a similar act on the Registration, Evaluation, Authorization, and Restriction of Chemicals, or KKDIK (REACH in Turkish), in 2017. Both AREC/K-REACH and KKDIK differ in key ways from EU REACH, adding to potential industry costs as firms try to comply with multiple requirements. Little Pro, [“Introduction to Turkish KKDIK,”](#) November 16, 2019; USITC, hearing transcript, October 7, 2020, 354 (testimony of Jim DeLisi, Fanwood Chemical); Bradford, [“The Brussels Effect,”](#) 2020, 202.

ⁱ USITC, hearing transcript, October 7, 2020, 357–58 (testimony of Ed Brzytwa, ACC). Also, in comparison to countries such as Korea, the UK, and Turkey that have implemented chemical regulatory systems that are very similar to EU REACH, Japan’s chemical regulatory system is said to blend REACH-like and TSCA-like elements. Bradford, [“The Brussels Effect,”](#) 2020, 203.

^j UK REACH, for example, effective January 1, 2021, was expected to create issues for registrants seeking to obtain data needed to register each chemical, whether purchased from data owners under EU REACH or newly created. USITC, hearing transcript, October 7, 2020, 355 (testimony of Jim DeLisi, Fanwood Chemical). Also, the Chemical Industry Association (a UK trade association) reportedly stated that data requirements under UK REACH could cost the industry £1 billion (\$1.4 billion, per December 2020 exchange rates). Zainzinger, [“Brexit May Put Some Chemicals,”](#) December 2, 2020

^k Williams, [“UK REACH,”](#) October 8, 2020; USITC, [“Trade Barriers,”](#) March 2014, xv; USITC, hearing transcript, October 7, 2020, 355 (testimony of Jim DeLisi, Fanwood Chemical); industry representatives, telephone interviews by USITC staff, July 24, 2020, October 21 and 22, 2020.

^l Industry representatives, telephone interviews by USITC staff, July 24, 2020, and October 22, 27, and 30, 2020; Zainzinger, [“Brexit May Put Some Chemicals,”](#) December 2, 2020; October 7, 2020, 354 (testimony of Jim DeLisi, Fanwood Chemical).

^m Bradford, [“The Brussels Effect,”](#) 2020, 200.

ⁿ Industry representatives, telephone interviews by USITC staff, October 30, 2020.

^o USITC, hearing transcript, October 6, 2020, 333 (testimony of Ed Brzytwa, ACC) and October 7, 2020, 354 (testimony of Jim DeLisi, Fanwood Chemical) and 365–66 (testimony of Ed Brzytwa, ACC); industry representative, email message to USITC staff, October 26, 2020; Industry Trade Advisory Committee (ITAC 3), [“A Trade Agreement with Mexico and Potentially Canada,”](#) September 25, 2018. Mr. Brzytwa stressed during the hearing that every country needs to develop the regulatory regime best for it and that ACC hopes to make the regulatory systems as compatible as possible.

^p USITC, hearing transcript, October 6, 2020, 333 (testimony of Ed Brzytwa, ACC) and October 7, 2020, 354 (testimony of Jim DeLisi, Fanwood Chemical) and 365–66 (testimony of Ed Brzytwa, ACC); industry representative, email message to USITC staff, October 26, 2020; NACD, [“NACD Welcomes Passage of USMCA Trade Deal,”](#) December 20, 2019; ACC, [“U.S. Chemicals Industry Supports Passage of USMCA,”](#) July 2019.

^q ACC submission at page 9; industry representatives, telephone interviews by USITC staff, October 30, 2020; Hervey, [“Mexico’s Proposed Chemicals Law,”](#) April 9, 2020. These sources also say that Mexico is reportedly leaning towards a REACH-like chemical regulatory system, after exploring REACH and Canada’s TSCA-style risk-based system. Factors potentially complicating Mexico’s choice are that USMCA calls for a risk-based system, while Brazil and Argentina reportedly lean towards REACH.

^r USITC, hearing transcript, October 7, 2020, 357 (testimony of Ed Brzytwa, ACC).

Case Study 2: PTPA Forest Sector Governance Annex

The 2009 U.S.-Peru Trade Promotion Agreement (PTPA) Annex on Forest Sector Governance (“Forestry Annex”) consists of unique prescriptive provisions aimed at combatting illegal logging and lessening the environmental and economic damage caused by illegally harvested timber and deforestation.⁵⁶¹ Moreover, the Forestry Annex contains provisions specifically aimed at protecting endangered tree species, such as big-leaf mahogany. This case study describes the PTPA Forestry Annex’s characteristics, objectives, and impacts. Overall, it appears that the Forestry Annex has had mixed results thus far in meeting its objectives. There is evidence that the Peruvian government, at least in the early years of the Forestry Annex, strengthened forestry protection regulations and governmental institutions. Further, the Forestry Annex likely contributed to a substantial decline in U.S. imports of Peruvian wood products, which may suggest that the Forestry Annex has limited the extent to which Peru is able to export illegally harvested timber to the United States. The broader impact of these trade declines on the U.S. economy, however, is likely tempered by the fact that the share of U.S. wood imports from Peru have always been extremely small. Finally, it appears that illegal logging and deforestation in Peru have continued since the adoption of the Forestry Annex.

The May 10th Agreement and the PTPA Environment Chapter

In 2007, the U.S. House of Representatives and the U.S. President reached the Bipartisan Agreement on Trade Policy, or “May 10th Agreement.” Among other things, this agreement made several changes to the environment chapters of four FTAs that had been previously signed but not yet acted on by Congress or entered into force.⁵⁶² The adjustments included that all FTA environmental provisions would be enforced under the same dispute settlement procedures as other FTA provisions. They also required parties to adopt and maintain laws and regulations necessary to fulfill their obligations under seven specified multilateral environmental agreements.⁵⁶³

⁵⁶¹ Before the PTPA, Peru was one of the partner countries in the United States’ implementation of the 1991 Andean Trade Preference Act (ATPA). ATPA aimed to promote the development of viable economic alternatives to coca cultivation and cocaine production by offering duty-free or other preferential treatment to imports of eligible goods. See USITC, “[Andean Trade Preference Act](#),” 2010.

⁵⁶² The four May 10th Agreement FTAs were with Peru, Korea, Colombia, and Panama.

⁵⁶³ The seven agreements were the Montreal Protocol on Substances that Deplete the Ozone Layer (1987); the Convention on the Conservation of Antarctic Marine Living Resources (1980); the Protocol of 1978 Relating to the International Convention for the Prevention of Pollution from Ships (1978); the Convention on International Trade in Endangered Species of Wild Fauna and Flora (1973); the Convention on Wetlands of International Importance Especially as Waterfowl Habitat (1971); the Convention for the Establishment of an Inter-American Tropical Tuna Commission (1949); and the International Convention for the Regulation of Whaling (1946).

The May 10th Agreement further reinforced the PTPA environment chapter by adding a Forestry Annex to it.⁵⁶⁴ In its summary of the May 10th Agreement, the Office of the U.S. Trade Representative (USTR) stated that “[i]n connection with the Peru FTA, we have agreed to work with the Government of Peru on comprehensive steps to address illegal logging, including of endangered mahogany, and to restrict imports of products that are harvested and traded in violation of CITES” (the Convention on International Trade in Endangered Species of Wild Fauna and Flora).⁵⁶⁵ The PTPA entered into force on February 1, 2009; the Forestry Annex, which is part of the agreement’s Chapter 18 (Environment), entered into force 18 months later.

Illegal Logging, Deforestation, and Forest Degradation in Peru⁵⁶⁶

The U.S. insistence—and continued focus—on the Forestry Annex was and is driven by the longstanding and well documented crisis of illegal logging and deforestation in Peru.⁵⁶⁷ For instance, a 2007 U.S. House of Representatives Committee on Ways and Means report stated: “The Peru FTA also includes specific provisions to address the problem of illegal logging in Peru. For many years, leading environmental groups have raised concerns about illegal logging. Some reports have indicated, for example, that much of the mahogany exported from Peru—over 80 percent of which is exported to the United States—is illegally logged.”⁵⁶⁸ In its statutorily required environmental review, USTR stated that production of timber for export, “including export to the United States, is a factor in deforestation.”⁵⁶⁹ More recently, the U.S. House of Representatives Committee on Ways and Means, in a 2018 letter to USTR advocating stronger enforcement of the Forestry Annex, wrote that “Congress continues to demand that Peru address the crisis of deforestation and rampant illegal logging.”⁵⁷⁰ The Forestry Annex

⁵⁶⁴ Both the United States and Peru have significant forest resources and are currently among the top 10 countries worldwide in forest coverage; the United States ranks fourth, while Peru ranks ninth. See FAO and UNEP, [The State of the World's Forests](#), 2020, 10.

⁵⁶⁵ USTR, “[Bipartisan Trade Deal](#),” May 2007.

⁵⁶⁶ Scholars generally pair deforestation and forest degradation together. *Deforestation* has been defined as “the complete removal of trees and the conversion from forest into other land uses such as agriculture, mining, etc., with the assumption that forest vegetation is not expected to naturally regrow in that area.” *Forest degradation* has been defined as “the thinning of the canopy and loss of carbon in remaining forests, where damage is not associated with a change in land use and where, if not hindered, the forest is expected to regrow.” For simplicity, this case study will use the word “deforestation” to describe these activities. See Hosonuma et al., “[An Assessment of Deforestation and Forest Degradation](#),” 2012, which is the source of these definitions.

⁵⁶⁷ See Zárate, “[Wars of the Interior](#),” 2021; EIA, “[The Laundering Machine](#),” 2011; Finer et al., “[Logging Concessions Enable Illegal Logging Crisis](#),” 2014.

⁵⁶⁸ U.S. House Ways and Means Committee, “[United States-Peru Trade Promotion Agreement Implementation Act](#),” November 5, 2007, 4.

⁵⁶⁹ USTR, “[Final Environmental Review, U.S.-Peru Trade Promotion Agreement](#),” accessed October 27, 2020.

⁵⁷⁰ U.S. House Ways and Means Committee, [Letter to USTR](#), December 19, 2018.

is thus an important component of U.S. efforts against illegal logging and deforestation, as well as a building block for the future (see box 4.3).⁵⁷¹

Box 4.3 The Broader Impacts of Global Deforestation on the U.S. Economy

As described above, primary U.S. goals in negotiating PTPA included reducing illegal logging as well as deforestation in Peru. Deforestation can impact the economy of the United States insofar as it contributes to the global phenomenon of climate change. Before the 20th century, deforestation chiefly took place in the developed world.^a This trend, however, has more recently appeared in some developing countries, such as Peru, which hold large stocks of virgin timberland. Trees are cut down to make way for industrial purposes (such as mining, fossil fuel extraction, and agriculture) and/or for export as various types of wood products.^b

The consensus of scientists is that human-induced greenhouse gas emissions—the dominant cause of climate change—emanate predominantly from fossil fuel combustion and deforestation.^c One concern about deforestation is that burnt and decomposing trees emit substantial amounts of greenhouse gases. Moreover, felled trees can no longer function as carbon sinks (absorbing and storing carbon).^d According to the United Nation’s Intergovernmental Panel on Climate Change, “Reducing deforestation and forest degradation rates represents one of the most effective and robust options for climate change mitigation, with large mitigation benefits globally.”^e

Further, climate change is expected to inflict a range of disruptive impacts on the U.S. economy. In its 2018 Fourth Annual Climate Assessment, the U.S. government estimated that effects such as higher temperatures, extreme weather events, and sea level rise are “expected to cause substantial losses to infrastructure and property and impede the rate of economic growth over this century.”^f The assessment also stated that climate change effects are “virtually certain to increasingly affect U.S. trade and economy, including import and export prices and businesses with overseas operations and supply chains.”^g Similarly, the U.S. Federal Reserve, in its November 2020 *Financial Stability Report*, contends that climate change “increases the likelihood of dislocations and disruptions in the economy, [and] is likely to increase financial shocks and financial system vulnerabilities.”^h Accordingly, deforestation in Peru and worldwide significantly worsens climate change-generated economic damage to the United States, now and likely in the future.ⁱ

^a There are reportedly five drivers of deforestation: commercial agriculture, subsistence agriculture, mining, infrastructure, and urban expansion. The four drivers of forest degradation are legal and illegal logging, uncontrolled fires, livestock grazing in forest, and fuelwood/charcoal. See Hosonuma et al., “[An Assessment of Deforestation and Forest Degradation](#),” 2012.

^b Peru’s most significant exports—copper, gold, crude oil, and agricultural products—also cause deforestation if any applied land-use changes include forest clearcutting. See Pendrill et al., “[Agricultural and Forestry Trade](#),” 2019; Cabellero Espejo et al., “[Deforestation and Forest Degradation Due to Gold Mining](#),” 2018; EIA, “[Deforestation by Definition](#),” 2015.

^c Van der Werf et al., “[CO₂ Emissions from Forest Loss](#),” 2009, 737; IPCC, “[Climate Change 2007](#),” 2007, 512.

^d According to the World Resources Institute, deforestation of tropical forests produced carbon dioxide emissions of more than 2 billion tons in 2019. These emissions were generated by deforestation of approximately 9.3 million acres of tropical forests, which was the third-highest loss since 2002. See Fountain, “[More Tropical Forest Loss in 2019](#),” 2019.

^e IPCC, “[Interlinkages Between Desertification](#),” 2019, 585.

⁵⁷¹ The PTPA entered into force soon after the passage of the U.S. Food, Conservation, and Energy Act of 2008, which included an amendment to the U.S. Lacey Act, the broadest U.S. legal instrument for deterring illegal wood products trade. The 2008 Lacey Act Amendment prohibited U.S. imports of illegal wood products and required that U.S. wood importers include specified information in their customs declarations. The revised Lacey Act was intended to encourage importers to ensure their products are harvested from legal sources. See U.S. Fish & Wildlife Service, “[Lacey Act](#),” accessed May 6, 2021. The U.S. Endangered Species Act is an additional U.S. law related to forest product imports and covers CITES-listed species such as big-leaf mahogany.

^f The assessment warned that the negative effects of climate change on multiple economic assets and activities—especially agriculture, fisheries, tourism, and power generation—could entail potential losses of hundreds of billions of dollars per year by 2100. Reidmiller et al., “[Impacts, Risks, and Adaptation](#),” 2018, 45.

^g Reidmiller et al., “[Impacts, Risks, and Adaptation](#),” 2018, 46.

^h Federal Reserve Board, “[Financial Stability Report](#),” November 2020, 58.

ⁱ Reidmiller et al., “[Impacts, Risks, and Adaptation](#),” 2018, 46; Federal Reserve Board, “[Financial Stability Report](#),” November 2020, 58.

Forestry Annex Provisions

In the Forestry Annex text, each party committed “to combat trade associated with illegal logging and illegal trade in wildlife.”⁵⁷² Environmental provisions in the PTPA, including the Forestry Annex, are subject to the same dispute settlement procedures and remedies as all other PTPA provisions.⁵⁷³ Some Forestry Annex provisions cover only Peru, which, among other things, is required to strengthen its domestic forestry laws; increase the number and effectiveness of enforcement personnel; and implement policies to protect tree species covered under CITES. The Forestry Annex also requires Peru to periodically—and on request by the United States—conduct audits and verifications of domestic producers or exporters of timber products to the United States to evaluate compliance with applicable timber laws. To assist Peru in complying with the Forestry Annex provisions, the United States committed to providing capacity building.⁵⁷⁴ The parties also created a Sub-committee on Forest Sector Governance to facilitate cooperation and implementation of the Forestry Annex.⁵⁷⁵

After the PTPA went into effect, the Peruvian government reformed its forest protection infrastructure. Among other things, Peru established the Agency for the Supervision of Forest Resources and Wildlife (OSINFOR), an independent forestry oversight body to audit compliance with forestry law; replaced the General Directorate of Forests and Wildlife with the National Forest and Wildlife Service (SERFOR) within the Ministry of Agriculture and Irrigation, with responsibility for forest protection; enhanced the government’s ability to take enforcement actions, assess monetary fines, and cancel forest concessions for noncompliance; and instituted regulatory procedures for export permits for endangered CITES-listed timber species (big-leaf mahogany and Spanish cedar).⁵⁷⁶

U.S.-Peru Wood Products Trade

Peru’s exports of wood products have always made up a very small share of its overall exports of merchandise.⁵⁷⁷ In 2000, wood products represented 1.0 percent of Peru’s total exports, by value, and this share dropped to 0.3 percent in 2019. The United States accounted for more than half (59 percent, or \$41.7 million) of Peru’s wood exports in 2000, but this share steadily declined to 13 percent

⁵⁷² [PTPA](#), Annex on Forest Sector Governance, paragraph 1.

⁵⁷³ This was standardized in all four FTAs covered by the May 10th Agreement.

⁵⁷⁴ Capacity building generally connotes funding, technical assistance, and training.

⁵⁷⁵ For a comprehensive analysis of the PTPA Environment Chapter and Forestry Annex, see Jinnah and Morin, “[Greening Through Trade](#),” 2020, 35–37, 87–101.

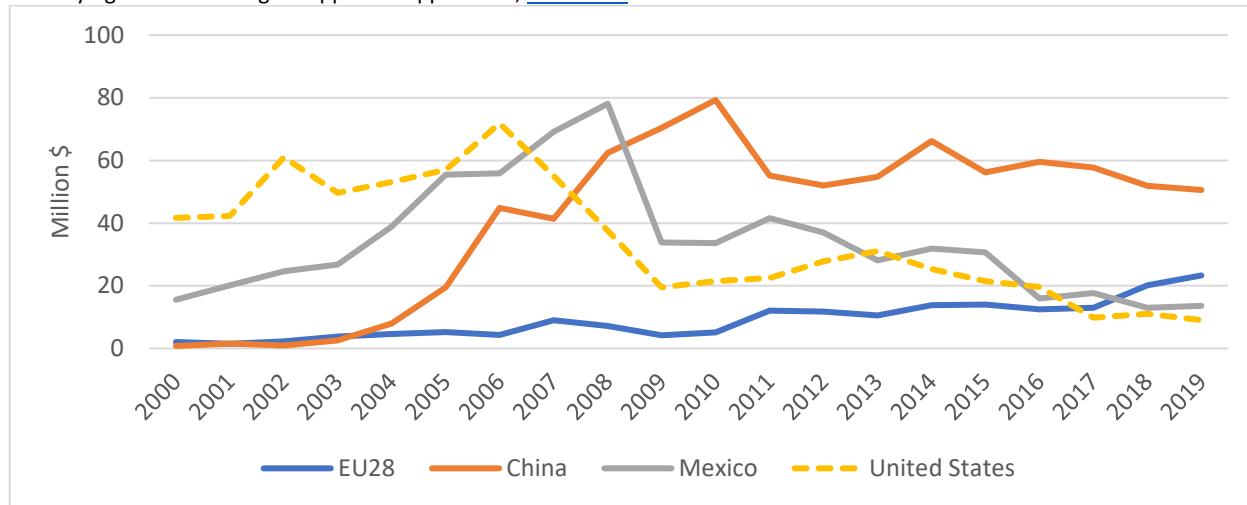
⁵⁷⁶ EIA, “[Moment of Truth](#),” 2018, 8; GAO, “[Free Trade Agreements](#),” 2014, 11.

⁵⁷⁷ Wood products are categorized under the Harmonized Commodity Description and Coding System (HS) Chapter 44.

(\$19.6 million) in 2009 (the year before the implementation of the Forestry Annex). In 2019 the U.S. share had fallen to 7 percent (\$9.0 million), behind China, the EU, and Mexico (figure 4.4).⁵⁷⁸

Figure 4.4 Peru exports of wood and wood products, select destination markets, 2000–2019 (millions of dollars)

Underlying data for this figure appear in appendix G, [table G.11](#).



Source: [IHS Markit](#), Global Trade Atlas database, HS Chapter 44, accessed July 23, 2020.

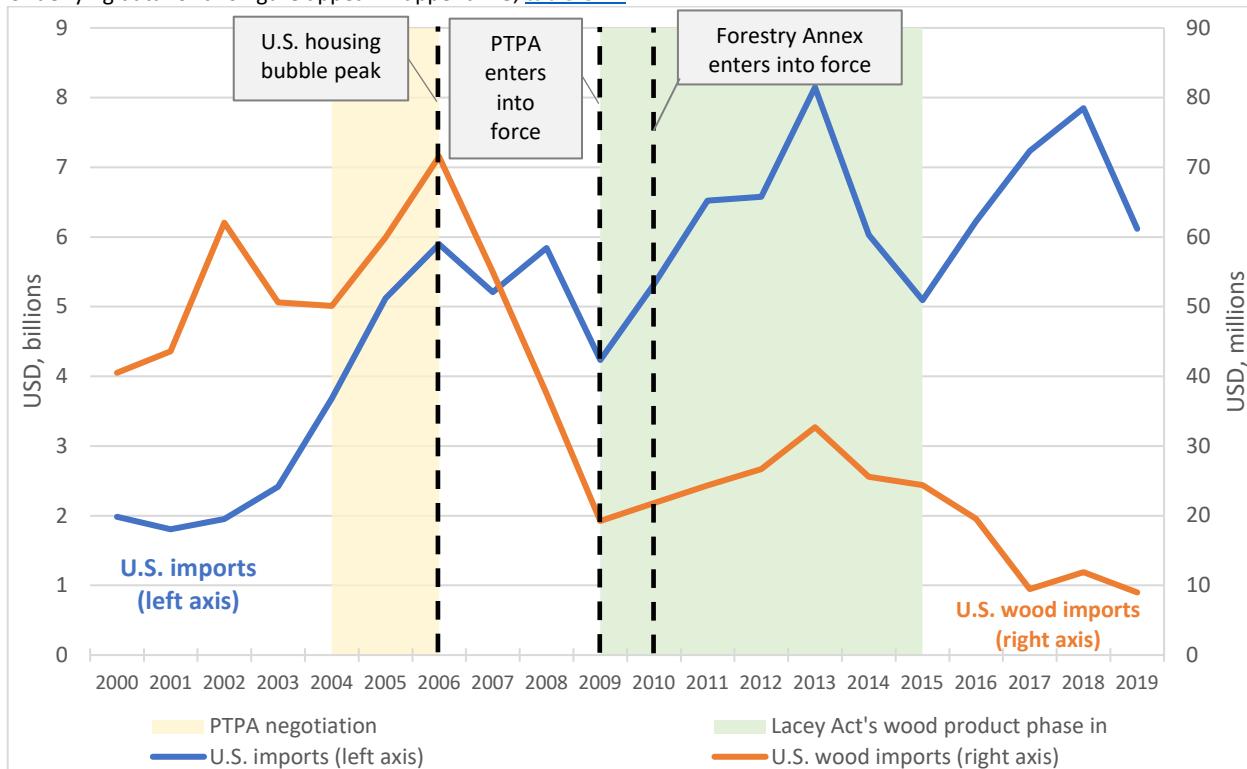
Note: EU28 includes the United Kingdom.

Trends in U.S. imports of wood products from Peru have diverged from total bilateral trade trends since the PTPA went into effect (as shown below in figure 4.5). Bilateral trade between the United States and Peru has increased across all product categories: total two-way U.S.-Peru trade was \$3.7 billion in 2000, \$9.1 billion in 2009, and \$15.8 billion in 2019. While overall U.S. imports from Peru have generally increased in recent years, U.S. imports of Peruvian wood products have been on a fluctuating, but overall sharp downward trajectory since 2006. The value peak of U.S. imports of Peru's wood products was in 2006 at \$71.5 million, which coincided with high domestic demand for wood construction materials during the high point of the U.S. housing bubble. Such imports then dropped precipitously during the downturn in the U.S. housing market and the financial crisis between 2007 and 2009. After experiencing a modest rebound in 2009–13, they steadily declined between 2013 and 2019. U.S. imports of Peruvian wood products were approximately \$9.0 million in 2019.

⁵⁷⁸ Peru's exports of wood products to the world fell 42.1 percent in 2008–19, from a high of \$209 million to \$121 million (all monetary figures in this case study are in nominal U.S. dollars). During this time its exports to its three largest single-country destinations (China, Mexico, and the United States) all decreased. Peru's exports to China, Mexico, and the United States dropped 18.9 percent (from \$62 million to \$51 million), 83 percent (from \$78 million to \$14 million), and 76 percent (from \$38 million to \$9 million), respectively.

Figure 4.5 U.S. overall and wood imports from Peru, 2000–2019

Underlying data for this figure appear in appendix G, [table G.12](#).



Source: USITC DataWeb/Census, Imports for consumption, accessed July 24, 2020.

Note: PTPA refers to the U.S.-Peru Trade Promotion Agreement. U.S. Ch 44 imports include U.S. imports of wood products categorized under the Harmonized Commodity Description and Coding System (HS) Chapter 44.

In addition to the correlation between the period the Forestry Annex has been in force and the decline in U.S. imports of Peruvian wood, there is only limited evidence suggesting causality. U.S. imports of wood products from Peru decreased sharply (54 percent) between 2016 and 2019, falling from \$19.6 million to \$9.0 million, as enforcement activities increased.⁵⁷⁹ The International Wood Products Association (IWPA), an association that represents U.S. wood importers, contends that implementation of the Forestry Annex partially contributed to the decline in U.S. imports of Peruvian wood.⁵⁸⁰ For example, a U.S. importer was quoted in a 2017 newspaper article that he was “all done with Peru” after having lost \$250,000 on impounded lumber from Peru.⁵⁸¹ Although implementation and enforcement of the Forestry Annex may have played a role, other factors might have also contributed to the decline in U.S. imports of wood products from Peru.⁵⁸²

⁵⁷⁹ This sharp decline between 2016 and 2019 followed a more moderate decline that started in 2013.

⁵⁸⁰ USITC, hearing transcript, October 6, 2020, 280 (testimony of Cindy Squires, IWPA).

⁵⁸¹ Bajak, “[AP Investigation Shows Peru Backsliding on Illegal Logging](#),” April 19, 2017.

⁵⁸² Other possible contributing factors include the global financial crisis (2007–09) and the concurrent significant contraction in the U.S. residential and commercial construction markets; the 2008 Lacey Act Amendment; and the 2009 violence between indigenous people and the Peruvian government over land use (there are indications that the adoption of the PTPA may have partially caused the domestic strife). See Jinnah and Morin, [Greening through Trade](#), 2020, 161–65; Romero, “[Protesters Gird for Long Fight over Opening Peru’s Amazon](#),” June 11, 2009.

A question worth posing is whether the decline in U.S. imports of Peruvian wood partially entailed a diversion to other countries, such as China, which is an enormous importer of wood. There is, however, no clear diversion in U.S. imports from Peru to China. China both imports and exports large values of wood products;⁵⁸³ it has increased its overall imports of wood products from the world by 491 percent since 2000 (\$3.7 billion in 2000 to \$25.0 billion in 2019). Rather than increasing, however, Peru's wood product exports to China have declined 36 percent since a peak of \$79.3 million in 2010 (when the PTPA entered into force) to \$50.6 million in 2019 (figure 4.5).

Forestry Annex Developments and Impacts

Among the most notable achievements of the Forestry Annex has been its role in helping establish and build capacity in Peruvian forestry related agencies, such as OSINFOR and the Ministry of Agriculture and Irrigation's SERFOR, that likely improved governmental monitoring and surveillance of timber harvesting in the Amazon rainforest.⁵⁸⁴ Several enforcement actions have occurred based on cooperative efforts of Peruvian government agencies, the U.S. government, and nongovernmental organizations.⁵⁸⁵

Nonetheless, efforts to reduce illegal logging and deforestation in Peru have continued to encounter significant political, socioeconomic, and practical obstacles.⁵⁸⁶ OSINFOR reported in 2015 that under a targeted law enforcement operation dubbed "Operación Amazonas 2014," it had detected violations in more than 90 percent of the inspections it carried out.⁵⁸⁷ In 2016, OSINFOR reported that 80 percent of the logging inspections it conducted between 2009 and 2016 detected irregularities.⁵⁸⁸ In 2016, Rolando Navarro, OSINFOR's head who had overseen the agency's enforcement efforts described above and was viewed by many observers as an advocate for stronger enforcement, was fired, which produced significant criticism.⁵⁸⁹

Deforestation also remains a severe problem: The Peruvian government reported in 2018 that the Peruvian Amazon had lost two million hectares of forest between 2001 and 2016.⁵⁹⁰ A 2018 academic study by scholars at the University of Texas at Dallas, using satellite imagery, concluded that

⁵⁸³ Peru is not among China's top sources for wood product (HS chapter 44) imports; Peru has consistently provided less than 1 percent of China's wood product imports (2000 to 2019). China's largest sources of wood products in the last few years were Russia, New Zealand, and United States, while the United States was China's largest wood product export partner.

⁵⁸⁴ USTR, "[Combatting Illegal Timber Trade in Peru](#)," accessed March 11, 2021.

⁵⁸⁵ In October 2015, the U.S. Department of Homeland Security seized 1,770 metric tons of Peruvian timber in Houston, Texas. In January 2016, Mexican law enforcement detained a ship and seized the Peruvian timber shipment. Bajak, "[AP Investigation Shows Peru Backsliding on Illegal Logging](#)," April 19, 2017.

⁵⁸⁶ Global Witness, "[New Analysis Shows Illegal Logging of the Peruvian Amazon](#)," January 17, 2019.

⁵⁸⁷ Government of Peru, OSINFOR, "[Resultados de las Supervisiones y Fiscalizaciones](#)" (Results of oversight and audits), 2015.

⁵⁸⁸ García Delgado, "[Osinfor: 80% de Inspecciones Contra Tala Ilegal Irregulares](#)" (Osinfor: 80% of inspections against illegal logging), September 15, 2016.

⁵⁸⁹ Thrush and Rappeport, "[U.S. Accuses Peru of Violating Agreement to Protect Rain Forest](#)," January 4, 2019;. EIA, "[Moment of Truth](#)," 2018, 5, 41–42.

⁵⁹⁰ Cortijo, "[Peruvian Amazon Undergoing Deforestation at Accelerating Pace: Official](#)," May 8, 2018.

deforestation has continued in Peru since the adoption of the PTPA, albeit no more than in other Amazonian countries.⁵⁹¹

The problems contributing to continued illegal logging and deforestation are manifold. Among other factors, structural corruption in the timber industry has reportedly perpetuated a system in which fraudulent logging permits are frequently assigned to shipments of wood harvested from unknown locations.⁵⁹² Proving illegality in remote areas is a resource-intensive process. Additionally, the importance of the timber and other industries in several Peruvian regions has led to backlashes by various stakeholders against enforcement efforts.⁵⁹³

Because of ongoing evidence of illegal logging, which sparked calls by members of Congress for active engagement,⁵⁹⁴ USTR applied the Forestry Annex verification and consultation request provisions, issuing its first verification request under the Forestry Annex in February 2016.⁵⁹⁵ The Forestry Annex contains provisions that based on the results of a verification or if Peru fails to carry out a requested verification, the United States may deny entry to shipments of timber products.⁵⁹⁶ In October 2017, the United States denied future entry of timber exports by a Peruvian company after Peru was unable to verify that a shipment by that company complied with all applicable Peruvian laws and regulations.⁵⁹⁷ In 2018, following continued concerns raised by environmental organizations and others of illegal exports of Peruvian timber, USTR took several additional actions.⁵⁹⁸

In December 2018, the Peruvian Government folded OSINFOR into the Ministry of the Environment, with the implication that it would lose its independent status.⁵⁹⁹ The move raised concerns from many.⁶⁰⁰ In January 2019, under the rubric of the Forestry Annex, USTR requested formal consultations with Peru regarding the contention that OSINFOR had lost its independence. USTR noted in its letter that the Forestry Annex contains a provision stating that “OSINFOR shall be an independent and separate agency and its mandate shall include supervision of verification of all timber concessions and

⁵⁹¹ Peinhardt, Kim, and Pavon-Harr, “[Deforestation and the United States–Peru Trade Promotion Agreement](#),” 2018.

⁵⁹² EIA, “[The Laundering Machine](#),” 2011; Finer et al., “[Logging Concessions Enable Illegal Logging Crisis](#),” 2014.

⁵⁹³ EIA, “[Moment of Truth](#),” 2018.

⁵⁹⁴ Representative Lloyd Doggett, [letter to USTR](#), June 5, 2015; Representative Earl Blumenauer and several other U.S. Representatives, [letter to USTR](#), July 28, 2015.

⁵⁹⁵ USTR, [USTR Letter to Peru’s Minister of Trade and Tourism](#), February 26, 2016.

⁵⁹⁶ PTPA Annex on Forest Sector Governance, paragraphs 7–14.

⁵⁹⁷ USTR, “[USTR Announces Unprecedented Action](#),” October 19, 2017.

⁵⁹⁸ In February 2018, under the PTPA, USTR asked Peru to verify that three specific timber shipments from Peru to the United States complied with all applicable Peruvian laws and regulations. As required by the Forestry Annex, Peru submitted a report that summarized the results of their verification inquiries; Peru found some indications of noncompliance meriting further investigation. USTR, “[Statement Regarding Implementation](#),” September 17, 2018. The verification process ultimately resulted in USTR, on behalf of the Interagency Committee on Trade in Timber Products, directing U.S. Customs and Border Protection to block timber imports from a Peruvian wood exporter based on illegally harvested timber found in its supply chain.

⁵⁹⁹ U.S. House Ways and Means Committee, [Letter to USTR](#), December 19, 2018.

⁶⁰⁰ For instance, the U.S. House Ways and Means Committee stated that “the Peruvian Government decided...to take steps that appear to us to clearly violate the Peru Trade Agreement by terminating the independence of the forest auditor, OSINFOR.” U.S. House Ways and Means Committee, [letter to USTR](#), December 19, 2018.

permits.”⁶⁰¹ In an apparent reversal, Peru restored OSINFOR’s previous status four months after USTR issued its consultations request.⁶⁰²

Case Study 3: Potential Impacts of NAFTA/USMCA Collective Bargaining Provisions in Mexico

Since the negotiation of NAFTA in the early 1990s, U.S. trade agreements have come to include a growing number of labor provisions.⁶⁰³ These provisions are intended to ensure that trading partners establish and uphold certain labor standards in their own markets, to improve labor conditions for workers in U.S. FTA partner countries, and to maintain the competitiveness of U.S. workers by discouraging parties from lowering labor standards to gain an unfair advantage.⁶⁰⁴

This case study focuses on the North American Agreement on Labor Cooperation (NAALC) and the USMCA provisions that affect collective bargaining rights in Mexico.⁶⁰⁵ It finds that NAALC—the NAFTA side agreement on labor—may have had a positive impact on labor advocacy in Mexico, but had minimal impact on overall wage levels in the country’s manufacturing sector. An analysis of wage rates in the computer and electronic products, autos and other transportation equipment, and metals industries reinforces this conclusion, finding that wage levels remained low following NAFTA enactment. Likewise, while low labor costs in Mexico may have contributed to U.S. foreign direct investment (FDI) in that country, there is no evidence that any changes in labor costs stemming from NAALC obligations had an effect on U.S. FDI in Mexico.

USMCA labor provisions are more stringent than those included in NAALC, but it is too early to assess whether they will have a positive impact on collective bargaining rights in Mexico.

NAFTA/NAALC Collective Bargaining Provisions

NAFTA marked the first instance in which labor obligations were connected to a U.S. FTA. Under NAALC, parties were obligated to maintain regulations that “provide for high labor standards” and to enforce these regulations.⁶⁰⁶ Freedom of association, unionization, and collective bargaining were listed among the labor principles that the agreement was intended to promote and were among the suggested issues

⁶⁰¹ USTR, “[USTR Requests First-Ever Environment Consultations under the U.S.-Peru Trade Promotion Agreement \(PTPA\)](#),” January 4, 2019.

⁶⁰² USTR, “[USTR Successfully Resolves Concerns Raised in First-Ever Environment Consultations under the U.S. Peru Trade Promotion Agreement \(PTPA\)](#),” April 9, 2019.

⁶⁰³ U.S. FTAs include numerous provisions that may directly or indirectly affect employment and wages in the United States. This case study focuses on those provisions that directly pertain to labor rights, working conditions, and the parties’ adherence to domestic and international labor law. Such provisions were included in a side agreement to NAFTA. In all subsequent U.S. FTAs, they appear in a dedicated labor chapter within the text of the agreement.

⁶⁰⁴ Krist, “[Chapter 8: the Labor Dilemma](#),” from Krist, *Globalization and America’s Trade Agreements*, 2013; DOL, ILAB, “[Trade Negotiation and Enforcement](#),” accessed September 28, 2020.

⁶⁰⁵ For more information on the evolution and content of U.S. FTA provisions on labor, see chapter 2 of this report.

⁶⁰⁶ [North American Free Trade Side Agreement on Labor Cooperation](#), Articles 2 and 3.

for cooperative activities. However, a party's failure to enforce its regulations on these issues was not subject to dispute settlement under the agreement. Dispute settlement applied only to the nonenforcement of minimum wage, child labor, and health and safety regulations, and occurred under a mechanism separate from the NAFTA dispute settlement process. Penalties under this dispute settlement mechanism could include monetary assessments or equivalent suspensions of NAFTA benefits. Monetary assessments would be used to improve the enforcement of labor legislation in the country where the violation had occurred and could not exceed 0.007 percent of the value of goods trade between the disputing parties.⁶⁰⁷

Overall Impacts

Some commentators assert that NAALC had a positive impact on labor rights advocacy in North America, while others contend that NAALC had little if any practical impact on labor rights in Mexico. Efforts to file cases under NAALC reportedly served as a venue for collaboration and alliance building between independent trade unions in Mexico, civil society, and international nongovernmental organizations. Observers state that these cases involved cross-border interactions that increased the influence of labor activists within Mexico, developed unions' ability to respond to labor violations, and raised public awareness of labor rights issues.⁶⁰⁸ Further, one observer contends that NAALC cases created pressure that led to some labor reform in Mexico.⁶⁰⁹

The AFL-CIO has expressed the view that Mexican workers' lack of unionization and collective bargaining rights prevented the growth in Mexican wages that was expected following the enactment of NAFTA, and that weak NAALC enforcement did little to address violations of labor rights in Mexico.⁶¹⁰ Further, another source contends that NAALC did not effectively protect the safety and health of Mexican workers or workers' rights—including the right to form independent unions.⁶¹¹

Effects on Wages and Productivity

Economic literature indicates that unionization typically has a positive effect on wage rates, as unions often use collective bargaining to negotiate higher pay.⁶¹² An increase in Mexican wage rates following the enactment of NAFTA and its side agreements (including NAALC) might therefore suggest that the agreement's labor obligations had a positive impact on unionization and collective bargaining in that country. However, available data indicate that Mexican manufacturing wages remained very low under NAFTA, suggesting that the side letter's collective bargaining provisions might have had little impact on Mexican workers' ability to organize in favor of pay increases.

Following the entry into force of NAFTA and its side agreements, hourly wages in Mexico's manufacturing sector grew at a slightly faster pace than U.S. manufacturing wages despite relatively low

⁶⁰⁷ [North American Free Trade Side Agreement on Labor Cooperation](#), Articles 27–41, Annex 39.

⁶⁰⁸ Compa, “[Trump, Trade, and Trabajo](#),” 2019, 271; Compa, “[NAFTA’s Labor Side Agreement](#),” 2001, 8; Aspinwall, “[Learning From the Experience of NAFTA](#),” August 10, 2017.

⁶⁰⁹ Aspinwall, “[Learning From the Experience of NAFTA](#),” August 10, 2017.

⁶¹⁰ USITC, hearing transcript, October 6, 2020, 81 (testimony of Eric Gottwald, AFL-CIO); Feingold, “[Mexico’s Labor Reform](#),” June 25, 2019.

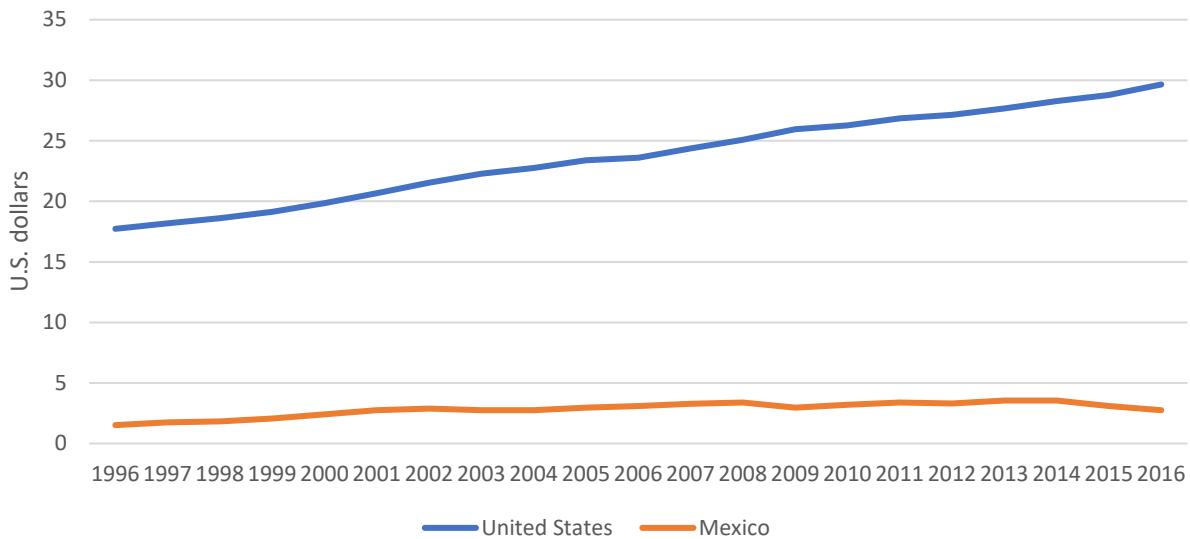
⁶¹¹ Brown, “[NAFTA’s 10 Year Failure](#),” December 2004.

⁶¹² See, for example, Mishel and Walters, “[How Unions Help All Workers](#),” August 26, 2003; Barth et al., “[Union Density Effects on Productivity and Wages](#),” October 2020; Bryson, “[Union Wage Effects](#),” July 2014.

growth in Mexican labor productivity. Specifically, hourly pay in Mexico's manufacturing sector increased at a compound annual growth rate (CAGR) of 3.0 percent during 1996–2016 (as compared to 2.6 percent in the United States), while the Mexican manufacturing sector's hourly labor productivity grew at a CAGR of only 0.8 percent.⁶¹³ However, Mexican wages remained at low levels. Additionally, hourly wage levels in the U.S. manufacturing sector remained about 11 times above Mexican manufacturing sectors wages throughout the period. Average hourly pay rates for Mexican and U.S. manufacturing workers stood at \$1.52 and \$17.73, respectively, in 1996, and had grown to \$2.74 and \$29.65 in 2016 (figure 4.6).⁶¹⁴

Figure 4.6 Hourly direct pay in the manufacturing sector in the United States and Mexico, in U.S. dollars, 1996–2016

Underlying data for this figure appear in appendix G, [table G.13](#).



Source: The Conference Board, [International Labor Comparisons Program](#), April 2018.

Labor Provisions and U.S. Investment in Mexico's Manufacturing Sector

The relationship between FTAs and FDI is complex, as tariff reductions, investment liberalization, environmental obligations, and various other FTA provisions may prompt increased and/or decreased

⁶¹³ USITC calculations based on Conference Board, [International Labor Comparisons Program](#), April 2018 (requires free subscription). Here, growth in Mexico's labor productivity was calculated using productivity estimates that are indexed for each country and sector (values for 2010 are set to 100). Data cited in a recent USITC publication indicates that value added per worker in Mexico's manufacturing industry (which stood at \$39,000 in 2017) was far lower than value added per worker in the U.S. manufacturing sector (\$215,000 in 2017). USITC, [COVID-19 Related Goods](#), December 2020, 41. The compound annual growth rate (CAGR) reflects the annual mean rate of growth over a certain time period. For more information, see Wayman, “[Compound Annual Growth Rate](#),” September 24, 2019.

⁶¹⁴ USITC calculations based on Conference Board, International Labor Comparisons program, April 2018.

investment among firms in partner countries, depending on individual firm strategies.⁶¹⁵ Like other FTA provisions, FTA labor provisions may have multiple and in some cases contradictory impacts on FDI. For example, the collective bargaining provisions that are the subject of this case study may discourage FDI in a particular country if they impose obligations that enable employees to organize successfully in support of higher wages, thus increasing firms' labor costs. Labor provisions could increase FDI, however, if such provisions increase labor productivity (for example, by limiting the number of hours that an employee may work).⁶¹⁶

Due to the large number of factors that may influence FDI decisions, FDI trends during the NAFTA/NAALC era cannot be attributed to any single FTA provision. However, the absence of large post-1994 increases or decreases in U.S. FDI in Mexico's manufacturing sector (as compared to U.S. FDI in other countries) suggests that any change in labor conditions stemming from the obligation to meet NAALC obligations was not the dominant factor influencing U.S. firms' investment decisions while this agreement was in force.⁶¹⁷ Following the enactment of NAFTA, a substantial and quickly increasing amount of U.S. manufacturing sector investment was directed to Mexico, but such investment was not notably larger or faster-growing than U.S. investment in other key markets. U.S. FDI in Mexico's manufacturing sector grew at a rate of 11.7 percent during the immediate post-NAFTA period (1994–98),⁶¹⁸ and at a rate of 4.2 percent from 1999 to 2019.⁶¹⁹

These growth rates are similar to those for total U.S. outward FDI in manufacturing during these periods (9.6 percent and 5.2 percent, respectively). During both periods, U.S. manufacturing sector investment in certain other countries—such as China and India—grew notably faster than in Mexico.⁶²⁰ Mexico's rank among single-country destinations for U.S. manufacturing sector FDI rose from seventh in 1994 (with \$10.1 billion) to sixth in 2019 (with \$41.2 billion); however, U.S. FDI in Mexico's manufacturing sector in 2019 was half the level of investment in the top three recipient countries—the Netherlands (\$113.7 billion), Canada (\$101.0 billion), and the United Kingdom (\$99.0 billion) (figure 4.7). Notably,

⁶¹⁵ For more information on the impact of FTA provisions on FDI, see chapter 3 of this report. Unless otherwise specified, this case study refers to accumulation of inward FDI (FDI stocks).

⁶¹⁶ See, for example, Parcon, "[Labor Market Flexibility](#)," October 2008.

⁶¹⁷ Analyses have found both positive and negative associations between FDI and the stringency of labor rights protections (including the protection of collective bargaining rights). See, for example, Busse, Nunnenkamp, and Spatareanu, "[Foreign Direct Investment and Labor Rights](#)," February 2011; and Krzywdzinski, "[Do Investors Avoid Strong Trade Unions](#)" 2014.

⁶¹⁸ BEA data on U.S. foreign direct investment are not comparable for all years between 1994 and 2019. Data are reported on a NAICS basis for 1999 onward, and on a SIC basis for previous years.

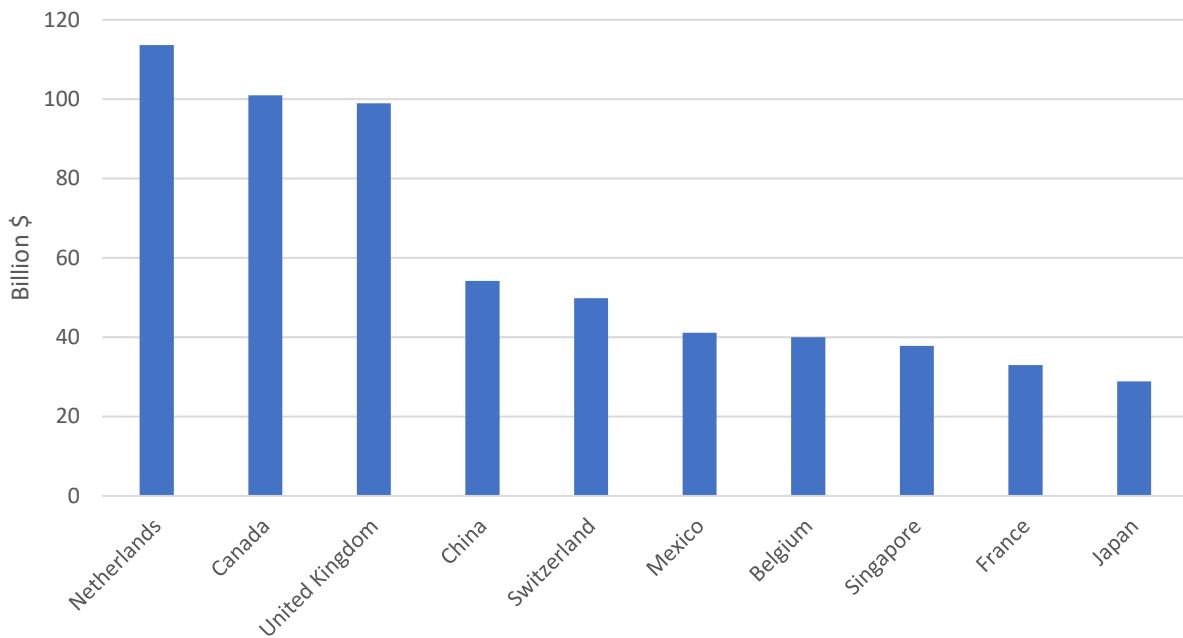
⁶¹⁹ U.S. FDI in Mexico's manufacturing sector increased at a faster rate during the immediate post-NAFTA period (11.7 percent from 1994–98) than during the pre-NAFTA period (8.2 percent during 1982–94). However, this was in keeping with trends in overall U.S. manufacturing sector FDI, which also grew at a comparatively faster rate during the post NAFTA period (9.6 percent from 1994–98) as compared to the pre-NAFTA period (7.6 percent during 1982–94). Several of the top country destinations for U.S. manufacturing sector FDI (such as the Netherlands, the United Kingdom, and Switzerland) also saw comparatively faster growth in such investment during the immediate post-NAFTA period. While U.S. investment in China was slightly slower during 1994–98 (40.2 percent) than during 1982–94 (45.6 percent), such growth far outstripped growth in any other top destination for U.S. manufacturing sector FDI—including Mexico—in both periods. USDOC, BEA, U.S. Direct Investment Abroad, [U.S. Direct Investment Position Abroad on a Historical-Cost Basis](#), accessed October 6, 2020.

⁶²⁰ During 1994–98, U.S. foreign direct investment in China and India's manufacturing sectors grew at annual rates of 40.2 percent and 17.2 percent, respectively. During 1999–2019, such investment increased at rates of 11.8 in China and 11.5 percent in India.

hourly manufacturing wage rates in each of the top three recipient countries were above \$23.00 in 2016, suggesting that factors other than labor costs impact U.S. manufacturing sector FDI.⁶²¹

Figure 4.7 Top 10 country markets for U.S. manufacturing sector FDI stocks, in billions of U.S. dollars, 2019

Underlying data for this figure appear in appendix G, [table G.14](#).



Source: USDOC, BEA, U.S. Direct Investment Abroad, [U.S. Direct Investment Position Abroad on a Historical-Cost Basis](#), accessed October 6, 2020.

Industry-specific Effects of Wage Rates on U.S. FDI in Mexico

Analysis of sector-specific information may provide additional insights about the impact of NAALC provisions on wage rates and, as a potential consequence, on inward investment. Quantitative and qualitative information indicate that U.S. FDI rose rapidly and that wage rates remained low in a number of specific Mexican industries following the enactment of NAFTA. This suggests that NAALC provisions may have had little impact on collective bargaining rights and workers' ability to use such rights as means to raise wages—in these Mexican sectors, and that continued low labor costs may have incentivized some shift in investment toward these sectors.

To illustrate these points, the following discussion focuses on three manufacturing industries which posted particularly rapid U.S. FDI increases as well as low and decreasing wages following the enactment of NAFTA: computer and electronic products; autos and other transportation equipment (including autos); and metals (tables 4.2 and 4.3). Data on productivity—which grew at relatively slow rates in

⁶²¹ In 2016, hourly direct pay in the manufacturing sector stood at \$27.37 in the Netherlands, \$23.99 in Canada, and \$24.28 in the United Kingdom. The Conference Board, International Labor Comparisons program, April 2018.

these Mexican industries following NAFTA enactment—is also provided below (table 4.4).⁶²² Each of the following three tables covers the longest post-NAFTA time period for which data on a particular indicator are available. Data on U.S. foreign direct investment from the Bureau of Economic Analysis (BEA) of the U.S. Department of Commerce are based on the North American Industry Classification System (NAICS) for 1999 onward, and based on the Standard Industrial Classification (SIC) system for previous years. As a result, data for 1994–98 and 1999–2019 are not comparable and are presented separately in table 4.3.

Table 4.2 Hourly compensation costs in three major industries in the United States and Mexico, 2008 and 2016

In U.S. dollars and percentages. CAGR = compound annual growth rate.

Industry	Country	2008 (U.S. \$)	2016 (U.S. \$)	CAGR, 2008–16 (%)
Computer, electronic, and optical products	United States	45.42	54.28	2.3
Computer, electronic, and optical products	Mexico	5.11	4.13	-2.6
Motor vehicles and other transportation equipment	United States	41.91	48.97	2.0
Motor vehicles and other transportation equipment	Mexico	6.39	4.68	-3.8
Primary and fabricated metals	United States	30.21	35.87	2.2
Primary and fabricated metals	Mexico	5.04	4.17	-2.3

Source: The Conference Board, [International Labor Comparisons program](#), April 2018.

Table 4.3 U.S. FDI in certain manufacturing industries in all countries and Mexico, 1998, 2019, and growth from 1994 to 1998 and 1999 to 2019^a

In billions of dollars and percentages. CAGR = compound annual growth rate. n.a. = data not available before 1999.

Industry	Country	1998 (billion \$)	CAGR, 1994–98 (%)	2019 (billion \$)	CAGR, 1999–2019 (%)
Computers and electronic products	Mexico	n.a.	n.a.	1.3	9.1
Computers and electronic products	All countries	n.a.	n.a.	143.2	5.6
Transportation equipment	Mexico	3.4	18.2	15.7	5.9
Transportation equipment	All countries	33.9	4.9	87.5	3.6
Primary and fabricated metals	Mexico	0.4	14.6 ^b	2.3	6.8
Primary and fabricated metals	All countries	18.3	16.9	48.9	4.2

Source: USDOC, BEA, [U.S. Direct Investment Abroad, U.S. Direct Investment Position Abroad on a Historical-Cost Basis by Country and NAICS](#), and [U.S. Direct Investment Abroad, U.S. Direct Investment Position Abroad on a Historical-Cost Basis by Country and SIC](#), accessed October 1, 2020.

^a BEA data on U.S. foreign direct investment are not comparable for all years between 1994 and 2019. Data are reported on a NAICS basis for 1999 onward, and on a SIC basis for previous years.

⁶²² The data presented in this section on compensation costs, FDI, and value added per hour cover different time periods due to varying availability. In all cases, data are presented for the longest possible span of years in which NAFTA was in force.

^b Data on U.S. FDI in Mexico's primary and fabricated metals industry were suppressed for 1994, so this figure reflects the CAGR in such investment during 1995–98.

Table 4.4 Indices of real value added per hour worked in three major industries in the United States and Mexico, 1994–2018
(2010 = 100) CAGR = compound annual growth rate.

Industry	Country	1994 (index)	2018 (index)	CAGR, 1994–2018 (%)
Computer, electronic, and optical products	United States	3	154	17.5
Computer, electronic, and optical products	Mexico	132	87	-1.7
Motor vehicles, trailers, and semi-trailers	United States	50	108	3.3
Motor vehicles, trailers, and semi-trailers	Mexico	66	92	1.4
Basic and fabricated metals	United States	80	106	1.2
Basic and fabricated metals	Mexico	84	91	0.3

Source: The Conference Board, [International Labor Comparisons program](#), April 2018.

Foreign investment in Mexico's computer and electronics manufacturing firms—including by U.S. firms—has increased in recent years due to that country's relatively low labor costs, skilled workforce, and low trade and investment barriers under its 14 FTAs (including NAFTA).⁶²³ In fact, one source reports that Mexico's average labor cost premium relative to China⁶²⁴—another large hub for computer and electronics manufacturing—decreased significantly and then turned negative in the 15 years 2001 to 2016—moving from a positive wage differential over 50 percent to a negative differential of nearly 20 percent (i.e., Mexican labor costs were lower than those in China)—encouraging firms to invest in Mexico.⁶²⁵

Following the enactment of NAFTA in 1994, several U.S. computer and electronics firms set up or expanded production facilities in Mexico. For example, Cisco Systems first established Mexican operations in 1993. It already employed 1,000 workers in Mexico in 2016, when it announced plans for a \$4 billion investment that would produce 270 additional jobs in that country.⁶²⁶ In 2013, IBM announced plans to close its manufacturing facility in Rochester, Minnesota, and relocate much of its server production to its Guadalajara location.⁶²⁷ Several other U.S.-based computer and electronics

⁶²³ NAPS, "[Why Mexico's Electronics Manufacturing Is Growing](#)," February 23, 2016; Tetakaki, "[The Advantages of Manufacturing in Mexico](#)," December 6, 2019.

⁶²⁴ Mexico's average labor cost premium compared to China's is the amount by which Mexico's average labor costs exceed those of China.

⁶²⁵ NAPS, "[Why Mexico's Electronics Manufacturing Is Growing](#)," February 23, 2016.

⁶²⁶ Ammachchi, "[Cisco to Invest Billions](#)," October 3, 2016; Cisco, "[Cisco Announces New Investments](#)," January 24, 2014.

⁶²⁷ At the same time, IBM announced the relocation of refurbished and used server operations from Minnesota to New York. Suzukamo, "[IBM Moving Rochester Production](#)," March 5, 2013; Morgan, "[IBM Moves Power Systems Manufacturing](#)," March 8, 2013.

manufacturing firms also maintain production facilities in Mexico, including HP, Jabil, and Texas Instruments.⁶²⁸

U.S. investment in Mexico's automotive industry grew throughout the NAFTA era. As in the U.S. automotive sector, growth in compensation has not kept pace with productivity gains.⁶²⁹ In fact, several sources point to Mexico's low wage rates—together with exchange rate stability, an increase in the number of Mexican components suppliers, and favorable Mexican trade and investment policy, among other things—as one of the factors that has prompted FDI in Mexico's automotive industry.⁶³⁰ Three of the largest U.S. light vehicle manufacturers maintain production facilities in Mexico, with GM, Fiat Chrysler, and Ford together accounting for 42 percent of Mexican auto and truck production in 2019.⁶³¹ Overall, the U.S. Department of Commerce reports that almost 80 percent of Mexico's export-oriented vehicle production is intended for the U.S. market.⁶³²

These companies' presence in Mexico predates NAFTA, with Ford having established operations in Mexico in 1925 and GM and Fiat Chrysler setting up Mexican operations in the 1930s. However, their investments in Mexico have increased in the years since NAFTA enactment, contributing to the growth in Mexico's automotive sector.⁶³³ GM and Fiat Chrysler opened new Mexican assembly plants in the 1990s due to the expected enactment of NAFTA, and both firms opened an additional plant in Mexico while NAFTA was in force. Further, Nissan, Honda, and other foreign light vehicle manufacturers established or expanded their presence in Mexico after 1994 in order to take advantage of NAFTA provisions (including lower U.S. tariff rates, among others) in serving the North American market.⁶³⁴

Overall, the number of passenger and commercial vehicles produced in Mexico increased at a CAGR of 5.2 percent (to almost 4 million) between 1994 and 2019. As a result, Mexico's share of global vehicle production increased from 2.3 percent to 4.4 percent during the period, as compared to a decrease in the U.S. production share from 24.7 percent to 12.0 percent.⁶³⁵ Moreover, U.S. investment in Mexico's automotive industry seems likely to continue under USMCA; for example, in 2020, Ford indicated that it would begin producing a second electric vehicle in Mexico,⁶³⁶ and three U.S.-based parts

⁶²⁸ Dun & Bradstreet, "[Texas Instruments De México](#)," accessed January 8, 2021; Bloomberg, "[Hewlett-Packard Mexico](#)," accessed January 8, 2021; Jabil, "[Locations](#)," accessed January 8, 2021.

⁶²⁹ In Mexico, hourly compensation costs in the motor vehicles and other transportation equipment industry fell at a CAGR of 3.8 percent during 2008–16, while the index of real value added per hour worked in the Motor vehicles, trailers, and semi-trailers industry increased at a CAGR of 0.6 percent. The Conference Board, [International Labor Comparisons program](#), April 2018.

⁶³⁰ Knowledge@Wharton, "[NAFTA, 20 Years Later](#)," February 19, 2014.

⁶³¹ Savaskan, "[Automobiles and Pickup Trucks](#)," April 2019, 18, 19; Corbishley, "[GM, Ford, BMW, VW, Honda](#)," October 5, 2019; LaReau, "[FCA Restarts Operations in Mexico](#)," May 26, 2020; Ward's Intelligence, "[Mexico Vehicle Production by Model by Month](#)," 2019 (fee required).

⁶³² USDOC, ITA, "[Automotive Industry](#)," August 17, 2020.

⁶³³ Savaskan, "[Automobiles and Pickup Trucks](#)," April 2019, 18, 19; Corbishley, "[GM, Ford, BMW, VW, Honda](#)," October 5, 2019; LaReau, "[FCA Restarts Operations in Mexico](#)," May 26, 2020; Klier and Rubenstein, "[Mexico's Growing Role](#)," 2017.

⁶³⁴ Klier and Rubenstein, "[Mexico's Growing Role](#)," 2017.

⁶³⁵ USITC calculations based on USDOT, BTS, [Table 1-23: World Motor Vehicle Production](#), accessed January 12, 2021.

⁶³⁶ Ford currently manufactures the electric Mustang Mach-E in Cuautitlán, Mexico. Ford, "[Ford Taps Kansas City](#)," November 10, 2020.

manufacturers—Motorcar Parts of America, Stant, and Prime Wheel Corporation—announced that they plan to make investments that together may create as many as 2,800 jobs in Mexico.⁶³⁷

There are indications that U.S. basic and fabricated metals manufacturers have invested in Mexico due to its lower wage rates and proximity to customers in Mexico's growing downstream manufacturing markets. In 2017, U.S. firm Rexnord closed its ball bearings manufacturing facility in Indianapolis—which had employed between 300 and 350 individuals—in an effort to reduce costs by relocating some of the plant's production to Mexico.⁶³⁸ This relocation reportedly was possible due to the rising skill levels among workers in Mexico, whose hourly pay reportedly ranges between \$3 and \$6 (as compared to \$25 plus benefits in Indianapolis).⁶³⁹ In 2020, low labor costs and the opportunity to increase its business with Mexico's automotive industry prompted U.S. steelmaker Nucor to launch a steel sheet production facility in Mexico through a joint venture with Japanese firm JFE Steel Corporation.⁶⁴⁰ The availability of a skilled workforce, low labor costs, and a desire to compete with producers in Mexico also prompted California-based Brake Parts Inc. to move production to that country in 2016.⁶⁴¹

Additionally, a few small U.S.-based metal manufacturing firms have established production facilities in Mexico since NAFTA enactment. For example, in 2016, Keats Manufacturing established a 13-employee metal stamping facility in Querétaro which enables the firm to supply Mexican and South American customers in several downstream manufacturing industries on a just-in-time basis.⁶⁴² In 2012, U.S.-headquartered Maysteel opened a 60-employee sheet metal plant in Monterrey, which the firm expanded in 2018. Among other advantages, the location reportedly offers the firm access to quality workers and proximity to customers—such as data center and renewable energy firms—and suppliers.⁶⁴³

USMCA

USMCA provisions on collective bargaining are considerably more stringent than those of NAALC. Mexico has passed legislation to comply with its new USMCA obligations, and as of May 2021, two cases

⁶³⁷ Mahoney, “[More Factories](#),” August 24, 2020.

⁶³⁸ Sanchez, “[End of an Era](#),” November 22, 2017; Reed, “[From Rage to Reality](#),” accessed January 22, 2021; Tangel, “Indiana Firm Rexnord,” December 16, 2016 (fee required); Puzzanghera, “[These Three U.S. Companies](#),” December 19, 2016.

⁶³⁹ Stockholm, “[Becoming a Steelworker](#),” October 14, 2017; Reed, “[From Rage to Reality](#),” accessed January 22, 2021; Puzzanghera, “[These Three U.S. Companies](#),” December 19, 2016.

⁶⁴⁰ Smith “[Nucor Takes Advantage of USMCA](#)” March 5, 2020; Zacks Equity Research, “[Nucor-JFE Sheet Steel Facility](#),” March 10, 2020. This joint venture extended Nucor's Mexican operations, which already included steel sheet facilities that it owns jointly with Mitsui & Co, U.S.A. (a subsidiary of Japanese firm Mitsui) and a precision castings facility that it acquired in 2018. Argus Media, “[Nucor Boosts Mexico Footprint](#),” November 29, 2018; Nucor, [2012 Annual Report](#), 11, accessed January 22, 2021.

⁶⁴¹ Puzzanghera, “[These Three U.S. Companies](#),” December 19, 2016.

⁶⁴² Keats, “[Keats Celebrating 1 Year](#),” October 3, 2017; Mexico Now, “[Metal Stamping Supplier Keats Manufacturing](#),” November 18, 2016.

⁶⁴³ Maysteel, “[Maysteel Industries, LLC Expands Operations](#),” February 26, 2020; Maysteel, “[Maysteel Industries, LLC Expands Production Footprint](#),” November 12, 2018; Maysteel, “[Maysteel's Monterrey, MX Plant](#),” June 18, 2012; Maysteel, “[Maysteel Expands Production Operations](#),” December 20, 2011.

have been filed under the USMCA Facility-Specific Rapid Response Labor Mechanism. At the same time, delays in the implementation of reforms required under this legislation, and recent actions against workers and labor activists, suggest that the impact of the obligations on workers' rights to date has not yet been substantial. However, these provisions have been in place for only a short time, and it is too early to assess their long-term impact.

Collective Bargaining Provisions

USMCA obligates all parties to maintain, implement, and refrain from weakening laws that protect collective bargaining rights, and specifically requires Mexico to adopt new worker protections that effectively recognize workers' collective bargaining rights. These Mexico-specific provisions, which appear in Annex 23-A of the agreement, obligate Mexico to adopt laws that protect the right to bargain collectively and allow workers "to organize, form, or join the union of their choice."⁶⁴⁴ The annex specifies, among other things, that this legislation must prohibit interference by employers in union undertakings, provide for free union elections that use a secret ballot, and require that revisions to collective bargaining agreements be approved by a majority of covered workers. USMCA collective bargaining obligations are enforceable under USMCA's dispute settlement mechanisms, including the rapid response labor mechanism which enables labor panels to impose penalties on individual facilities that fail to observe workers' collective bargaining rights.⁶⁴⁵

This annex was directed at Mexico's legislation on collective bargaining. At the time of USMCA's negotiation, this legislation was considered lax by certain industry observers and was often used in ways that did not benefit workers. In particular, a large share of union contracts established prior to the USMCA function as "protection contracts."⁶⁴⁶ These are contracts negotiated between an employer and a union, often without knowledge or input from the employees the union is supposed to represent.⁶⁴⁷ As a result of such pro-company arrangements, firms are reportedly able to keep workers' wages lower than would be expected in the presence of strong representative unions.⁶⁴⁸ In a December 2018 submission to the Commission, the AFL-CIO characterized these protection contracts as "the single most serious threat to freedom of association, democratic collective bargaining, and higher wages in Mexico."⁶⁴⁹

⁶⁴⁴ USMCA, [Annex 23-A](#), 2(a).

⁶⁴⁵ USMCA, [Annex 31-A](#). Although not directly related to collective bargaining issues, USMCA also includes labor value content rules governing the production of vehicles, which may impact wages in Mexico. Specifically, a good must contain a minimum amount of originating material produced by workers paid \$16 per hour or higher in order to qualify under USMCA rules or origin. USMCA, Chapter 4, Appendix, Article 7.3(a); USITC, [U.S.-Mexico-Canada Trade Agreement](#), April 2019, 69–81.

⁶⁴⁶ Some estimates suggest that up to 90 percent of all union contracts in Mexico function as protection contracts. American Center for International Labor Solidarity, [Justice for All](#), 2003; Penman-Lomeli, "[The Fight for Mexican Labor](#)," October 20, 2016; Fair Labor Association, "[Protection Contracts in Mexico](#)," March 2015.

⁶⁴⁷ For more information on collective bargaining and protection contracts in Mexico, see U.S. Department of State, Bureau of Democracy, Human Rights, and Labor, [Mexico 2017 Human Rights Report](#), 31–34, accessed November 19, 2018.

⁶⁴⁸ Stevenson, "[U.S.-Mexico Deal Unlikely to Boost](#)," August 31, 2018; American Center for International Labor Solidarity, [Justice for All](#), 2003, 16–17.

⁶⁴⁹ AFL-CIO, post-hearing submission to USITC, Inv. No. TPA-105-003, December 20, 2018, 5.

Potential Impacts

Mexico passed labor reform legislation in May 2019 in accordance with its obligations under Annex 23-A of USMCA—to conform with constitutional amendments made in February 2017, and to comply with ILO Convention 98 on collective bargaining and organization.⁶⁵⁰ Among other things,⁶⁵¹ this legislation protects unions from company interference, grants workers' discretion over union membership and the payment of union dues, and mandates that union elections must occur through secret vote. The legislation also includes provisions requiring the registration of new and existing collective bargaining agreements, which require majority support as determined by a secret vote in which a minimum of 30 percent of covered employees participate.⁶⁵²

Some sources expect that USMCA, together with the recent Mexican legislation implementing USMCA obligations, will have a positive effect on independent unionization and wage rates in Mexico.⁶⁵³ For example, one source states that similar labor reforms in Colombia led to a large increase in independent unionization in that country.⁶⁵⁴ In Mexico's automotive manufacturing sector, USMCA's labor provisions and automotive-specific content requirements reportedly may improve labor conditions and raise wage rates.⁶⁵⁵ One source anticipates that USMCA may facilitate labor organization and thus boost workers' demands for workplace safety, such as during the COVID-19 pandemic.⁶⁵⁶ USMCA labor provisions and Mexico's labor reform are reportedly among the factors that have prompted recent strikes and threatened strikes in Mexico—such as those that are part of the 20/32 movement in Matamoros.⁶⁵⁷ Additionally, the revised Mexican labor legislation itself has demonstrated some resilience, as it has withstood challenges to its constitutionality.⁶⁵⁸

Conversely, some have expressed doubt that Mexico's new laws will improve Mexican workers' collective bargaining rights in the near future. In submissions to the Commission, Public Citizen and the AFL-CIO indicate that full implementation of Mexico's new labor legislation may not occur for several years, and that existing labor boards will continue to operate until their case backlogs have been

⁶⁵⁰ Collins, Ornstein, and Gulotta, "[Mexico Overhauls Federal Labor Law](#)," May 10, 2019.

⁶⁵¹ In addition to several other provisions that directly relate to unionization and collective bargaining, the new legislation also includes measures on labor courts, discrimination, child labor, and forced labor. De la Vega, "[Mexico](#)," May 6, 2019; DOL, ILAB, "[United States-Mexico-Canada Agreement](#)," May 30, 2019, 28.

⁶⁵² Lally, "[Changes to Mexico's Labor Law](#)," October 1, 2019; Collins, Ornstein, and Gulotta, "[Mexico Overhauls Federal Labor Law](#)," May 10, 2019; de la Vega, "[Mexico](#)," May 6, 2019; DOL, ILAB, "[United States-Mexico-Canada Agreement](#)," May 30, 2019.

⁶⁵³ Collins, Ornstein, and Gulotta, "[Mexico Overhauls Federal Labor Law](#)," May 10, 2019; Lally, "[Changes to Mexico's Labor Law](#)," October 1, 2019.

⁶⁵⁴ Lally, "[Changes to Mexico's Labor Law](#)," October 1, 2019. In contrast, the AFL-CIO argues that collective bargaining rights violations continue to occur in Colombia despite that country's obligations under the U.S.-Colombia FTA. See for example, Waters, "[Labor Rights Protections in Trade Deals Don't Work](#)," October 24, 2017.

⁶⁵⁵ Corbishley, "[GM, Ford, BMW, VW, Honda](#)," October 5, 2019; Stuart, "[How Will the Shift from NAFTA to USMCA](#)," October 12, 2018.

⁶⁵⁶ Pickrell, "[Will the USMCA Improve Labor Conditions in Mexico?](#)" September 4, 2020.

⁶⁵⁷ The 20/32 movement, which began in January 2019, comprised a number of strikes that demanded 20 percent wage increases and yearly bonuses of Mex\$32,000. Blue, "[A Labor Spring](#)" March 1, 2019; Solomon, "[Mexico Union Threatens Home Depot Strike](#)," January 16, 2020.

⁶⁵⁸ Monroy, "[Supreme Court Upholds](#)," November 25, 2020; Independent Mexico Labor Expert Board, "[Interim Report](#)," December 15, 2020, 11–12.

cleared.⁶⁵⁹ Public Citizen contends that implementation will be slowest in the Mexican states that account for particularly large shares of manufacturing output, labor conflicts, and FDI. It also states that delays—partly due to COVID-19 restrictions—have contributed to a lack of transparency in the process.⁶⁶⁰ The AFL-CIO contends that incumbent unions can influence verification votes on current collective bargaining agreements (mandatory votes on whether to retain existing contracts) by determining the timing of these votes and hiring the notaries that certify them. The AFL-CIO also states that state officials, existing unions, and employers are finding ways to undermine the new legislation.⁶⁶¹

An interim report issued by the Independent Mexico Labor Export Board, which is tasked with monitoring Mexican compliance with USMCA labor obligations, indicates that several promised labor reforms remain unimplemented. While the report notes that there has been significant progress, it also states that, in many cases, democratic union elections and worker approval of collective bargaining agreements have not occurred, protection contracts continue to exist, and workers may risk job loss and jail by challenging workplace conditions.⁶⁶² Other sources also suggest that recent events signify an unwillingness to comply with USMCA labor obligations. The arrest of Susana Prieto—a labor lawyer involved in the 20/32 movement—and reported firings of protesting workers have been viewed as signs that Mexican labor reform may be difficult to achieve.⁶⁶³ Further, one source indicates that USMCA and Mexican labor reform has not affected labor conditions in the country, as evidenced by manufacturing facilities' lack of COVID-19 sanitary protections.⁶⁶⁴

As of May 2021, two separate requests for review have been filed under the USMCA Facility-Specific Rapid Response Labor Mechanism (the “Mechanism”).⁶⁶⁵ The first request was initiated by a group that includes U.S. and Mexican unions and Public Citizen. This request claims that workers at Tridonex (an auto-parts manufacturer in Matamoros, Mexico, and a subsidiary of U.S.-based Cardone Industries) were subject to retaliation for unionization efforts.⁶⁶⁶ The second request, which was initiated by USTR on May 12, 2021, alleges that workers’ rights violations occurred during a union vote at a General Motors de México plant in Silao, Mexico.⁶⁶⁷ In connection with the U.S. request, U.S. Trade Representative Katherine Tai directed the Secretary of the Treasury to suspend the final settlement of customs accounts related to entries of goods from GM’s Silao facility. Under USMCA Article 31-A.4.3, liquidation will resume once there is an agreement by the Parties that there is no Denial of Rights or a

⁶⁵⁹ AFL-CIO, written submission to USITC, November 9, 2020; Public Citizen, written submission to USITC, November 6, 2020, 5–9.

⁶⁶⁰ Public Citizen, written submission to USITC, November 6, 2020, 7–12.

⁶⁶¹ For example, the AFL-CIO states that Mexico’s existing unions are disputing the constitutionality of the country’s new labor laws through legal action, and that these unions, governors, and employers are forming “labor peace pacts” which aim to prevent strikes and control wages and workers. AFL-CIO, written submission to USITC, November 9, 2020.

⁶⁶² Independent Mexico Labor Export Board, “[Interim Report](#),” December 15, 2020, 37; “Mexico Falling Short on Labor,” December 16, 2020.

⁶⁶³ Solomon, “[Mexican Labor Activist’s Arrest](#),” June 30, 2020; Blue, “[A Labor Spring](#)” March 1, 2019.

⁶⁶⁴ Pickrell, “Will the USMCA Improve Labor Conditions in Mexico?” September 4, 2020 (subscription required).

⁶⁶⁵ For more information of the USMCA Facility-Specific Rapid Response Labor Mechanism, see chapter 2 of this report.

⁶⁶⁶ Kaplan, “[Complaint Accuses Mexican Factories](#),” May 10, 2021; Emerson, Weiss, and Simmons, “[US and Mexican Unions](#),” May 13, 2021.

⁶⁶⁷ USTR, “[United States Seeks Mexico’s Review](#),” May 12, 2021.

finding by a panel that there is no Denial of Rights.⁶⁶⁸ Further, Mexico has initiated a review of the USTR request and has indicated that it will propose remedies after the review is complete.⁶⁶⁹ These requests demonstrate that USMCA provisions have provided governments and nongovernmental organizations with a new tool for drawing attention to, and pursuing remedies for, labor rights issues in USMCA member countries. However, because the outcome of these cases and the long-term utility of the Mechanism is not yet known, it remains too early to assess whether action under the USMCA will have an overall impact on collective bargaining rights in Mexico.

Case Study 4: U.S. FTA Temporary Entry Provisions

U.S. FTA provisions on temporary entry of business persons obligate parties to allow certain categories of business persons from signatory countries to enter into their territories for the purpose of engaging in sales, marketing, and other specifically identified activities. Temporary entry provisions also call on parties to apply their regulations on the entry and temporary stay of natural persons in a way which does not unduly obstruct trade and investment between the parties.⁶⁷⁰ This case study examines trends in visa issuances and admissions affected by temporary entry provisions and, to the extent possible, examines the effects of the cross-border movement of workers on specific U.S. industries. Its findings suggest that NAFTA and USMCA provisions on temporary entry have likely had a significant effect on the movement of business persons from Canada and Mexico to the United States, while U.S.-Chile and U.S.-Singapore visa provisions likely have had little or no impact.

Temporary Entry Provisions and Related Visa Categories

Various sources suggest that temporary entry obligations specifically, and the admission of temporary workers more generally, enable firms to address skill gaps rapidly, provide access to expertise that contributes to job creation in the United States, and facilitate trade.⁶⁷¹ Temporary entry provisions are found in only three U.S. FTAs: NAFTA/USMCA,⁶⁷² and the U.S.-Chile and U.S.-Singapore agreements. These agreements' temporary entry chapters are largely similar. Among other common obligations, each of these chapters compels parties to administer temporary entry measures in a manner that does not unduly delay trade or investment, to provide written explanations for refusals to grant entry, to limit processing fees for temporary entry applications, and to publish data and rules on temporary entry.

⁶⁶⁸ Denial of Rights is defined in the Mechanism as a denial of the right of free association and collective bargaining under laws necessary to fulfill the respondent party's USMCA obligations.

⁶⁶⁹ CE NoticiasFinancieras, "[Mexico to Propose Damage Repair](#)," May 13, 2021. Prior to the USTR's filing, the Mexican government stopped a union vote at the GM facility due to reports of tampering. Stevenson, "[Mexican Union Vote](#)," April 23, 2021; Lynch, "[White House Calls on Mexican Government](#)," May 12, 2021.

⁶⁷⁰ [NAFTA](#), Chapter 16; [USMCA](#), Chapter 16; [U.S.-Chile FTA](#), Chapter 14; [U.S.-Singapore FTA](#), Chapter 11.

⁶⁷¹ See, for example, Maurer, "[Cross-Border Visas Survive NAFTA Negotiations](#)," October 5, 2018; D'Souza, "[Canadians Working in U.S. under NAFTA Exemption](#)," December 24, 2016; Jansen and Piermartini, "[Temporary Migration and Bilateral Trade Flows](#)," 2009.

⁶⁷² There are no substantive differences between the temporary entry provisions in the NAFTA and USMCA agreements. For more information, see USITC, [U.S.-Mexico-Canada Trade Agreement](#), April 2019, 245–47.

Each specifies that the provisions of the agreement do not apply to rules about nationality, citizenship, or permanent residence or employment. They also do not bar the parties from imposing visa regulations or from regulating the temporary entry of foreign nationals.

Further, the temporary entry provisions in all three agreements obligate parties to allow business visitors, traders and investors, intra-company transferees, and professionals⁶⁷³ from signatory countries to enter into their territories for the purpose of engaging in sales, marketing, and other activities that are specifically listed in the chapter's appendixes. The United States fulfills its obligations under these provisions through the TN visa program (NAFTA/USMCA) and the H-1B1 visa program (U.S.-Chile and U.S.-Singapore agreements). Table 4.5 provides information on some of the key rules governing the TN, H-1B1, and similar U.S. visa programs.

Table 4.5 Provisions of the H-1B, H-1B1, L-1, and TN visa programs

Provision	H-1B	H-1B1	L-1	TN
Eligible workers	Business persons in specialty occupations with post-secondary degrees or equivalent experience, and renowned fashion models.	Business persons in specialty occupations with post-secondary degrees or equivalent experience, as well as management consultants and disaster relief claims adjusters (from Chile and Singapore) and physical therapists and agricultural managers (from Chile).	Executives, managers, and specialists that are being transferred to work at a U.S. office of a firm for which they have been continuously employed for a minimum of one year in the preceding three-year period.	Professionals in one of more than 60 professions listed in the NAFTA and USMCA agreements.
Employer must file a petition and a labor condition application	Yes	Only a labor condition application is required.	No	No
Maximum initial length of stay	The length of time specified in the employer's petition, with a maximum of 3 years	One year	One year (for workers setting up new offices) or three years (for all other L-1 visa holders)	Three years ^a
Renewals	Extensions are possible—total length of stay is generally limited to 6 years	Unlimited	Extensions are possible—total length of stay is limited to 5 years (for specialists) and 7 years (for executives and managers)	Unlimited
Yearly cap	85,000 (65,000 plus 20,000 holders of post-graduate degrees)	Chile - 1,400; Singapore - 5,400	None	None ^b

⁶⁷³ For an explanation of these categories of business persons, see USMCA, Annex 16-A.

Provision	H-1B	H-1B1	L-1	TN
Visas holders can apply for a green card	Yes	No	Yes	No

Sources: North American Free Trade Agreement, Chapter 16; U.S. Department of State, “[Temporary Workers and Trainees—H Visas](#),” September 14, 2020; DHS, USCIS, “[L-1B Intracompany Transferee](#),” accessed December 3, 2020; DHS, USCIS, “[L-1A Intracompany Transferee](#),” accessed December 3, 2020; DHS, USCIS, “[TN NAFTA Professionals](#),” accessed December 3, 2020; SGM Law Group, “[H-1B Visa](#),” accessed December 3, 2020; SGM Law Group, “[TN Visa Lawyer](#),” accessed December 3, 2020; SGM Law Group, “[L-1 Visa FAQs](#),” April 5, 2019; VisaPro, “[H1B1 Visa for Chileans and Singaporeans](#),” accessed December 2, 2020.

^a In 2008, the U.S. Department of Homeland Security increased the maximum initial length of stay under TN visas to three years (up from one year). “[Period of Admission and Extension of Stay](#),” 73 Fed. Reg. 61332 (October 16, 2008).

^b NAFTA placed a temporary cap (of 5,500) on the number of Mexican professionals that could enter the United States each year, and such entries required a labor condition application. Under NAFTA provisions, these measures expired on January 1, 2004. NAFTA did not subject Canadian entries to these limitations, and USMCA does not include a temporary cap on entries from either Canada or Mexico. NAFSA: Association of International Educators, “[L-129 and LCA No Longer Necessary](#),” accessed December 7, 2020.

One key difference between these agreements is their specific provisions on the temporary entry of professionals. NAFTA/USMCA obligations require parties to allow the temporary entry of professionals that will be employed in one of the occupations listed in annexes to these agreements.⁶⁷⁴ They also specify that such entries cannot be subject to numerical restrictions (with certain exceptions) or to “prior approval procedures, petitions, labor certification tests or other procedures of similar effect.”⁶⁷⁵ The United States established the TN visa category in accordance with these obligations. To be eligible for a TN visa, an individual must be a Canadian or Mexican citizen who is qualified to practice in one of 63 listed professions, and who has secured a full- or part-time position with a U.S. employer.⁶⁷⁶ TN visas are valid for three years, can be renewed an indefinite number of times, and are not subject to a numerical cap. Canadian nationals can be granted TN status at the border without a visa, while Mexican citizens must go to a U.S. consulate or embassy to apply for a TN visa.⁶⁷⁷

By contrast, the U.S.-Chile and U.S.-Singapore agreements do not include complete lists of occupations that are covered under their temporary entry provisions. Instead, they indicate that their provisions on the entry of professionals apply to specialists with post-secondary degrees, as well as physical therapists and agricultural managers (under the U.S.-Chile agreement) and management consultants and disaster relief claims professionals (under both the U.S.-Chile and U.S.-Singapore agreements). The number of foreign professionals that can enter the United States under these provisions is capped at 1,400 per year for Chile and 5,400 per year for Singapore.⁶⁷⁸ The United States established the H-1B1 visa category in accordance with these obligations. H-1B1 visas are valid for one year, and there is no limit on H-1B1 renewals.⁶⁷⁹

⁶⁷⁴ NAFTA and USMCA list occupations that are covered by the agreements’ provisions on the temporary entry of professionals. These include a number of “general” professions (such as accountant, architect, computer systems analyst, engineer, and lawyer, among many others), as well as several medical, scientific, and teaching professions. USMCA, Annex 16-A, Appendix 2; NAFTA, Appendix 1603.D.1.

⁶⁷⁵ [NAFTA](#), Chapter 16: Temporary Entry for Business Persons.

⁶⁷⁶ For example, Mexican long-haul truckers are not eligible for TN visas, as “truck driver” (or a similar occupation) does not appear on the list. However, there are other visa categories unrelated to NAFTA/USMCA that provide for the entry of other types of workers that are not included in this list. For more information, see U.S. Customs and Border Protection, “[How Do I Enter the United States as a Commercial Truck Driver?](#)”

⁶⁷⁷ DHS, USCIS, “[TN NAFTA Professionals](#),” SGM Law Group, “[TN Visa Lawyer](#).”

⁶⁷⁸ VisaPro, “[H1B1 Visa For Chileans And Singaporeans](#).”

⁶⁷⁹ U.S. Department of State, “[Temporary Workers and Trainees—H Visas](#),” September 14, 2020.

Impact of Temporary Entry Provisions

Temporary entry provisions can affect the U.S. economy through the cross-border movement of persons and through impacts in particular industries. Data that provide some estimate of the cross-border movement of persons into the United States are available from two sources: the U.S. Department of State's Bureau of Consular Affairs, which publishes data on visa issuances, and the U.S. Department of Homeland Security (DHS), which publishes data on admissions under specific visa categories. Both of these datasets offer insight into the use and impact of certain U.S. visa programs, though each has limitations. Data on visa issuances—which reflect the number of visas granted to foreign nationals in a certain year—may underestimate the number of visa holders in the United States at any given time, as a visa may be valid for more than one year or may not be required for entry. Admissions data may overstate the presence of visa holders in the United States, as a single visa holder that frequently travels to and from their home country may account for multiple entries in a single year. Thus, while neither dataset gives a clear estimate of the number of foreign nationals that are participating in the U.S. workforce in any given year, considering both datasets together may suggest approximate upper and lower bounds for the number of foreign nationals present in the United States under a certain visa program.

Data on cross-border movement of U.S. workers into Canada, Mexico, Chile, and Singapore under free trade agreement provisions are unavailable from U.S. statistical agencies, and Canada is the only country in this group that publishes data on the inward movement of persons under FTA agreements. Specifically, the Canadian government publishes data on work permit holders under certain programs. These data suggest that the number of foreign professionals in Canada (both from the United States and Mexico) holding work permits under the NAFTA grew from over 10,000 to over 21,000 during 2000–2019.⁶⁸⁰ One source indicates that 17,602 U.S. nationals received Canadian work permits under NAFTA provisions in 2016.⁶⁸¹ Data that specifically reflect the entry or presence of foreign workers in Mexico, Chile, and Singapore under FTAs are unavailable.

TN Visa Issuances and Admittances

An analysis of U.S. data on visa issuances and admittances suggests that NAFTA/USMCA provisions on temporary entry have likely had a substantial effect on the number of Canadian and Mexican professionals in the U.S. labor force. As compared to other U.S. visa programs open to foreign

⁶⁸⁰ Government of Canada, “[Facts and Figures 2015: Immigration Overview](#); Government of Canada, “[Temporary Residents: Temporary Foreign Worker Program \(TFWP\)](#).”

⁶⁸¹ Jackson, “[“Chaos And Confusion,”](#)” December 29, 2017.

professionals (specifically the H-1B and L-1 programs⁶⁸²), TN visas have accounted for a large and growing share of visa issuances to, and U.S. admissions of, Canadian and Mexican professionals during the past decade (table 4.6).⁶⁸³ As discussed above, data on issuances reflect the number of visas granted to foreign nationals, while data on admissions reflect the number of border crossings into the United States by foreign visa holders. Thus, the coverage of these datasets—as well as their likely relationship to the actual number of foreign visa holders in the United States at any time—is not identical, but may suggest approximate upper and lower bounds for the number of TN visa holders in the United States in a given year.

Table 4.6 U.S. visa issuances and admittances of Canadian, Mexican, and all foreign nationals under the TN, H-1B, and L-1 visa programs, number in FY 2019 and change from FY 1998 to 2019

This table covers the longest span of years for which data on both visa issuances and admissions are available. U.S. visa issuance and admissions data are reported for the fiscal year (FY).

The U.S. government fiscal year extends from October 1 to September 30. CAGR = compound annual growth rate.

Visa	Country	U.S. visa issuances, FY 2019 (number)	U.S. visa issuances CAGR, FY 1998–2019		U.S. admissions, FY 2019 (number)	U.S. admissions CAGR, FY 1998– 2019 (%)
			2019	(%)		
TN	Canada	69	10.8	577,199	11.5	
TN	Mexico	21,122	22.7	148,730	30.1	
TN	All foreign nationals	21,193 ^a	22.6	725,929	12.7	
H-1B	Canada	101	2.8	70,628	11.2	
H-1B	Mexico	2,754	0.8	15,264	2.0	
H-1B	All foreign nationals	188,123	3.5	601,594	4.5	
L-1	Canada	161	3.1	199,339	14.3	
L-1	Mexico	5,082	4.7	35,807	6.8	
L-1	All foreign nationals	76,988	3.4	698,794	6.1	

Source: DHS, “[Nonimmigrant Admissions](#),” accessed November 24, 2020; DHS, “[1998 Yearbook of Immigration Statistics, Table 40](#),” accessed November 24, 2020; U.S. Department of State, Bureau of Consular Affairs, “[Nonimmigrant Visa Statistics](#),” accessed December 3, 2020.

Note: This table covers the longest span of years for which data on both visa issuances and admissions are available. U.S. visa issuance and admissions data are reported for the fiscal year (FY). The U.S. government fiscal year extends from October 1 to September 30.

^a While only Canadian and Mexican nationals are eligible for TN status, the U.S. Department of State’s Bureau of Consular Affairs reports issuances of TN visas to one Malaysian national and one Bosnia and Herzegovina national in 2019.

During FY 1998–FY 2019, TN visa issuances to Mexican nationals increased at a compound annual growth rate (CAGR) of 22.7 percent, reaching 21,122 in FY2019 and accounting for 7.4 percent of all TN, H-1B, and L-1 visas issued by the United States in that year. The relatively slow growth in H-1B issuances

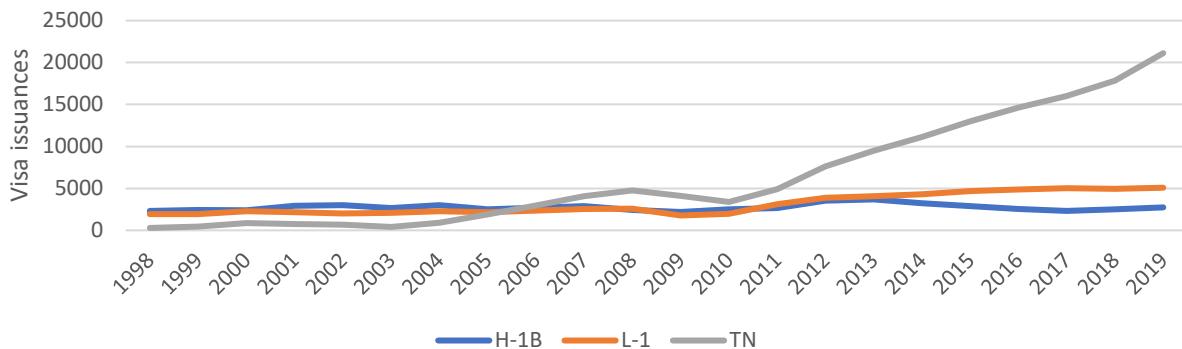
⁶⁸² H-1B visas can be issued to workers in specialty occupations, workers on research and development projects at the U.S. Department of Defense, or fashion models, while L-1 visas can be issued to intracompany transferees. According to H-1B criteria, specialty occupations include professions that require specialized knowledge and, at minimum, a bachelor’s degree or equivalent. Specific information regarding H-1B eligibility criteria are available at DHS, USCIS, [H-1B Specialty Occupations, DOD Cooperative Research and Development Project Workers, and Fashion Models](#).

⁶⁸³ Data for FY 2020 indicate that issuances of H-1B, H-1B1, L-1, and TN visas fell substantially in that year. However, because these data are preliminary and because they are heavily impacted by measures meant to limit the spread of COVID-19, they were not considered in this analysis. U.S. admissions data for FY 2020 are unavailable.

to Mexican nationals suggests that TN visas have been increasingly used as an alternative to H-1B visas. The number and growth of TN visa issuances to Mexicans far outstrips the number and growth of issuances of H-1B and L-1 visas to both Mexican and all foreign professionals (figure 4.8).⁶⁸⁴ This suggests that the creation of the TN visa category has had a strong overall positive impact on the total number of U.S. visa issuances, and it is not merely being used as an alternative to other visa programs open to foreign professionals.

Figure 4.8 Issuances of H-1B, L-1, and TN visas to Mexican nationals, FY 1998–2019

Underlying data for this figure appear in appendix G, [table G.15](#).



Source: U.S. Department of State, Bureau of Consular Affairs, “[Nonimmigrant Visa Issuances](#).”

Note: U.S. visa issuance and admissions data are reported for the fiscal year (FY). The U.S. government fiscal year extends from October 1 to September 30.

The number of TN visa issuances to Canadian professionals—which is very small—is not a useful estimate of the impact of the TN visa program on Canadian entries into the United States. This is because Canadian nationals can be granted TN status at the border without a visa. As a result, official visa issuance statistics likely underestimate the number of Canadians that are granted TN status each year by a significant margin.

Like issuance data, visa admissions data suggest that the TN program has had a large and positive effect on the number of NAFTA professionals admitted into the United States from Mexico. These data—which reflect the number of Canadian nationals entering the United States under the TN program regardless of whether they have been issued a visa—also imply that Canadian nationals make frequent use of this program. During FY 1998–2019, total TN admissions increased at a CAGR of 12.7 percent. They also increased as a share of total nonimmigrant admissions from 0.2 percent to 0.9 percent, accounting for a larger number of total U.S. admissions than either the H-1B program or the L-1 program in FY 2019.

⁶⁸⁴ As illustrated in figure 4.8, TN visa issuances to Mexican professionals started to increase at a faster rate in 2004, declined during the Great Recession, and resumed rapid growth in 2010. The onset of this growth coincides with 1) changes to the TN provisions in 2004 (which eliminated the cap on TN issuances to Mexican professionals) and 2008 (which increased the length of stay under TN visas from one to three years); and 2) the reduction of the H-1B cap in 2004 from 195,000 to 65,000 (plus 20,000 holders of post-graduate degrees) and the rapid filling of the H-1B cap from that year forward. “[Period of Admission and Extension of Stay](#),” 73 Fed. Reg. 61332 (October 16, 2008); NAFSA: Association of International Educators, “[I-129 and LCA No Longer Necessary](#),” accessed December 7, 2020; SGM Law Group, “[H-1B Cap](#)” (accessed May 25, 2021). While Mexican professionals would continue to be eligible for the H-1B visas in the absence of the TN visa program, the total number and the growth rate of Mexican professionals entering the United States would likely be far lower, as H-1B visas are subject to a yearly cap which has been largely filled by professionals from India and China in recent years.

Admissions of Canadian nationals alone accounted for almost 80 percent of TN admissions in FY 2019, having increased at a CAGR of 11.5 percent from FY 1998 to 2019.⁶⁸⁵

In certain cases, TN admissions may be replacing admissions under the H-1B and L-1 programs. For example, the tightening of H-1B visa rules in 2018 led Indian IT firms that maintain a presence in NAFTA countries to boost recruitment in Canada and Mexico, and reportedly resulted in increased TN visa issuances to Mexican professionals.⁶⁸⁶ However, it is unlikely that the growing use of TN visas reflects a large shift away from the H-1B and L-1 visa programs: entries of Canadian nationals under these programs also experienced strong growth during the period, albeit at lower numbers.

Admissions of Mexican professionals under the TN category grew rapidly during FY 1998–FY 2019, increasing at a CAGR of over 30 percent. While relatively slow growth in Mexican H-1B entries (as compared to total H-1B entries) suggests that there may have been some movement away from this program in favor of TN visas, steady growth in L-1 admissions and particularly strong growth in TN entries suggests that the TN program has had a positive effect on the overall number of Mexican professionals entering the United States.⁶⁸⁷

To assess the impact of these provisions on the U.S. labor market, it would be most helpful to have an estimate of the labor supply related to the TN visa program. As discussed above, however, it is very likely that data on visa issuances and admittances respectively underestimate and overstate the number of TN holders in the United States at any point in time. One estimate suggests that 50,000 TN visa holders were working in the United States in 2013, accounting for over 6 percent of all H-1B, L-1, and TN visa holders working in the United States in that year.⁶⁸⁸ A more recent estimate puts the total number of TN visa holders in the United States at almost 100,000.⁶⁸⁹ In addition to these rough estimates, the identification of temporary entry as a USMCA negotiating priority by Canadian government and industry also suggests that the TN visa program is widely used and has a substantial impact.⁶⁹⁰

The large number of Canadian and Mexican business persons entering the United States under the TN visa program may be due, in part, to the program’s issuance and renewal procedures, which are less strict than those of similar visa programs. The procedures were modified twice—in 2004, to eliminate the temporary cap on the number of TN visas issued to Mexican nationals; and in 2008, to extend the

⁶⁸⁵ USITC calculations based on information obtained from DHS, “[Nonimmigrant Admissions](#),” accessed November 24, 2020; DHS, “[1998 Yearbook of Immigration Statistics, Table 40](#),” accessed November 24, 2020.

⁶⁸⁶ Bhattacharya, “[To Bypass H-1B Hurdles](#),” November 21, 2018; TechGig, “[H-1B issue](#),” November 25, 2018. For a discussion on the tightening of the H-1B visa program see, for example, Bhuiyan and Castillo, “[Immigrant Tech Workers Struggle](#),” February 1, 2019.

⁶⁸⁷ Annual H-1B caps have been reached in every year since 2004, and during 2014–20, the number of applications exceeded the cap within five days (in all these years, H-1B visa issuance was determined based on a lottery).

RedBus2US.com, “[H1B Visa Cap Reach Dates History FY 2000 to 2021](#),” February 3, 2021. By comparison, L-1 and TN visa issuances are not capped.

⁶⁸⁸ Costa and Rosenbaum, “[Temporary Foreign Workers by the Numbers](#),” March 7, 2017; DHS, USCIS, “[L-1A Intracompany Transferee Executive or Manager](#),” accessed December 3, 2020.

⁶⁸⁹ Maurer, “[Cross-Border Visas Survive NAFTA Negotiations](#),” October 5, 2018.

⁶⁹⁰ Both the Canadian government and the Information Technology Association of Canada (ITAC) listed the maintenance and/or expansion of NAFTA temporary entry provisions as a priority of NAFTA renegotiations. Panetta, “[Canada’s 10 NAFTA Demands](#),” August 14, 2017; ITBusiness.ca, “[ITAC Identifies 7 Priorities](#),” July 27, 2017.

maximum initial length of stay under the program (table 4.5).⁶⁹¹ TN visas can be renewed an unlimited number of times (unlike the H-1B and L-1 visas) and are not currently subject to a yearly cap (unlike the H-1B visa). Additionally, as mentioned above, Canadian citizens do not need to obtain a TN visa to be granted TN status upon entry into the United States. However, only Canadian and Mexican professionals in certain occupations are eligible for TN status, and professionals that have entered the United States under the TN program cannot apply for green cards.⁶⁹²

H-1B1 Visa Issuances and Admittances

Available data suggest that U.S.-Chile and U.S.-Singapore visa provisions likely have had little impact on the number of professionals entering the United States. The number of professionals using the H-1B1 visa category is very small, with visa issuances and admissions under this category never exceeding 2,000 in any single year (table 4.7). Growth in both admissions and issuances under this visa program has been rapid, but this is because growth has occurred from a very small base. Furthermore, slower than average growth rates in issuances under the H-1B and L-1 visa programs suggest that Chilean and Singaporean professionals may be using the H-1B1 as an alternative to other visa programs, thus minimizing the H-1B1's impact on the overall number of professionals traveling to the United States from these countries.

Table 4.7 U.S. visa issuances to, and admittances of, Chilean and Singaporean nationals under the H-1B1, H-1B, and L-1 programs, number in 2019 and change from 2005 to 2019

Data on 2004 admissions of Chilean nationals are not available. Thus, in the interest of comparability, compound annual growth rates for both admissions and issuances were calculated for 2005–19. U.S. visa issuance and admissions data are reported for the fiscal year (FY).

The U.S. government fiscal year extends from October 1 to September 30. CAGR = compound annual growth rate.

Visa	Country	U.S. visa issuances, FY 2019 (number)	U.S. visa issuances CAGR, FY 2005–19 (%)	U.S. admissions, FY 2019 (number)	U.S. admissions CAGR, FY 2005–19 (%)
H-1B1	Chile	845	18.8	230	18.3
H-1B1	Singapore	879	11.2	606	25.6
H-1B1	All foreign nationals	1,724	14.0	836	3.8
H-1B	Chile	186	-2.8	4,028	5.1
H-1B	Singapore	388	-2.6	4,046	4.5
H-1B	All foreign nationals	188,123	3.0	601,594	2.8
L-1	Chile	177	-1.8	1,628	-1.4
L-1	Singapore	366	1.4	2,453	4.4
L-1	All foreign nationals	76,988	1.2	698,794	5.9

Source: DHS, “[Nonimmigrant Admissions](#),” accessed November 24, 2020; U.S. Department of State, Bureau of Consular Affairs, “[Nonimmigrant Visa Statistics](#),” accessed December 3, 2020.

⁶⁹¹ [Period of Admission and Extension of Stay](#), 73 Fed. Reg. 61,332 (October 16, 2008); NAFSA: Association of International Educators, “[I-129 and LCA no longer necessary](#).”

⁶⁹² DHS, USCIS, “[TN NAFTA Professionals](#),” accessed December 3, 2020; SGM Law Group, “[TN Visa Lawyer](#),” accessed December 3, 2020.

It is likely that the specific provisions governing H-1B1 visas limit the impact of this visa program (table 4.5). As compared to the H-1B program, the H-1B1 program offers both advantages (such as unlimited renewals) and disadvantages (such as the inability to apply for a green card) to Chilean and Singaporean professionals, although the provisions governing these programs also share several similarities. Due to the lack of clear advantages over the existing H-1B program, it seems unlikely that the establishment of the H-1B1 category prompted a substantial increase in interest in business-related entries among Chilean and Singaporean professionals or their U.S. employers. Additionally, because H-1B1 visa issuances are counted against the H-1B cap, and because the H-1B cap—which fell from 195,000 to 65,000 (plus 20,000 holders of post-graduate degrees) in 2004—has been filled in every year since the enactment of the U.S.-Chile and U.S.-Singapore agreements, the H-1B1 program could not have affected the overall number of U.S. visa issuances.

Industry Impacts

Given that the H-1B1 programs had minimal effects on entries from Chile and Singapore, it is unlikely that these programs had substantial effects on the number of foreign professionals in U.S. industries. However, the large and reportedly increasing use of the TN visa program has likely had more substantial effects on the temporary presence of foreign professionals in specific industries.

Some sources indicate that the ability to transfer employees under the TN visa program facilitates firms' investment and expansion throughout North America, enables firms to address skill gaps rapidly, and provides access to expertise that contributes to job creation in the United States.⁶⁹³ For example, the establishment of NAFTA temporary entry provisions reportedly contributed to a large increase in the movement of Canadian nurses to the United States following the enactment of the agreement.⁶⁹⁴ It is argued that U.S. healthcare facilities' use of the TN program addresses the high U.S. demand for nursing skills (nurses do not generally qualify for other U.S. temporary work visas) and benefits U.S. patients.⁶⁹⁵ Agricultural facilities and schools in small or remote communities reportedly benefit from the services provided by veterinarians, scientists, and instructors that enter the United States under the TN program.⁶⁹⁶ Financial services firms in the United States have also been users of the TN program. However, a recent policy memorandum clarifying the TN "economist" category—which, among other things, indicated that professionals specializing in marketing, market research, or financial analysis are not captured in this category—led to some employee separations and created some uncertainty with regard to business planning in the industry.⁶⁹⁷

At the same time, some contend that the large influx of foreign workers under the TN visa program has had a negative impact on U.S. workers, arguing that firms use this and other visa programs to employ lower-wage foreign workers. One source suggests that the high number of nurses entering the United

⁶⁹³ Maurer, "[Cross-Border Visas Survive NAFTA Negotiations](#)," October 5, 2018; D'Souza, "[Canadians Working in U.S. under NAFTA Exemption](#)," December 24, 2016.

⁶⁹⁴ This trend was also prompted by reductions in Canadian health care spending which caused a decrease in full-time nursing jobs in Canada during the 1990s. Blouin, "[NAFTA and the Mobility of Highly Skilled Workers](#)," 2005, 14–16.

⁶⁹⁵ Walker, "[NAFTA TN and E Visa](#)," April 2018, 1, 2.

⁶⁹⁶ Walker, "[NAFTA TN and E Visa](#)," April 2018, 1, 2.

⁶⁹⁷ DHS, USCIS, "[TN Nonimmigrant Economists](#)," November 20, 2017; industry representative, telephone interview by USITC staff, December 8, 2020.

States under the TN program led to a decrease in U.S. nursing wages.⁶⁹⁸ In an October 2017 letter to the U.S. Trade Representative, Robert Lighthizer, Senator Charles Grassley asked for a review of NAFTA temporary entry provisions, stating that the TN visa program “exacerbates the risk to American workers already present in certain industries that rely too heavily on foreign workers.”⁶⁹⁹

Case Study 5: Prohibitions on Customs Duties on Electronic Transmissions

U.S. FTA provisions that prohibit customs duties on electronic transmissions⁷⁰⁰ are part of a broader international network of agreements that support the free flow of cross-border digital trade. In particular, U.S. FTAs provide binding reinforcement of the 1998 WTO Moratorium on Customs Duties on Electronic Transmissions (“WTO moratorium”), which commits all WTO member countries to prohibitions on customs duties, but which also requires regular renewal.

This case study demonstrates how U.S. FTA provisions and non-FTA agreements (such as the WTO moratorium) can be mutually reinforcing by building policy certainty and international consensus regarding the rules governing digital trade. In doing so, agreements with prohibitions on customs duties on electronic transmissions have provided a permanent backstop to the WTO moratorium for participating countries.⁷⁰¹ This is particularly important in services industries whose export products take the form of electronic transmissions, such as software- and content-producing industries (e.g., streaming or downloads of games, video, music, books, and other publications). For these industries and others, imposition of such duties would create significant compliance costs for firms and reduce their competitiveness vis-à-vis local firms in foreign markets.

Provisions

In 1998, WTO members issued a declaration agreeing to impose a moratorium on levying customs duties on electronic transmissions.⁷⁰² The WTO moratorium is a ministerial statement, rather than a binding commitment,⁷⁰³ and must be renewed periodically at a ministerial conference, which generally occurs every two years.⁷⁰⁴ The WTO moratorium was originally set to last for five years (1995–99), but it has

⁶⁹⁸ Vaughan, “[Trade Agreements and Immigration](#),” April 13, 2004.

⁶⁹⁹ Grassley, [Letter to Ambassador Robert E. Lighthizer](#), October 23, 2017.

⁷⁰⁰ The WTO Work Programme on Electronic Commerce defines these transmissions as “the production, distribution, marketing, sale or delivery of goods and services by electronic means.” WTO, “[Electronic Commerce](#),” accessed March 1, 2021. Definitions in U.S. FTAs have evolved over time, and are discussed later in this section. Other reciprocal trade agreements (RTAs) may have slightly different definitions of electronic transmissions.

⁷⁰¹ Industry representative, interview by USITC staff, August 26, 2020.

⁷⁰² The declaration stated that “Members will continue their current practice of not imposing customs duties on electronic transmissions.” WTO, “[The Geneva Ministerial Declaration on Global Electronic Commerce](#),” May 25, 1998.

⁷⁰³ Industry representative, interview by USITC staff, September 14, 2020; USITC, hearing transcript, October 7, 2020, 518–19 (testimony of Christine Bliss, Coalition of Services Industries); WCO, “Role of Customs in Taxation of Digital Goods,” November 5, 2018, 3.

⁷⁰⁴ WTO, “[Electronic Commerce](#),” accessed March 1, 2021.

been extended a number of times since then in the absence of a permanent agreement.⁷⁰⁵ The WTO moratorium is again up for renewal at Ministerial Conference 12, which was originally scheduled for June 2020 but was postponed until the week of 29 November 2021⁷⁰⁶ due to the COVID-19 pandemic.⁷⁰⁷ As the WTO moratorium is a ministerial statement, its renewal (i.e., the issuance of a new statement) must be agreed to by all WTO members.

Similar commitments exist in U.S. FTAs starting with the U.S.-Jordan agreement of 2001; however, unlike the WTO moratorium, which is temporary and subject to periodic extension, the provisions in FTAs are binding bilateral or multilateral commitments. The language used in the text of the U.S.-Jordan agreement mirrors the language used in the WTO moratorium,⁷⁰⁸ while subsequent agreements added language to clarify the definition of certain terms. For a more detailed discussion of how e-commerce and digital trade provisions have evolved in U.S. FTAs, see chapter 2.⁷⁰⁹

Many trade agreements between non-U.S. countries also have a provision prohibiting the imposition of customs duties on electronic transmissions, though the wording and degree of commitment vary across agreements. By one estimate, 75 out of a sample of 993 reciprocal trade agreements (RTAs) contain this provision,⁷¹⁰ most of which were signed after 2000 and typically contain at least one developed country as a member.⁷¹¹ In some agreements the prohibition is permanent (as in U.S. FTAs), while in others it is dependent on the status of the WTO moratorium.⁷¹² Among agreements with an e-commerce or digital trade chapter, this on customs duties on electronic transmissions provision is the most common.⁷¹³ Some trade agreements prohibit the imposition of customs duties on “deliveries by electronic means,” while others prohibit the imposition of these duties on all “digital products.” These provisions are typically interpreted to be on a most-favored-nation (MFN) basis (so that the benefits of these provisions are extended to all trading partners), but some agreements, such as the Korea-Singapore FTA, only prohibit customs duties between the parties to the agreement.⁷¹⁴

⁷⁰⁵ WTO, “[WTO Members Agree to Extend E-commerce, Non-violation Moratoriums](#),” December 10, 2019. The moratorium has been subsequently renewed at WTO Ministerial Conferences, which typically occur every two years.

⁷⁰⁶ This was the anticipated date at the time of this report’s publication.

⁷⁰⁷ WTO, “[Twelfth WTO Ministerial Conference](#),” accessed January 8, 2021.

⁷⁰⁸ The U.S. Jordan FTA states that “each Party shall seek to refrain from . . . deviating from its existing practice of not imposing customs duties on electronic transmissions.” [U.S.-Jordan FTA](#), Article 7.

⁷⁰⁹ While not a full-fledged FTA, the 2019 U.S.-Japan agreement on digital trade contains a provision prohibiting customs duties on electronic transmissions, with language that mirrors the WTO moratorium. [U.S.-Japan agreement](#), Article 7.

⁷¹⁰ Burri and Polanco, “[Digital Trade Provisions in Preferential Trade Agreements: Introducing a New Dataset](#),” 2020, 11.

⁷¹¹ The DESTA database lists 69 agreements with this provision from 2000 to 2019. Singapore is a party to 14 of these agreements, while the United States is a party to 11.

⁷¹² Burri and Polanco, “[Digital Trade Provisions in Preferential Trade Agreements: Introducing a New Dataset](#),” 2020, 11.

⁷¹³ Wu, “[Digital Trade-Related Provisions in Regional Trade Agreements: Existing Models and Lessons for the Multilateral Trade System](#),” November 2017, 11.

⁷¹⁴ Wu, “[Digital Trade-Related Provisions in Regional Trade Agreements: Existing Models and Lessons for the Multilateral Trade System](#),” November 2017, 12; industry representative, interview by USITC staff, August 26, 2020. For a breakdown of the types of provisions and language used, see Montiero and Teh, “[Provisions on](#)

Industries Affected

Provisions in recent U.S. FTAs prohibit imposition of customs duties on “digital products.”⁷¹⁵ These FTAs define “digital product” as a “computer program, text, video, image, sound recording, or other product that is digitally encoded, produced for commercial sale or distribution, and that can be transmitted electronically” excluding money.⁷¹⁶ The WTO moratorium prohibits customs duties on “electronic transmissions,” including digital (not physical) delivery of products and potentially other forms of e-commerce; it excludes physical delivery of digitally ordered products.⁷¹⁷ Analyses of these provisions have frequently focused on “digitizable goods” (or goods that have a digital counterpart and could be transmitted electronically rather than traded physically). Examples include books, sound recordings, or movies, with total trade in these products estimated to account for 1.2 percent of total global trade at most.⁷¹⁸

Industry representatives have also pointed to several other sectors beyond those that directly produce and export digital products as being affected by the WTO moratorium and U.S. FTA provisions. While services sectors such as computer services and telecommunications are most commonly cited (as discussed above), software and other data flows also underpin certain non-services industries, which therefore might also be affected. Advanced manufacturing sectors with machinery that uses telematics or requires software updates or patches could potentially be affected, according to one industry representative,⁷¹⁹ as well as manufacturing that relies on digital instructions for 3D printing for rapid prototyping.⁷²⁰

Other nondigital industries which rely heavily on electronic transmissions could also be affected by the WTO moratorium and U.S. FTA provisions.⁷²¹ For example, duties on electronic transmissions could

[Electronic Commerce in Regional Trade Agreements](#), July 2017, and WCO, “Role of Customs in Taxation of Digital Goods,” November 5, 2018, 11–12.

⁷¹⁵ The term “digital products” was first used in the U.S.-Chile agreement in 2004; prior agreements, such as U.S.-Jordan, U.S.-Singapore, and U.S.-Morocco, used the term “electronic transmissions.” The definitions used in U.S. FTAs have evolved over time. In earlier agreements, such as U.S.-Jordan, the language mirrored that used in the WTO moratorium, while subsequent FTAs added language to clarify the definition of certain terms, such as “digital products.”

⁷¹⁶ The text specifies, “For greater certainty, digital product does not include a digitized representation of a financial instrument, including money.” [USMCA](#), Chapter 19.

⁷¹⁷ There is some debate about which industries are covered under the WTO moratorium, with the United States in favor of a broader definition. One source noted that it is unresolved whether, absent the WTO moratorium, duties would apply to the transmission itself or to the content of the transmission. This issue is one of the motivations for recent U.S. FTAs to move away from references to electronic transmissions and instead use the term “digital product.” Andrenelli and López González, “[Electronic Transmissions and International Trade—Shedding New Light on the Moratorium Debate](#),” 2019, 9; industry representative, interview by USITC staff, September 3, 2020.

⁷¹⁸ Andrenelli and López González, “[Electronic Transmissions and International Trade—Shedding New Light on the Moratorium Debate](#),” 2019, 17.

⁷¹⁹ Telematics is the long-distance transmission of computerized information, typically used to control machines remotely. Industry representative, interview by USITC staff, September 14, 2020.

⁷²⁰ Industry representative, interview by USITC staff, September 22, 2020; industry representative, interview by USITC staff, September 11, 2020; Sotelo and Sundareswaran, “[Would a Digital Border Tax Slow Down Adoption of 3D Printing?](#)” January 8, 2020.

⁷²¹ Industry representative, interview by USITC staff, September 9, 2020.

impact the global research and development (R&D) networks of industries such as semiconductors, as these require R&D data to be transmitted across borders multiple times at different stages of production.⁷²² Industry sources describe the U.S. media industry as a principal beneficiary of the protections contained in the WTO moratorium and U.S. FTAs due to the digital nature of their products and the need to deliver content to consumers across borders.⁷²³ Other industries which rely on productivity software or other digital goods and services as intermediate inputs could also be impacted indirectly by customs duties.⁷²⁴

To date, no country has attempted to impose customs duties on electronic transmissions. However, Indonesia updated its tariff schedule in 2018 to include a new chapter (chapter 99) covering software and other products delivered electronically⁷²⁵ on which tariffs could potentially be applied in the future (though tariffs are set to zero as of April 2021).⁷²⁶

Estimates of U.S. Trade in Digital Products and Services

The U.S. digital economy, and U.S. exports of digital products, have grown markedly in recent years to become significant contributors to the overall economy and total exports. Hence estimates of their value provide a ballpark measure of the types of economic activity upon which tariffs could be placed in the absence of the WTO moratorium or U.S. FTA provisions, though they do not correspond exactly to the concepts of “digital products” as defined in U.S. FTAs or electronic transmissions as used in the WTO moratorium. According to the Bureau of Economic Analysis (BEA) of the U.S. Department of Commerce, the total value of the U.S. digital economy was estimated to be 6.9 percent of U.S. gross domestic product in 2017 (equivalent to \$1.35 trillion).⁷²⁷ By one estimate, total U.S. exports of information and communications technology (ICT) services⁷²⁸ were valued at \$82.6 billion in 2019, and U.S. exports of a broader measure, “ICT-enabled services,” were valued at \$517.5 billion the same year.⁷²⁹ At the same time, U.S. imports of ICT services from FTA partners grew from \$5.1 billion in 2006 to \$5.9 billion in 2017.⁷³⁰

Of U.S. FTA partners, Canada has represented both the largest destination for U.S. exports since at least 2006, and the second-largest source of U.S. imports of ICT services since 2008. The other top five export

⁷²² Industry representative, interview by USITC staff, September 10, 2020.

⁷²³ IIPA written submission, 3; industry representative, interview by USITC staff, September 22, 2020.

⁷²⁴ Industry representative, interview by USITC staff, September 3, 2020.

⁷²⁵ Republic of Indonesia, [Peraturan Menteri Keuangan, Nomor 17/PMK 010/2018](#) [Regulation of the Minister of Finance of the Republic of Indonesia Number 17/PMK010/2018].

⁷²⁶ Chapter 99 lists five types of goods: operating system software, application software, multimedia, supporting or driver data, and other software and digital products. Indonesia National Trade Repository, [Indonesia National Single Window website](#), accessed February 4, 2020.

⁷²⁷ USDOC, BEA, “[Digital Economy Accounted for 6.9 Percent of GDP in 2017](#),” April 4, 2017.

⁷²⁸ As defined by BEA, ICT services include charges for the use of intellectual property for licenses to reproduce and/or distribute computer software, telecommunications services, and computer services.

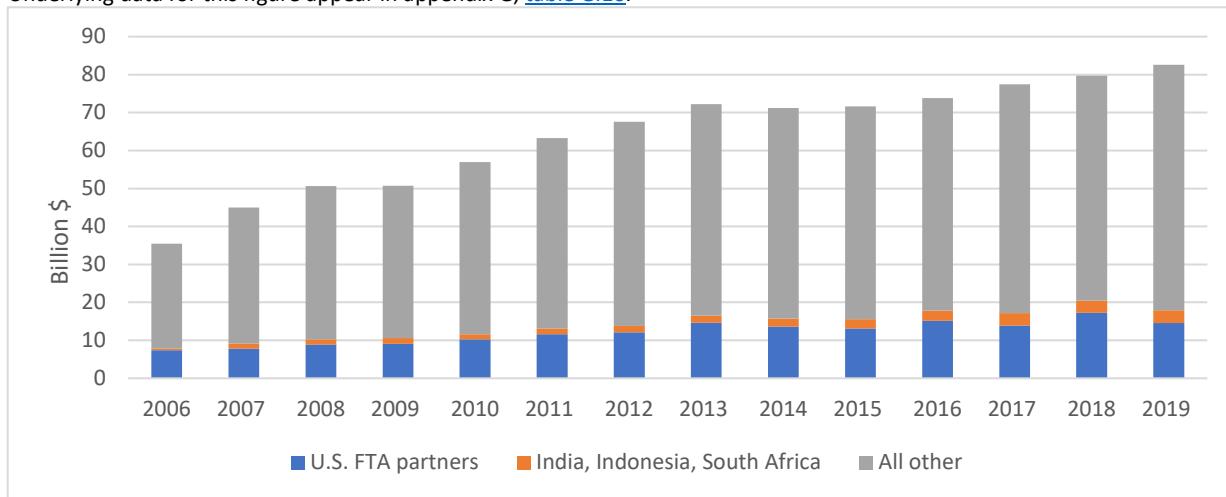
⁷²⁹ ICT-enabled services encompass all ICT services, plus financial services, insurance services, and certain subsectors of other business services, as well as personal, cultural, and recreational services.

⁷³⁰ U.S. exports of ICT services to FTA partners almost doubled between 2006 and 2019, from \$7.4 billion in 2006 (the earliest year for which data are available) to \$14.6 billion in 2019.

destinations for ICT services among U.S. FTA partners are generally Australia, Mexico, Singapore, and Korea (though their relative positions change depending on the year).⁷³¹ Three countries that are not U.S. FTA partners (India, Indonesia, and South Africa) have questioned the renewal of the WTO moratorium.⁷³² The United States exported \$3.4 billion in ICT services to these three countries in 2019 (four-fifths of which went to India), up from \$1.3 billion in 2007.⁷³³ Figure 4.9 compares U.S. exports of ICT services to FTA partners with U.S. exports to India, Indonesia, and South Africa as well as U.S. exports to all other countries, while figure 4.10 does the same for ICT and potentially ICT-enabled services. U.S. exports to non-FTA partners that are WTO members in both services categories have been larger than U.S. exports to FTA partners since at least 2006. At the same time, U.S. exports to India, Indonesia, and South Africa make up a slightly higher percentage of exports of ICT services than of the broader ICT-enabled services category.

Figure 4.9 U.S. exports of ICT services, in billions of dollars, to U.S. FTA partners and selected countries, 2006–19

Underlying data for this figure appear in appendix G, [table G.16](#).



Source: USDOC, BEA, "[Table 3.3. U.S. Trade in ICT and Potentially ICT-Enabled Services](#)," accessed December 18, 2020.

Note: 2006 is the earliest year for which data are available. As defined by BEA, "ICT services" include charges for the use of intellectual property for licenses to reproduce and/or distribute computer software, telecommunications services, and computer services. The "all other" category includes both WTO members and non-WTO members.

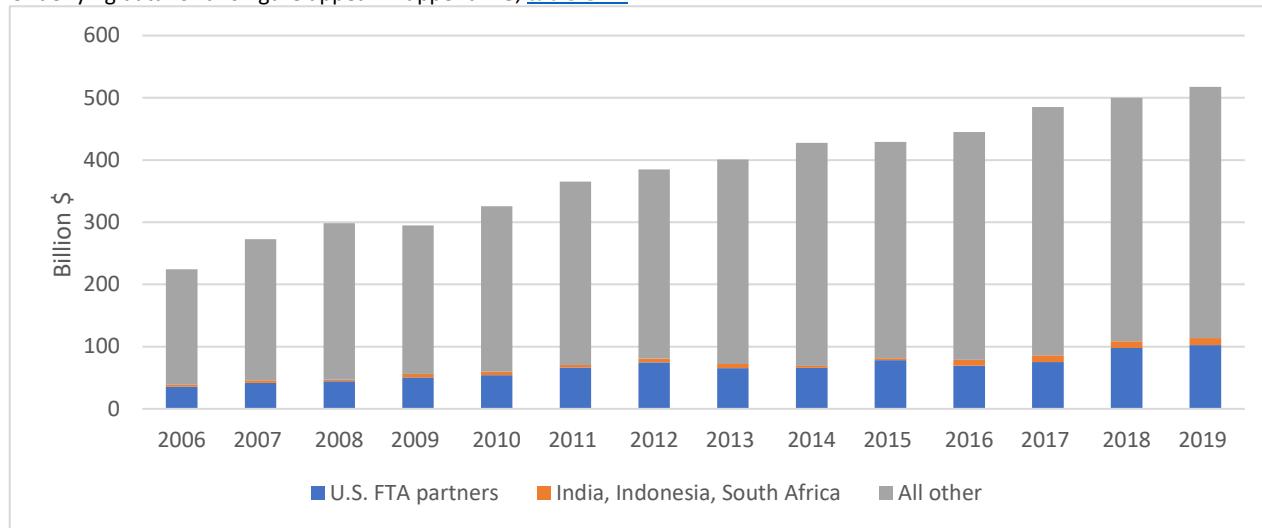
⁷³¹ Not all countries report data for each year. The inclusion of these countries in the top five is based on cumulative U.S. exports for 2017–19.

⁷³² The WTO moratorium covers all WTO members, but does not cover non-WTO members such as Ethiopia or Iran.

⁷³³ Data from the BEA does not provide enough detail to look at U.S. exports in just the categories in Indonesia's chapter 99. Indonesia does appear to be collecting some data on exports or imports of products covered in chapter 99, based on third-party aggregation of Indonesian customs data, though it is unclear to what extent these data are being reported. See <http://indonesianimporter.com>, HS code 9901.40.00 (supporting driver software). U.S. exports of ICT-enabled services to India are unavailable for 2014 and 2015.

Figure 4.10 U.S. exports of ICT-enabled services, in billions of dollars, to U.S. FTA partners and selected countries, 2006–19

Underlying data for this figure appear in appendix G, [table G.17](#).



Source: USDOC, BEA, “[Table 3.3. U.S. Trade in ICT and Potentially ICT-Enabled Services](#),” accessed December 18, 2020.

Note: 2006 is the earliest year for which data are available. “ICT-enabled services” encompass all ICT services, plus financial services, insurance services, and certain subsectors of other business services, as well as personal, cultural, and recreational services. The “all other” category includes both WTO members and non-WTO members.

Effects of the Moratorium and U.S. FTA Provisions

The internet evolved in an environment with no tariffs on digital products or electronic transmissions. The economic effects of these provisions, therefore, relate to their function in preventing costs that might occur if such customs duties had been imposed. Such costs take two forms for firms: direct costs associated with complying with duties, and indirect costs associated with reducing uncertainty.

According to industry representatives and academics, the WTO moratorium and similar U.S. FTA provisions reinforce each other.⁷³⁴ Having the WTO moratorium in place likely makes it easier for countries to accept similar commitments in FTAs, and the increasing number of countries bound by FTA provisions helps enhance the consensus needed to renew the WTO moratorium every two years. The absence of these commitments would create direct compliance costs as well as policy uncertainty for firms (in addition to the uncertainty created by the potential expiration and nonrenewal of the WTO moratorium).⁷³⁵ These effects would depend on the levels of the customs duties imposed by foreign trading partners, the ways in which customs duties were implemented, and the markets which apply the duties.

Currently, several countries have begun to question whether the WTO moratorium should be renewed, highlighting the ongoing importance of the permanent, binding reinforcement of prohibitions on customs duties provided by FTAs. India and South Africa have issued statements at the WTO proposing a

⁷³⁴ Industry representative, interview by USITC staff, August 26, 2020; USITC, hearing transcript, October 7, 2020, 430 (testimony of Nigel Cory, ITIF).

⁷³⁵ Industry representatives, interview by USITC staff, September 22, 2020; industry representative, interview by USITC staff, August 26, 2020; industry representatives, interview by USITC staff, September 11, 2020.

re-examination of the WTO moratorium in light of claimed revenue losses due to their inability to assess tariffs on electronic transmissions.⁷³⁶ These countries also claim that these losses are increasing over time, since goods such as movies and music—which were previously traded physically and could be assessed a tariff—are being transformed into digital products, which are not subject to tariffs. In addition, as mentioned above, Indonesia has introduced tariff codes covering software and other products delivered electronically. These codes lay the groundwork for possibly enacting tariffs, though Indonesia did not sign on to the WTO statements from India and South Africa and reportedly supported a two-year extension of the WTO moratorium as of late 2020.⁷³⁷

While none of these countries has yet imposed tariffs on electronic transmissions nor refused to renew the WTO moratorium during ministerial discussions, these actions have led to increased uncertainty about the ultimate renewal of the WTO moratorium. Other (mainly developing) countries have indicated their skepticism about the WTO moratorium at various times, though the full extent of their opposition is unclear.⁷³⁸ At the same time, a group of WTO members, including the United States, have advocated that the WTO moratorium be made permanent under the umbrella of the Joint Statement Initiative,⁷³⁹ with the United States proposing language to “make permanent the practice of eschewing customs duties on digital products.”⁷⁴⁰ Draft negotiating text for ongoing WTO e-commerce negotiations made public in December 2020 also includes a commitment to prohibit customs duties on electronic transmissions, as well as clarifications and exceptions for domestic taxes on digital revenues or profits.⁷⁴¹

⁷³⁶ WTO, “[Work Programme on Electronic Commerce: Moratorium on Customs Duties on Electronic Transmissions: Need for a Re-think. Communication from India and South Africa](#),” 2018; WTO, “[Work Programme on Electronic Commerce: The E-commerce Moratorium and Implications for Developing Countries Communication from India and South Africa](#),” 2019.

⁷³⁷ Andrenelli and López González, “[Electronic Transmissions and International Trade—Shedding New Light on the Moratorium Debate](#),” 2019, 10; industry representative, interview by USITC staff, September 14, 2020.

⁷³⁸ Industry representative, interview by USITC staff, September 24, 2020; industry representative, interview by USITC staff, September 24, 2020; industry representative, interview by USITC staff, September 11, 2020; industry representative, interview by USITC staff, September 14, 2020. Only India, Indonesia, and South Africa have signed on to public WTO communications which proposed a re-examination of the moratorium. WTO, “[Work Programme on Electronic Commerce: Moratorium on Customs Duties on Electronic Transmissions: Need for a Re-think. Communication from India and South Africa](#),” 2018; WTO, “[Work Programme on Electronic Commerce: The E-commerce Moratorium and Implications for Developing Countries Communication from India and South Africa](#),” 2019.

⁷³⁹ Andrenelli and López González, “[Electronic Transmissions And International Trade—Shedding New Light On The Moratorium Debate](#),” 2019, 10.

⁷⁴⁰ WTO, “[Joint Statement on Electronic Commerce: Communication from the United States](#),” 2019.

⁷⁴¹ Bilaterals.org, “[WTO Electronic Commerce Negotiations Consolidated Negotiating Text—December 2020](#),” 2020, 36. Several countries have recently announced, proposed, or implemented digital services taxes (DSTs), which seek to tax firms based on where their consumers or users are located, rather than where the firm is located. Such firms serve their customers by providing services electronically across borders, often without physical presence. These DSTs are distinct from the customs duties on electronic transmissions prohibited by the WTO moratorium and U.S. FTAs. For example, in the [USMCA](#), art. 19.3, the prohibition on customs duties also contains an explanatory sentence which states: “For greater certainty, paragraph 1 does not preclude a Party from imposing internal taxes, fees, or other charges on a digital product transmitted electronically, provided that those taxes, fees, or charges are imposed in a manner consistent with this Agreement.” Similarly, the WTO moratorium is

Compliance Costs

Compliance costs associated with any tariffs on digital products would negatively impact firms directly, as well as adding a new source of business uncertainty due to the variability of such costs. Any customs duties that would be imposed in the absence of either the WTO moratorium or FTA provisions would raise compliance costs for U.S. firms. These firms would have to plan for dealing with the costs of potential tariffs or for making other changes to their business models, if it were to become too costly to move data across borders.⁷⁴² One industry representative raised concerns about whether tariffs would apply to intra-firm electronic transmissions as well as to inter-firm (or arm's length) transmissions,⁷⁴³ and how rules of origin for electronic transmissions would work.⁷⁴⁴ Lack of clarity as to how these policies would be implemented may increase uncertainty and would also translate into higher compliance costs if a trading partner were to implement tariffs.⁷⁴⁵ Other industry representatives stated that the costs of any duties would be borne by the importing firms, making them less competitive and potentially undermining firms' productivity if software and cloud services become more costly.⁷⁴⁶

Policy Certainty

While the WTO moratorium is almost universally mentioned by industry representatives as the most important factor creating certainty, similar provisions in U.S. FTAs lend support to the WTO moratorium by bolstering certainty between the United States and its partners. First, the provisions in U.S. FTAs do not need to be renewed every few years, unlike the WTO moratorium. This offers added certainty and is important for long-term business planning.⁷⁴⁷ However, one industry association representative stated that some firms would likely not make changes to their business models or operations in the event the WTO moratorium became permanent, as these firms have been operating under the WTO moratorium for over two decades, and that the two-year renewal cycle does not determine how they conduct business.⁷⁴⁸ Second, industry representatives have stated that using the term "digital products" in U.S. FTAs (as opposed to "electronic transmissions," which is the term used in the WTO moratorium) is

not typically interpreted as pertaining to domestic or internal taxes. The United States recently completed section 301 investigations into DSTs proposed or enacted in six jurisdictions, determining that these DST regulations create or would create an unreasonable, discriminatory, or unnecessarily burdensome environment which restricts U.S. trade. Asen, "[What European OECD Countries Are Doing](#)," March 25, 2021; [Andrenelli and López González, "Electronic Transmissions and International Trade," 2019, 9](#); USTR, "[USTR Announces, and Immediately Suspends, Tariffs in Section 301 Digital Services Taxes Investigation](#)," June 2, 2021.

⁷⁴² Industry representative, interview by USITC staff, September 10, 2020; industry representative, interview by USITC staff, September 11, 2020; industry representative, interview by USITC staff, September 22, 2020.

⁷⁴³ Industry representative, interview by USITC staff, September 10, 2020.

⁷⁴⁴ Industry representative, interview by USITC staff, September 14, 2020; industry representative, interview by USITC staff, September 22, 2020; industry representative, interview by USITC staff, August 26, 2020.

⁷⁴⁵ Industry representative, interview by USITC staff, September 14, 2020; industry representative, interview by USITC staff, August 26, 2020; industry representative, interview by USITC staff, August 26, 2020.

⁷⁴⁶ Foreign-sourced productivity-enhancing software and cloud services would become more costly if duties are levied, which may limit firms' investment in these technologies. Industry representative, interview by USITC staff, September 11, 2020; industry representative, interview by USITC staff, August 26, 2020.

⁷⁴⁷ It affects business planning, as firms can invest in foreign operations and the development of new products for export without the worry that tariffs will be levied on electronic transmissions in future. Industry representative, interview by USITC staff, September 22, 2020; industry representative, interview by USITC staff, August 26, 2020.

⁷⁴⁸ Industry representative, interview by USITC staff, September 8, 2020.

beneficial, as it creates more clarity about the types of products that are covered.⁷⁴⁹ Third, U.S. FTAs generally contain dispute settlement mechanisms and provide a measure of enforceability which the WTO moratorium does not,⁷⁵⁰ and these mechanisms are important to some U.S. firms.⁷⁵¹

Without the WTO moratorium in place, any country could choose to impose tariffs if not otherwise prevented from doing so by an FTA. While India, Indonesia, and South Africa have questioned whether the WTO moratorium should be renewed, some industry representatives have stated that other countries in addition to those three may consider imposing tariffs.⁷⁵² WTO members have not committed to any particular rates for these types of products⁷⁵³ (so the rates for any tariff lines that could be created remain “unbound”)⁷⁵⁴ and could change over time,⁷⁵⁵ in addition to varying across countries. This would increase uncertainty for U.S. firms exporting to multiple markets regarding both the existence and the level of future tariffs. One industry representative noted that it is unclear what types of digital products would be covered by these tariffs;⁷⁵⁶ only Indonesia has released a tariff schedule that incorporates digital products. The potential possibility of retaliatory tariffs (i.e., tariffs placed either on digital products or nondigital products by one country in response to tariffs placed on digital products by another) also create more uncertainty for both digital and nondigital U.S. firms.⁷⁵⁷ Again, since tariff rates in digital products are unbound by WTO, these reciprocal tariffs could escalate to high levels.

U.S. FTAs offer value in other ways, too. Early provisions prohibiting customs duties on digital products set a precedent⁷⁵⁸ for such provisions in future U.S. FTAs as well as in FTAs between non-U.S. countries. For example, provisions about customs duties on digital products in EU trade agreements and in the Comprehensive and Progressive Agreement for Trans-Pacific Partnership are mostly in line with provisions in U.S. agreements. This creates a web of commitments outside of the WTO moratorium that provides additional certainty to U.S. firms.⁷⁵⁹ U.S. FTAs also act as a backstop in the event that the WTO moratorium is not renewed,⁷⁶⁰ though the countries with which the United States has FTAs that contain

⁷⁴⁹ Industry representative, interview by USITC staff, September 14, 2020; industry representative, interview by USITC staff, September 22, 2020.

⁷⁵⁰ The WTO moratorium itself does not contain formal mechanisms for enforcement and it is not assumed to be subject to WTO dispute settlement mechanisms. Industry representative, interview by USITC staff, September 14, 2020.

⁷⁵¹ Industry representative, interview by USITC staff, September 22, 2020.

⁷⁵² Industry representative, interview by USITC staff, September 22, 2020; industry representative, interview by USITC staff, September 14, 2020; industry representative, interview by USITC staff, September 11, 2020.

⁷⁵³ The WTO moratorium does not specify particular tariff lines but refers to “electronic transmissions” as stated above. Most countries (with the exception of Indonesia), do not have tariff lines dedicated to these types of products and thus have not committed to any specific tariff rates. If the moratorium were to end and countries were able to impose tariffs, there would be no international commitments that restrict these rates.

⁷⁵⁴ USITC, hearing transcript, October 7, 2020, 479–80 (testimony of Hosuk Lee-Makiyama, ECIPE).

⁷⁵⁵ Industry representative, interview by USITC staff, September 11, 2020.

⁷⁵⁶ Industry representative, interview by USITC staff, September 11, 2020.

⁷⁵⁷ Industry representative, interview by USITC staff, September 22, 2020; industry representative, interview by USITC staff, September 9, 2020; industry representative, interview by USITC staff, September 3, 2020.

⁷⁵⁸ Industry representative, interview by USITC staff, September 14, 2020; industry representative, interview by USITC staff, September 11, 2020.

⁷⁵⁹ Industry representative, interview by USITC staff, September 22, 2020.

⁷⁶⁰ Industry representative, interview by USITC staff, August 26, 2020.

these provisions are often smaller markets for U.S. exports of ICT and ICT-enabled services.⁷⁶¹ In addition, since these FTA commitments are separate from the WTO, they are not predicated on a multilateral approach⁷⁶² or reliant on achieving consensus among disparate WTO members. This also allows the United States and its partners to shape definitions and other aspects of the commitments in ways that are beneficial to their firms.

The way in which the digital economy operates also increases the impact of policy uncertainty on firms. The internet developed in an environment without duties, where data was able to flow freely across borders, and industry representatives have noted that the moratorium has been key to the development of global digital trade since 1998.⁷⁶³ In addition, several industry representatives also noted that media and other digital content are increasingly sold through streaming and subscriptions, which can increase the number of borders that data must cross, particularly for smaller markets.⁷⁶⁴ Other data stored in cloud services may be sharded—that is, files are broken up into smaller pieces and distributed to many datacenters to increase security and resiliency. Thus the transfer of one file may require some portions of that file to cross international borders, while others may merely be transferred domestically.⁷⁶⁵ This is a particular issue for large multinational cloud providers, which operate networks of datacenters across borders, and for firms that rely on them to store and host data.⁷⁶⁶ All these factors would add costs to firms which are required to record the value and origin of electronic transmissions.

Of the three countries that have expressed interest in ending the WTO moratorium, India is the largest market for ICT and ICT-enabled services for many U.S. firms. If customs duties were enacted in India, they would have the greatest impact on U.S. firms in many different sectors owing to the large U.S. presence there, according to several industry representatives.⁷⁶⁷ However, India currently has a trade agreement with Singapore which prohibits the imposition of customs duties on electronic transmissions;⁷⁶⁸ it is unclear how this agreement would affect any effort by India to impose such duties on the United States or other third countries. Several industry representatives stated that if any country, including smaller economies, imposed customs duties on digital products, the more immediate effect would be to set a precedent and legitimize these duties as a policy option.⁷⁶⁹

⁷⁶¹ Industry representative, interview by USITC staff, September 8, 2020.

⁷⁶² Industry representative, interview by USITC staff, September 22, 2020. Other initiatives in the area of e-commerce, such as those proposed by China, are predicated on a multilateral approach.

⁷⁶³ CCIA, written submission to USITC, November 6, 2020, 7.

⁷⁶⁴ Industry representative, interview by USITC staff, September 14, 2020; industry representative, interview by USITC staff, September 24, 2020; industry representative, interview by USITC staff, September 8, 2020.

⁷⁶⁵ In some cases, files or portions of files may pass through servers or other internet connection points in multiple countries before reaching their final destination. Industry representative, interview by USITC staff, September 3, 2020.

⁷⁶⁶ Purely domestic data storage providers, which do not operate in multiple markets, would be less affected, although if they serve multinational customers they may still need to “import” data into the country. Industry representative, interview by USITC staff, September 14, 2020.

⁷⁶⁷ Industry representatives also noted the regional importance of both South Africa and Indonesia. South Africa acts as a hub for many firms’ operations in southern Africa, and Indonesia is also important for southeast Asian operations. Industry representative, interview by USITC staff, September 14, 2020; industry representatives, interview by USITC staff, September 22, 2020.

⁷⁶⁸ [India-Singapore Free Trade Agreement, Chapter 10](#), 83.

⁷⁶⁹ Industry representative, interview by USITC staff, September 14, 2020; industry representative, interview by USITC staff, September 24, 2020; industry representative, interview by USITC staff, September 22, 2020.

Empirical Estimates of the Effect of the WTO Moratorium and U.S. FTA Provisions

Two empirical estimates of the impact of provisions in FTAs which prohibit customs duties on electronic transmissions found significant impacts.⁷⁷⁰ Focusing directly on the impact of U.S. FTAs, the Commission's gravity model analysis of digital trade provisions⁷⁷¹ estimated that overall, an FTA that includes a prohibition on duties on electronic transmissions has a positive and significant effect on trade in multiple services sectors. These sectors include financial services; insurance services; telecommunications, computer, and information services (which includes software); and "other business services" (which includes professional services). The effects of these provisions vary by sector, with results indicating larger effects in financial services and telecommunications, computer, and information services than in other sectors. A more detailed discussion of these results can be found in chapter 3.

Another study takes a broader look at the impact of prohibitions of customs duties on electronic transmissions on the U.S. economy. The European Centre for International Political Economy (ECIPE), a think tank specializing in trade and international economic policy research, estimated the impact of the WTO moratorium on the U.S. economy using a CGE model in a scenario where all developing countries would impose tariffs⁷⁷² against the United States on all activities that may fall into the definition of "electronic transmissions." It found that U.S. exports would fall by \$2.3 billion per year, resulting in 30,000 lost U.S. jobs.⁷⁷³

Case Study 6: PTPA and U.S.-Colombia Agreement Expanded Market Access for Yellow Corn

Yellow corn is one of the largest U.S. exports to Peru and Colombia, which have been among the fastest-growing markets for this feed grain during the time these FTAs have been in effect. This case study focuses on the impact of the U.S. FTAs with Peru and Colombia on U.S. corn exports.⁷⁷⁴ U.S. yellow corn

⁷⁷⁰ Other empirical studies of the WTO moratorium have examined revenue loss or welfare effects on developing countries, but have not focused on the impact on developed countries or the United States specifically.

⁷⁷¹ In this sample, there are 55 U.S. and non-U.S. FTAs with this type of provision.

⁷⁷² The study assumed that tariffs are imposed using the average MFN rate, following Banga, "[Growing Trade in Electronic Transmissions, Implications for the South](#)," February 2019. The industries which are covered by these tariffs include online retail, internet publishing, web search portals, motion picture and sound recording, software, data hosting, and online advertising, Makiyama and Narayaan, "[The Economic Losses from Ending the WTO Moratorium on Electronic Transmissions](#)," 2019.

⁷⁷³ ECIPE, written submission to USITC, October 23, 2020, 2.

⁷⁷⁴ Yellow dent corn exports are classified under Schedule B subheadings 1005.90.2020, 1005.90.2030, 1005.90.2035, 1005.90.45, and 1005.90.2070; unless otherwise stated, trade data for U.S. yellow corn exports refers to these Schedule B subheadings. Yellow corn, also referred to as dent or field corn, is a cereal grain. In the primary U.S. production regions, yellow corn is simply referred to as corn. Unlike sweet corn for human consumption which is harvested in the milk stage when water content is still high (classified under Schedule B and HTS 0709.99.4500), yellow corn is harvested when the kernels are dry which makes it highly storable. U.S. Census, [Schedule B 2020—Browse](#), accessed March 29, 2021; USDA, ERS, "[Feedgrains Sector at a Glance](#)," October 23, 2020.

exports increased as both countries experienced growth in demand for animal feed to support livestock sectors that expanded to meet a growing domestic market for animal protein. While U.S. exports of yellow corn to Peru and Colombia compete with those of other large corn producers/exporters—mainly Argentina and Brazil—the FTAs reduced trade barriers for U.S. yellow corn entering both markets. The FTAs granted U.S. corn exporters duty-free access for exports under exclusive tariff-rate quotas within a 12-year staging period and stabilized the duties paid on over-quota exports, which were previously subject to variable adjustments under the Price Band Systems (PBSs) (described below). U.S. yellow corn exporters have enjoyed a tariff advantage over competing exporters to Peru and Colombia due to the FTAs. Moreover, elimination of the PBS provisions affecting U.S. yellow corn reduced uncertainty and the risk stemming from the duty adjustments the PBSs can impose. This has allowed U.S. exporters to develop these markets and establish business relationships with Colombian and Peruvian purchasers, according to the U.S. industry.

Industry Overview

In marketing year 2019/20, the United States was the world's largest producer of corn by volume, accounting for about one-third of global production (31.0 percent), followed by China (23.4 percent), Brazil (9.1 percent), the EU (6.0 percent), and Argentina (4.6 percent).⁷⁷⁵ Over the 30-year period from 1990/91 through 2019/20, corn production in the United States—which is mostly yellow corn—expanded by 71.7 percent.⁷⁷⁶ This growth was driven by improvements in production technologies that

⁷⁷⁵ Unless otherwise indicated, statistics in this section are based on data from USDA's PSD Online database and are presented in terms of marketing years. Marketing years throughout this section are designated as XXXX/YY, the format that is generally used by USDA and the grain industries to designate a marketing year. Marketing years, or crop years, can differ from calendar years as they reflect a crop's harvest. A marketing year begins when the harvest of a crop begins and ends when the next crop's harvest begins, thus growing conditions during the previous marketing year affect the supply in the current marketing year. All data in USDA's Production, Supply and Distribution (PSD) system represent local marketing years, and vary depending on the crop and the country where it is harvested, and are used for data reporting, which influence commodity prices. The PSD system designates and differentiates marketing years in the Northern and Southern hemisphere as follows: with respect to Northern hemisphere countries (e.g., the United States), the year listed first in the two-year combination represents the year in which the marketing year begins, for example, PSD designated 2018, or 2018/19, represents September 1, 2018 through August 31, 2019. In Southern hemisphere countries (e.g., Brazil and Argentina), however, the second year in the two-year combination represents the year in which the local marketing year begins, for example, PSD designated 2018, or 2018/19, covers March 1, 2019 through the end of February 2020 for Brazil and Argentina. USDA, FAS, PSD Online, "[Frequently Asked Questions](#)," accessed March 29, 2021; USDA, FAS, PSD Online, "[Reports and Data, Reference Data](#)," accessed March 29, 2021; USDA, ERS, "[Feed Grains Database: Documentation](#)," July 23, 2020; USDA, [PSD Online database](#), accessed January 8, 2020; Chen, "[What Is a Crop Year?](#)," January 22, 2021.

⁷⁷⁶ This 30-year growth in output understates the longer-term growth trends that occurred between the early 1990s and the late 2010s, as 2019/20 represented a recent low point in output, as discussed in greater detail below. As an alternative comparison, U.S. corn production increased by 139.0 percent from a 30-year low of 161.0 million mt in 1993/94 to a high of 384.8 million mt in 2016/17. USDA, FAS, PSD Online database, accessed March 29, 2021.

improved yields and policy changes that increased plantings.⁷⁷⁷ Despite the significant increase in U.S. corn production, the U.S. share of global production volume declined unevenly over this period.⁷⁷⁸

The volume of U.S. domestic consumption of yellow corn also doubled in the 1990/91–2019/20 period, absorbing, on average, 82.8 percent of total U.S. yellow corn production.⁷⁷⁹ The leading use of the U.S. yellow corn crop is as an ingredient in animal feed. The share of total U.S. yellow corn supply directly consumed for feed dropped from 58.1 percent of total U.S. yellow corn supply in 1990/91 to 43.3 percent in 2019/20, primarily because of increased direct use in the production of corn-based fuel ethanol.⁷⁸⁰ About 35.7 percent of the total U.S. yellow corn supply is used directly for fuel ethanol production. The share of the U.S. yellow corn crop that does not go to feed and ethanol is used for producing multiple food and industrial products, including corn starch and corn oil, sweeteners, and beverage and industrial alcohol.⁷⁸¹

The United States is also the largest exporter of yellow corn to the world, supplying about 26.3 percent of total global exports in 2019/20.⁷⁸² Due to a recent combination of high U.S. prices and low domestic output, U.S. exports in 2019/20 totaled 45.2 million mt and were valued at approximately \$7.6 billion, below the 2017/18 peak of 61.9 million mt and \$10.6 billion.⁷⁸³ The United States, Brazil, and, Argentina—the three leading global exporters of yellow corn—together accounted for 68.1 percent of the global quantity of export supply of the grain in 2019/20. Brazil surpassed the United States as the

⁷⁷⁷ The area planted dedicated to yellow corn in the United States expanded by 39.0 percent from the 30-year low in 1993/94 to the high in 2013/14. The increase in area planted was partly the result of planting flexibilities implemented by the Federal Agriculture Improvement and Reform Act of 1996 (the Farm Bill) that allowed U.S. farmers more flexibility on crop acreage decisions based on market price expectations each year. Crop yields have also grown by more than 75 percent, from a low of 6.3 mt per hectare (101 bushels/acre) in 1993/94 to a high of 11.1 mt per hectare (177 bushels/acre) in 2018/19. Yield increases were driven by the adoption of technological advances such as biotech yellow corn seeds, and improvements in production practices, such as increased efficiency of reduced tillage systems. USDA, FAS, [PSD Online database](#), accessed March 29, 2021; USDA, ERS, [Feedgrains Sector at a Glance](#), October 23, 2020.

⁷⁷⁸ U.S. production shares were closer to 40 percent during the 1990s, and have been closer to 30 percent throughout most of the 2010s. USDA, [PSD Online database](#), accessed March 29, 2021.

⁷⁷⁹ U.S. imports of yellow corn are low, representing less than 0.1 percent of the total U.S. yellow corn supply in 2020. USDA, [PSD Online database](#), accessed March 29, 2021.

⁷⁸⁰ Various corn processing industries extract selected portions of the corn's nutritive content to make sweeteners, corn oils, beverage and fuel alcohols, and other advanced bioproducts, leaving some portion of the corn seed as a byproduct that is generally recycled into animal feed; for example, the Corn Refiners Association estimates that 25 to 30 percent of the corn used by the corn refining industry goes into animal feed products. Thus, a greater portion of corn is used as animal feed than these direct consumption shares suggest. Corn Refiners Association, ["Animal Feed and Protein"](#), accessed April 13, 2021.

⁷⁸¹ Ethanol consumption and production in the United States is determined by gasoline consumption as the Renewable Fuels Mandate requires that conventional fuel used for the domestic fleet be blended with 10 percent ethanol. Marrero-Sanchez, ["Where Is U.S. Ethanol Going?"](#), 2019; USDA, ERS, ["Feedgrains Sector at a Glance"](#), October 23, 2020.

⁷⁸² USDA, FAS, [PSD Online database](#), accessed April 13, 2021.

⁷⁸³ Factors contributing to higher U.S. export prices included unprecedented planting delays, reduced yield, and strong domestic demand for animal feed and ethanol use in the United States. Record production in Argentina, Brazil, and Ukraine and the depreciation of these competitors' currencies relative to the U.S. dollar contributed to abundant and competitively priced export supplies from these countries. USDA, FAS, ["Corn 2019 Export Highlights"](#), accessed December 15, 2020; IHS Markit, [Global Trade Atlas database](#), accessed April 1, 2021.

top exporter of yellow corn only once over the past 30 years due to a reduction in exportable U.S. yellow corn supplies resulting from the severe wide-spread drought conditions that affected the U.S. crop during the growing season (2011/12).⁷⁸⁴ The volume of U.S. yellow corn exports have increased at a slower pace than U.S. production, rising by only 3.0 percent between 1990/91 and 2019/20.⁷⁸⁵ U.S. exports of yellow corn also grew at a slower pace than exports of yellow corn from Argentina and Brazil. Yellow corn exports from both countries expanded substantially between 1990/91 and 2019/20: exports from Argentina increased by 9 times to 36.2 million mt, whereas Brazil's exports increased from zero to more than 35.5 million mt.⁷⁸⁶

The total value of U.S. yellow corn exports are relatively concentrated among a small group of destinations: in 2019/20, the top 10 leading destinations for U.S. exports of yellow corn accounted for 88.1 percent of the total value of all U.S. yellow corn exports.⁷⁸⁷ In that year, six U.S. FTA partners were among the top 10 destinations, and all U.S. FTA markets combined accounted for 58.1 percent of the total value (figure 4.11). As U.S. exports of yellow corn have trended upwards over the last several decades, the main export markets for the product have shifted toward U.S. FTA partners.⁷⁸⁸ In 2019/20, U.S. exports of yellow corn to Colombia and Peru ranked third and 13th among all U.S. export destinations, respectively, rising from 18th for Colombia in 2011/12 and 16th for Peru in 2008/09 (the years before the respective FTAs entered into force). The recent peak in Colombia's share of U.S. yellow corn exports was 9.5 percent in 2019/20, while Peru's share most recently peaked at 5.6 percent in 2014/15 (figure 4.11).⁷⁸⁹

⁷⁸⁴ Allocating Brazilian crop availability within the U.S. marketing year is further complicated by the fact that Brazil has a double-cropping system where the “first” crop may be harvested from January to May and the “second” crop harvested May to November, depending on the region. Allen and Valdes, [Brazil's Corn Industry](#), June 2016; McConnell, Lynch, and Fry, “[King Corn Versus The Safrinha](#),” March 2013.

⁷⁸⁵ Because of the substantial decline in U.S. exports in 2019/20, the 30-year growth in U.S. exports understates the longer-term growth that occurred between the early 1990s and the late 2010s. As an alternative comparison, U.S. yellow corn exports increased by 83.5 percent from the 30-year low in 1993/94 to the high point in 2017/18. USDA, FAS, [PSD Online database](#), accessed March 29, 2021.

⁷⁸⁶ USDA, FAS, [PSD Online database](#), accessed April 1, 2021.

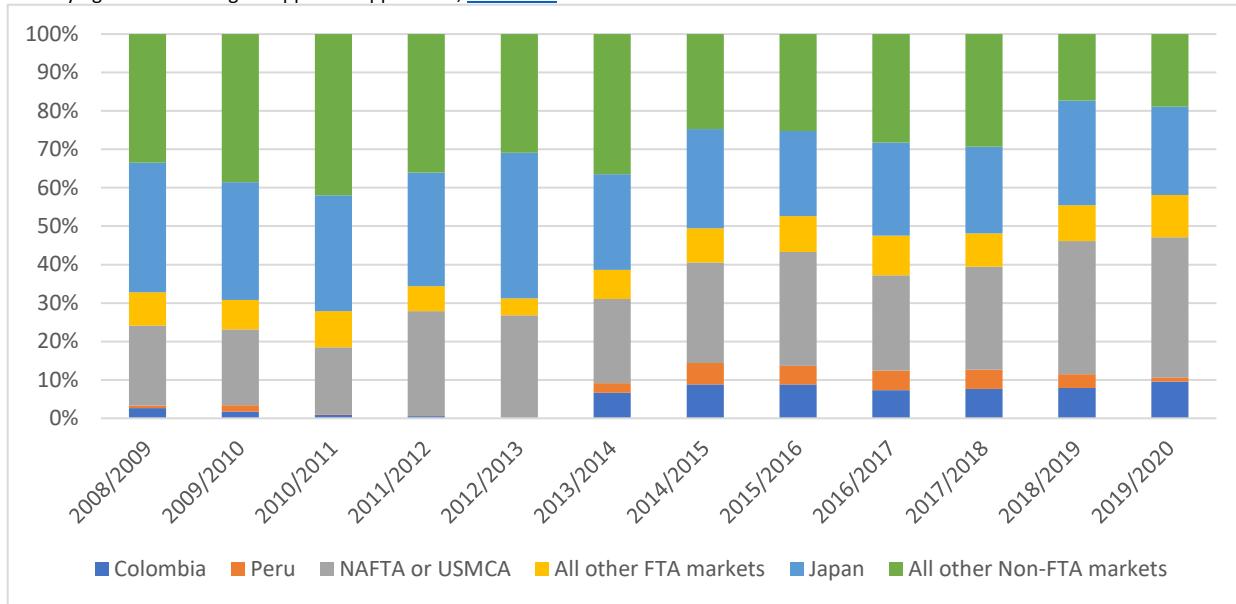
⁷⁸⁷ The top 10 leading destinations for U.S. exports of yellow corn included Mexico (33.1 percent), Japan (23.1 percent), Colombia (9.5 percent), Korea (6.3 percent), China (4.4 percent), Canada (3.3 percent), Guatemala (2.5 percent), Taiwan (2.1 percent), Saudi Arabia (2.1 percent), and Costa Rica (1.8 percent). USDA, FAS, [Global Agricultural Trade System](#), accessed March 29, 2021.

⁷⁸⁸ For example, during the 30-year low point in global U.S. export value, in 1993/94, the top 5 destinations by value for U.S. yellow corn exports included Japan (38.0 percent), Taiwan (16.4 percent), Russia (6.3 percent), Egypt (4.6 percent), and Spain (3.7 percent), which accounted for 69.0 percent of the value of exports in that year. While Japan still represented 23.1 percent of U.S. export volume in 2019/20, the other four other non-FTA partners combined decreased from 31.0 percent to 2.2 percent of U.S. export value. USDA, FAS, [Global Agricultural Trade System](#), accessed March 29, 2021.

⁷⁸⁹ USDA, FAS, [Global Agricultural Trade System](#), accessed March 29, 2021.

Figure 4.11 Share of the value of U.S. domestic exports of yellow corn by export destination and marketing year 2008/09–2019/20

Underlying data for this figure appear in appendix G, [table G.18](#).



Source: USDA, FAS, [Global Agricultural Trade System](#), Schedule B codes 1005.90.2020, 1005.90.2030, and 1005.90.2035, 1005.90.2045, 1005.90.2060, and 1005.90.2070, accessed March 29, 2021.

U.S. FTAs with Colombia and Peru

The U.S.-Peru Trade Promotion Agreement (PTPA) and the U.S.-Colombia Trade Promotion Agreement (U.S. Colombia agreement) were U.S. FTAs that entered into force on February 1, 2009, and May 15, 2012, respectively, and resulted in more predictable tariff treatment for U.S. yellow corn entering both markets.⁷⁹⁰ Before the FTAs were implemented, U.S. yellow corn exports to Peru and Colombia faced uncertainty about the applicable import duties as a result of PBSs adopted by members of the Andean Community—to which both countries belong.⁷⁹¹ Under these systems, which cover certain agricultural commodities including corn, member countries apply a variable duty amount that may be added to or subtracted from the base duty to be paid, depending on the current price and where that fits within established “price bands” and global market conditions.

Colombia and Peru use the same methodology but apply different reference prices and price bands to calculate the variable adjustment to duties to be paid.⁷⁹² The Andean Community (in the case of

⁷⁹⁰ USTR, [U.S.-Colombia agreement](#); USTR, [PTPA](#).

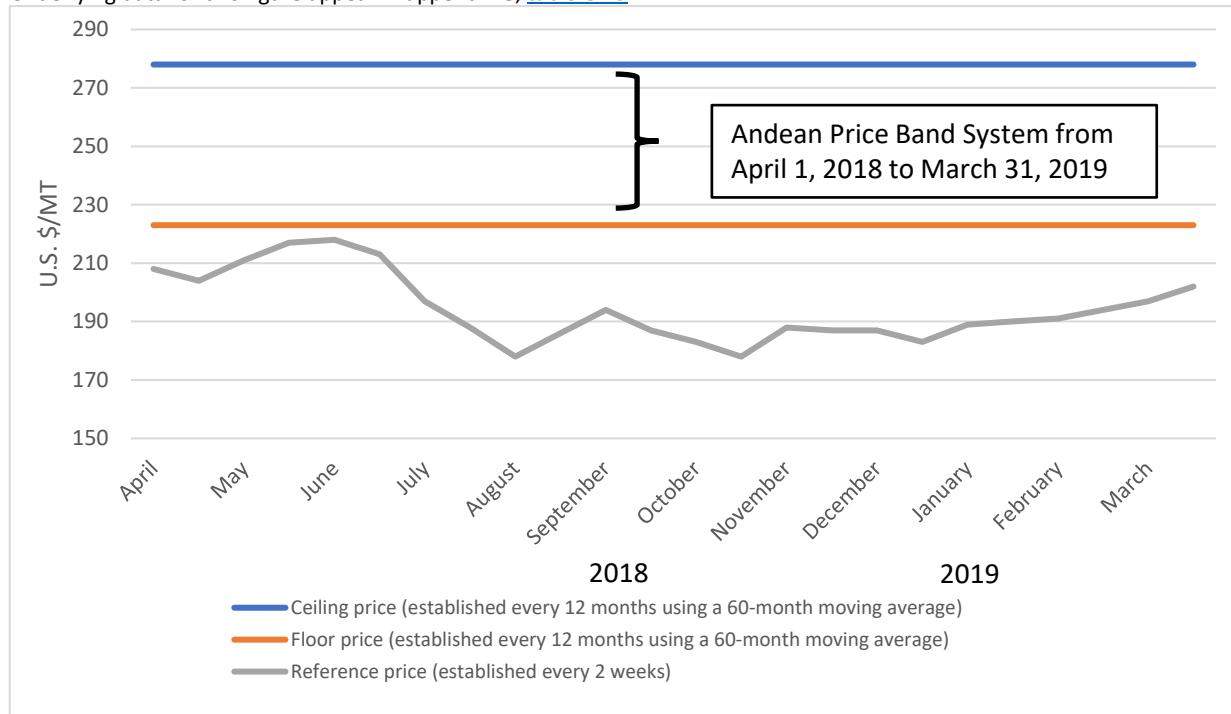
⁷⁹¹ The Andean Community adopted a collective PBS of import protection in 1994. At that time, Peru had already implemented its own separate system of import surcharges in 1991, and thus did not adopt the Andean system. Peru subsequently replaced its system of import surcharges with its own independent PBS in 2001; the Peruvian PBS is like the common Andean PBS, the primary difference being Peru sets its own upper, lower, and reference prices. Villoria and Lee, “[The Andean Price Band System](#),” 2002; Castro, “[The Andean System of Price Bands](#),” 1995.

⁷⁹² The PBSs applied by Peru and Colombia combine a standard MFN ad valorem duty based on a dutiable import price and a variable adjustment to that base duty to be paid set by the PBS calculations. (An ad valorem duty is a duty rate expressed as a percentage of the appraised customs value of the imported good.) Total duties to be paid

Colombia) and the Peruvian government (in case of the Peruvian PBS) sets annual lower and upper bounds for market prices, defining the price band (see figure 4.12). Based on the price band and global corn prices the Andean Community General Secretariat and the Peruvian government determine the additional specific price band duty every other week.⁷⁹³ Adding to this complexity, Colombia maintained a separate global TRQ system that reduced duties on limited quantities of corn imports subject to specific limitations.⁷⁹⁴

Figure 4.12 Andean Price Band System ceiling, floor, and reference prices from April 1, 2018 to March 31, 2019

Underlying data for this figure appear in appendix G, [table G.19](#).



Source: Secretaría General, Comunidad Andina (Secretary General, Andean Community), [Sistema Andino de Franjas de Precios](#) (Andean Price Band System), accessed April 13, 2021.

on a per unit basis are equal to the sum of (1) the dutiable unit price of imports times the MFN ad valorem tariff rate (which can be referred to as the MFN duty to be paid per unit), and (2) the adjustment that is calculated using the difference between the reference price (a per unit price) and either the lower bound or the upper bound of the price band (both unit prices). This difference can be referred to as the variable adjustment. When the reference price is below the lower bound of the price band, the variable adjustment is added to the MFN duty to be paid per unit and total duties to be paid per unit increase. When the reference price is above the upper bound of the price band, the variable adjustment is subtracted from the MFN duty to be paid per unit and total duties to be paid per unit decrease. When the reference price is within the price band, the variable adjustment is zero, and no adjustment is made to the MFN duty paid per unit. Villoria and Lee, “[The Andean Price Band System](#),” 2002; Castro, “[The Andean System of Price Bands](#),” 1995.

⁷⁹³ For detailed discussion of how the Andean Price Band reference, ceiling, and floor prices are calculated see Villoria and Lee, “[The Andean Price Band System](#),” 2002; Castro, “[The Andean System of Price Bands](#),” 1995.

⁷⁹⁴ Under this system importers could utilize the TRQ for a specific volume of imports dependent on their purchase of a certain volume of domestically produced corn. USDA, FAS, “[Colombia Grain and Feed, Tariff Rate Quotas for 2006](#),” November 30, 2005.

The objective of the PBSs was to reduce volatility in domestic prices, as external tariffs were reduced in the 1990s and previously protected domestic industries were exposed to increased global price volatility. While trying to obtain this objective the PBS introduced a high degree of variability and uncertainty about the total duty to be paid on imports of yellow corn in both Peru and Colombia as the time necessary to negotiate a sale and execute the shipment often exceeds the two-week window in which the total duties to be paid are stable.⁷⁹⁵ This uncertainty limited growth in U.S. yellow corn exports to both countries before the FTAs.⁷⁹⁶

As a result of the FTAs in both countries entering into force, U.S. exports of yellow corn were no longer subject to the PBSs.⁷⁹⁷ Nonetheless, the price competitiveness of U.S. yellow corn in both markets continues to fluctuate because imports from competitors are still subject to the variable adjustments. As the reference price gets closer to the PBS floor price and additional duties to be paid on competing imports decrease, U.S. yellow corn becomes less competitive. Conversely, as the reference price gets farther away from the PBS floor price (the reference price decreases), a higher additional variable tariff is applied to imports from U.S. competitors and U.S. yellow corn becomes more competitive.

Under both FTAs, U.S. corn became subject to tariff-rate quotas with duty-free treatment for imports under the quota's trigger level. The tariff-rate quotas for both countries were set to be phased out over a 10-year period—from 2009 to 2019 for Peru and 2012 to 2022 for Colombia—with the quota volume increasing every year. For Peru, the in-quota volume increased by 6.0 percent per year, while for Colombia it grew by 5.0 percent. Similarly, the out-of-quota duty rates decreased incrementally during the phase out period. For both countries, the base duty rate started at 25 percent. Then, upon entry-into-force, the out-of-duty rate was set at roughly 2.1 percentage points below the base rate and continued to decline by that same amount each year until it was removed in year 12. All U.S. exports of yellow corn to Peru became free of duty without volume restrictions when Peru reduced the MFN duty to zero in 2011, while all exports to Colombia will become free of duty without volume restrictions in 2022.⁷⁹⁸

Impacts of the FTAs

Before the FTAs with Peru and Colombia entered into force in February 2009 and May 2012, respectively, U.S. corn exports to both countries were limited. As mentioned above, although they have fluctuated, U.S. exports to Peru grew substantially after the PTPA entered into force, reaching 3.2 million mt (\$524.5 million) in 2017/18 from approximately 398,000 mt (\$73.3 million) in 2007/08 (figure 4.13), before dropping to approximately 553,000 mt (\$85.0 million) in 2019/20.⁷⁹⁹ Over the same time

⁷⁹⁵ USDA, FAS, “[GAIN Report: Colombia, Grain and Feed Annual 2019](#),” 2019, 5.

⁷⁹⁶ USITC, [Economic Impact of Trade Agreements](#), 2016; Industry representative, interview by USITC staff, October 20, 2020.

⁷⁹⁷ USTR, [U.S.-Colombia agreement](#); USTR, [PTPA](#).

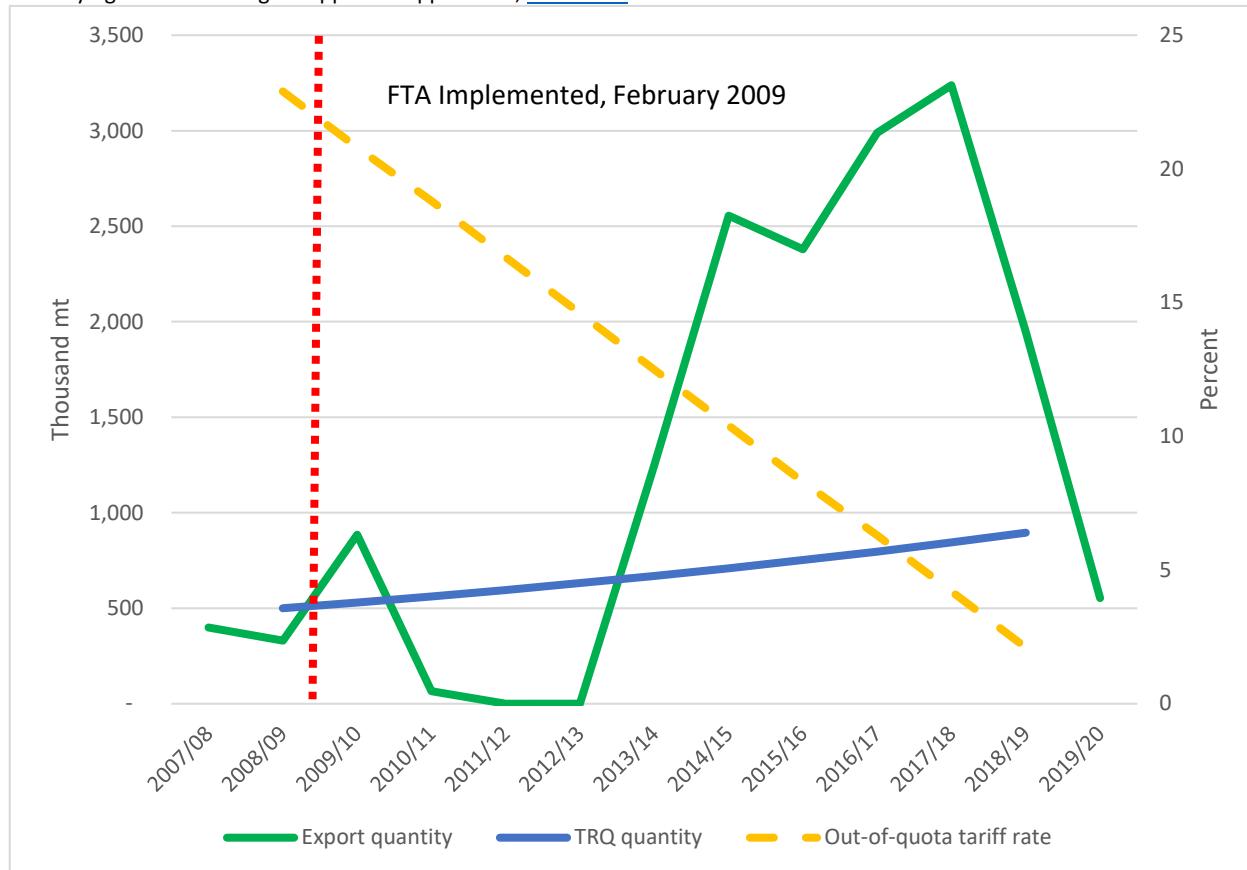
⁷⁹⁸ USTR, [U.S.-Colombia agreement](#); USTR, [PTPA](#).

⁷⁹⁹ As described elsewhere, in 2019/20, overall US exports were 27.5 percent lower than the 2017/18 peak partly due to high corn prices. Since global corn prices were also high, the Peruvian PBS was not activated, which resulted in zero import duties for all corn imports into Peru. The combination of high U.S. corn prices and zero import duties on corn from other sources led to a decline in Peruvian imports of U.S. corn in 2018/19 and 2019/20. USDA, FAS, [Global Agricultural Trade System database](#), accessed March 30, 2021; USDA, FAS, [Peru: Grain and Feed Annual](#), March 19, 2020.

period, corn consumption in Peru increased substantially, growing 77.0 percent from 3.1 million mt in 2007/08 to 5.4 million mt in 2019/20, as chicken meat production in Peru more than doubled from about 877,000 mt to nearly 1.8 million mt between 2008 and 2019.⁸⁰⁰ Meanwhile, domestic yellow corn production in Peru, most of which is destined for use as animal feed, accounts for about 1.6 million mt, meeting only an estimated 29.3 percent of the total domestic demand for the grain in 2019/20, and resulting in the need for imports to meet this demand.⁸⁰¹

Figure 4.13 U.S. domestic exports to Peru, aggregate quantity of yellow corn (thousand metric tons), tariff-rate quota quantity (thousand mt), and out-of-quota tariff rate (percent), marketing year 2007/08 through marketing year 2019/20

Underlying data for this figure appear in appendix G, [table G.20](#).



Source: USDA, FAS, [Global Agricultural Trade System](#), (Schedule B codes 1005.90.2020, 1005.90.2030, and 1005.90.2035, 1005.90.2045, 1005.90.2060, and 1005.90.2070, accessed March 29, 2021; USTR, [PTPA](#).

Note: U.S. exports of yellow corn in 2010/11–2012/13 and 2018/19–2019/20 were lower because U.S. domestic growing conditions in various regions reduced yields and production, driving up higher U.S. corn prices.

⁸⁰⁰ USDA, FAS, [PSD Online database](#), accessed October 23, 2020. In 2017, Peru was the fourth largest producer of broiler meat in South America. FAO Stats database, Peru chicken meat production, accessed April 2021. Ministerio de Agricultura y Riego (Ministry of Agriculture and Irrigation), [Panorama y perspectivas de la producción de carne de pollo en el Perú \(Overview and prospects for chicken meat production\)](#), January 2020, 7–8.

⁸⁰¹ USDA, [PSD Online database](#), accessed March 30, 2021; León Carrasco, “[El maíz es el cultivo más importante en extensión para el Perú](#)” (Corn covers more land than any other crop), July 21, 2020.

While U.S. exports have generally accounted for the vast majority of yellow corn imports in Peru during 2013/14 through 2019/19, the U.S. share fluctuates depending on factors such as U.S. growing and market conditions, global corn prices, and PBS tariffs applied to imports from competing suppliers (figure 4.13). On a volume basis, U.S. yellow corn captured more than 95 percent of the Peruvian import market in 2016/17 and 2017/18, an increase from 27.5 percent in 2007/08; however, the U.S. import market share fell to 56.3 percent and 14.6 percent during 2018/19 and 2019/20, respectively.⁸⁰²

The U.S. industry highlighted that the PTPA gives U.S. yellow corn an advantage in the Peruvian market, although this advantage has been reduced by Peru's unilateral elimination of the base MFN import tariffs on most commodities, including corn, from the world in 2011.⁸⁰³ Although imports of yellow corn from third-country suppliers, such as Argentina, can be competitive in the Peruvian market, these imports are still subject to the PBS. Typically, the additional PBS duty on imports from non-U.S. suppliers was higher than the out-of-quota duty rate for U.S. yellow corn, and U.S. corn can claim the lowest of the two: the out-of-quota duty rate or the additional tariff resulting from the PBS.⁸⁰⁴ Due to the greater predictability in duty treatment as well as corresponding lower prices, the PTPA has improved the relative appeal of U.S. yellow corn within the Peruvian market compared to competing export suppliers in Argentina and Brazil.⁸⁰⁵ The U.S. Department of Agriculture (USDA) and academic reports largely attribute the substantial increase in U.S. agricultural exports to Peru in general, and of yellow corn in particular, to the PTPA.⁸⁰⁶

Box 4.4 Fluctuations in the Additional Variable Duties on Peruvian Imports of Yellow Corn in 2018–19

While Peru's base duty for yellow corn is zero, imports of the product from third-country suppliers are subject to the Peruvian Price Band System (PBS), which is triggered when global corn prices are low. In 2018–2019, the variability in the additional duties to be paid resulting from the PBS (the difference between the floor price and the reference price, as shown in figure 4.12) was clearly evident. In December 2018, the additional variable duties to be paid on imports of yellow corn into Peru were \$12 per ton. However, in early 2019, as the reference price rose closer to the floor price, the additional variable duties to be paid were reduced to \$4 per ton in January and \$2 per ton in February. Further, in the months of March and April as the reference price exceeded the PBS floor price, the additional

⁸⁰² Peruvian imports include yellow corn classified under Peruvian tariff code 1005.90.1100 (Maiz Duro Amarillo); the import data reported here correspond to the U.S. corn marketing year (12 months ending in August). For the three-year period from September 2010 through August 2013, Peru imported less than 67,000 mt of U.S. yellow corn, representing only 1.1 percent of total Peruvian yellow corn imports during that period. Moreover, after peaking at more than 3.2 million mt in both 2016/17 and 2017/18, imports of U.S. yellow corn were only 2.6 million mt over the next 24 months. IHS Market, Global Trade Atlas database, HS 1005.90.11.00, accessed March 30, 2021.

⁸⁰³ USGC, "[Peru](#)," accessed November 17, 2020; USGC, "[Recent Sales to Peru](#)," April 7, 2016; USGC, "[USGC Corn Promotion In Peru Yields Results](#)," May 31, 2016; USDA, FAS, "[Peru: Grain and Feed Annual](#)," March 11, 2019.

⁸⁰⁴ USDA, FAS, "[Grain: World Markets and Trade](#)," June 2018, 10; Government of Peru, Ministerio de Agricultura y Riego (Ministry of Agriculture and Irrigation), "[Boletín Franja de Precios: Aranceles Aplicados Bajo la Franja de Precios](#)" (Price Band Bulletin: Tariffs Applied), July 2019, 3.

⁸⁰⁵ Plume, "[Stiff U.S. Corn Export Competition](#)," June 28, 2016. For four of the five years from 2014 to 2018, the unit price of U.S. yellow corn in the Peruvian market was similar to or lower than that of yellow corn from Argentina and Brazil. IHS Market, Global Trade Atlas database, HS 1005.90.11.00, accessed July 30, 2020.

⁸⁰⁶ USDA, FAS, "[Free Trade Agreements and U.S. Agriculture](#)," June 24, 2016; Schultz and Hart, "[International Trade Has Been Major Source](#)," 2017; Feedstuffs, "[Peru's Corn Imports Exceed Five-Year Average](#)," April 21, 2017.

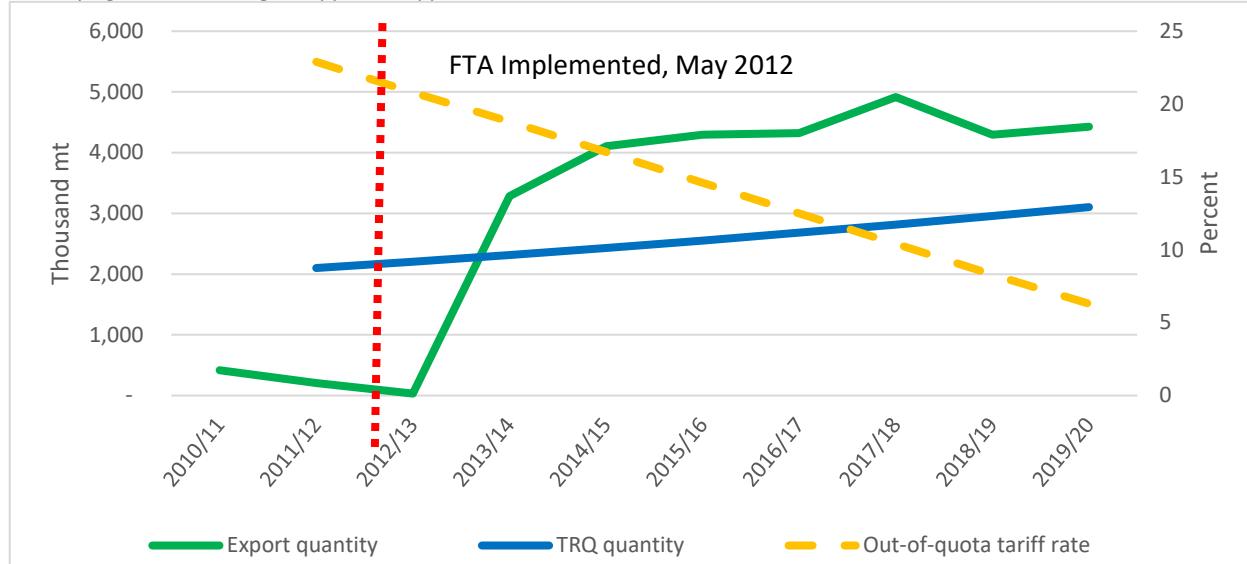
variable duties to be paid on yellow corn imports were reduced to zero. The reference price for yellow corn was lowered again in May, activating the PBS. The additional variable duties to be paid on imports of the corn rose to \$6 per ton that month. The reference price rose again in June and July, resulting in no additional variable duties to be paid on yellow corn imported into Peru. In 2019, the out-of-quota duty rate for U.S. yellow corn was 2.1 percent. However, imports from the United States can claim the lowest applicable duty rate at the time of import.^a

^a Government of Peru, Ministerio de Agricultura y Riego (Ministry of Agriculture and Irrigation), *Boletín Franja de Precios: Aranceles aplicados bajo la Franja de Precios (Price Band Bulletin: Tariffs Applied)*, July 2019, 3.

U.S. exports to Colombia also grew substantially after the U.S.-Colombia agreement entered into force, although this growth has been uneven (see Figure 4.14). In the year immediately prior to entry into force, 2010/11, U.S. yellow corn exports to Colombia were approximately 417,000 mt (\$115.5 million). After dropping substantially in 2011/12 and 2012/13 due to a drought that reduced overall U.S. supply, exports to Colombia increased substantially to 3.3 million mt (\$696.1 million) in 2013/14. U.S. exports to Colombia peaked at 4.9 million mt (\$808.0 million) in 2017/18 but have subsequently declined due to a period of high U.S. prices and low domestic output, as described above. In 2019/20, U.S. yellow corn exports to Colombia totaled 4.4 million mt valued at \$725.2 million.⁸⁰⁷ In recent years, U.S. yellow corn has represented almost one-third of total U.S. agricultural exports to Colombia.⁸⁰⁸

Figure 4.14 U.S. domestic exports to Colombia, aggregate quantity of yellow corn, in thousand metric tons (mt), quota quantity (thousand mt), and out-of-quota tariff rate (percent) by marketing year 2010/11 through marketing year 2019/20

Underlying data for this figure appear in appendix G, [table G.21](#).



Source: USDA, [FAS](#), Global Agricultural Trade System (Schedule B numbers 1005.90.2020, 1005.90.2030, 1005.90.2035, 1005.90.2045, 1005.90.2060, and 105.90.2070, accessed April 1, 2021; USTR, [U.S.-Colombia agreement](#).

Note: U.S. exports of yellow corn in 2010/11–2012/13 and 2018/19–2019/20 were lower because U.S. domestic growing conditions in various regions reduced yields and production, driving up U.S. corn prices.

⁸⁰⁷ USDA, FAS, [Global Agricultural Trade System](#), accessed April 1, 2021.

⁸⁰⁸ USDA, FAS “[GAIN Report: Colombia Grain and Feed Annual](#),” March 15, 2019, 3; USDA, FAS, [Prospects for U.S. Corn in Latin America](#), October 2020; USDA, FAS, [Global Agricultural Trade System](#), accessed April 1, 2021.

Corn consumption in Colombia has increased 37.0 percent from 5.4 million mt in 2010/11 to 7.4 million mt in 2019/20, as poultry and pork production in the country have expanded.⁸⁰⁹ Corn consumption in Colombia started to increase at a fast pace in 1991, when the country began to allow imports, which quickly surpassed domestic production.⁸¹⁰ Domestic production of corn, the third-largest crop grown in Colombia by area planted, has increased at a slower pace than domestic consumption, as yields on large-scale farms in the country remain low (5.7 tons/hectare in 2019), resulting in the need for imports.⁸¹¹ In 2019/20, imports accounted for about 81.6 percent of total corn consumption in Colombia. Colombia is the largest importer of corn in South America, and the ninth largest in the world.⁸¹²

Yellow corn exports from third country suppliers, particularly from Argentina and Brazil, have the potential to be competitive in Colombia. However, the variability in the adjustable duty that these countries' exporters face under the PBS as well as the geographic advantage for U.S. corn, among other factors, have resulted in U.S. yellow corn being more competitive in Colombia.⁸¹³ U.S. exports of corn accounted for 97.2 percent of the total Colombian imports of yellow corn in 2017/18, rising from 15.3 percent in 2010/11.⁸¹⁴ USDA attributes this increase partly to the FTA and partly to increased demand for animal protein resulting from a growing Colombian economy.⁸¹⁵ The U.S. Grains Council (USGC) noted that since the FTA entered into force, "U.S. corn exports to Colombia have set a new record every subsequent year."⁸¹⁶ USGC largely attributes the increase in U.S. yellow corn exports to

⁸⁰⁹ USDA, [PSD Online database](#), accessed March 31, 2021.

⁸¹⁰ Govaerts et al., "[Maíz para Colombia: Visión 2030](#)" (*Corn for Colombia: Vision 2030*), 2019, 15.

⁸¹¹ Corn in Colombia is produced in two different ways: by using modern agricultural technologies, including hybrid seed technologies—an approach that is also called "large scale"—or by using traditional methods and seed varieties. Large-scale production represents about 48 percent of the total area planted to corn in Colombia and its yields reached 5.7 mt/ha in 2019. The remainder is cultivated using traditional methods and traditional seed varieties; it accounted for 0.5 million mt and yields of 2.1 mt/ha in 2019. Corn produced using modern technologies accounted for 76 percent of the total corn production in Colombia in 2019. While Colombia regularly produces yellow and white corn, the share of each type produced each year depends on market conditions. In 2019, 63 percent of the total corn production in Colombia was of yellow corn. Govaerts et al., "[Maíz para Colombia: Visión 2030](#)" (*Corn for Colombia: Vision 2030*), 2019, 7–8; USDA, FAS, [Colombia: Grain and Feed Annual](#), April 1, 2020, 2.

⁸¹² Govaerts et al. ranked Colombia as the seventh largest global importer, while FAO and USDA ranked Colombia as the ninth-largest global importer. Govaerts et al., "[Maíz para Colombia: Visión 2030](#)" (*Corn for Colombia: Vision 2030*), 2019, 7; USDA, FAS, [PSD Online database](#), accessed April 13, 2021; FAO, [FAO Stat database](#), accessed April 13, 2021.

⁸¹³ Industry representatives stated that shipping charges from ports in third-country exporting countries were generally higher than from the U.S. ports. For example, shipments to Peru, regardless of source (most U.S. corn exports are via U.S. Gulf Coast ports), must generally pass through the Panama Canal, which has a greater effect on time and distance from Argentinean and Brazilian ports than from U.S. ports. Industry representative, interview by USITC staff, October 20, 2020.

⁸¹⁴ As described elsewhere, U.S. domestic production and market conditions resulted in higher U.S. yellow corn prices, making exports less competitive. Global corn prices were also high, deactivating the PBS mechanism and resulting in zero import duties for all corn imports into Colombia. The combination of high U.S. corn prices and lower import duties on corn from other sources contributed to the decline in Colombian imports of U.S. corn since the 2017/18 marketing year. USGC, "[Trade Agreement Access](#)," July 12, 2018.

⁸¹⁵ USDA, FAS, "[United States-Colombia Trade Promotion Agreement Pays Dividends](#)," May 2019.

⁸¹⁶ USGC, "[Colombia](#)," accessed July 30, 2020.

Colombia to the FTA, combined with its own marketing efforts. The organization expects yellow corn exports to continue to grow, driven by expansion of the country's livestock and feed industries.⁸¹⁷

Recently the U.S. import market share in the country declined, dropping below 100 percent in 2017/18, to 81.0 in 2018/19, and to 79.7 percent in 2019/20.⁸¹⁸ These declines were attributed to the reduction in import duties for non-U.S. suppliers under the PBS resulting from high global corn prices which, in 2019, were compounded by poor weather that led to reduced U.S. production and high U.S. prices, slowing overall U.S. exports.⁸¹⁹ In addition, in 2020, to counter the effects of the depreciation of the Colombian peso, which resulted in increased costs for the livestock and poultry industries that rely on imported corn, the Colombian government eliminated import duties on corn from all sources for three months.⁸²⁰

Case Study 7: KORUS Provisions Impacting U.S. Energy Product Exports

This case study looks at the substantial growth in U.S. exports of energy products—specifically crude oil, liquified natural gas (LNG), and liquified petroleum gas (LPG)⁸²¹—to Korea between 2012 and 2019. Although U.S. production of crude oil and natural gas had been in a long term decline at the time of the negotiations for the U.S.-Korea Free Trade Agreement (KORUS), subsequent production increases resulting from the Shale Revolution⁸²² allowed U.S. producers and exporters to take advantage of broad reductions in trade barriers under original KORUS. In particular, the elimination of Korean import tariffs on U.S. energy products increased U.S. export competitiveness in the Korean market, especially for crude oil.⁸²³ In addition, national treatment provisions included in KORUS allowed for automatic U.S. government approval of natural gas exports to Korea, whereas exports to other countries required a more in-depth approval process, thereby providing more certainty about Korean access to U.S. natural gas. U.S. energy product exports to Korea rose sharply in both value and volume in recent years,

⁸¹⁷ USGC, “[Trade Agreement Access Sparks Record-Setting Exports To Colombia](#),” July 12, 2018.

⁸¹⁸ In 2017, Colombia signed the Mercosur Economic Complementation Agreement with the Southern Common Market (known by its acronym in Spanish, Mercosur) of which Argentina and Brazil are members. The new agreement gave trade preferences to certain types of corn, including yellow corn. Yellow corn, however, remained subject to the PBS as described above. USDA, FAS, [Global Agricultural Trade System](#) database, accessed March 31, 2021; OAS, SICE, “[Novedades en materia de política comercial: Colombia-MERCOSUR](#)” (Trade Policy Developments: Colombia-Mercosur), accessed January 21, 2021; industry representative, interview by USITC staff, October 20, 2020.

⁸¹⁹ USDA, FAS, [Colombia: Grain and Feed Annual](#), April 1, 2020, 3; Ventura Group, “[Cuál es el panorama de la importación de maíz a Colombia](#)” (What is the outlook for corn imports), January 29, 2020.

⁸²⁰ FAO, “[Colombia permite la importación libre de impuestos del maíz, sorgo y soja](#)” (Colombia allows duty-free imports), April 24, 2020.

⁸²¹ Unless otherwise stated, “energy products” refer to crude oil, liquified natural gas (LNG), and liquified petroleum gas (LPG) for the purposes of this case study.

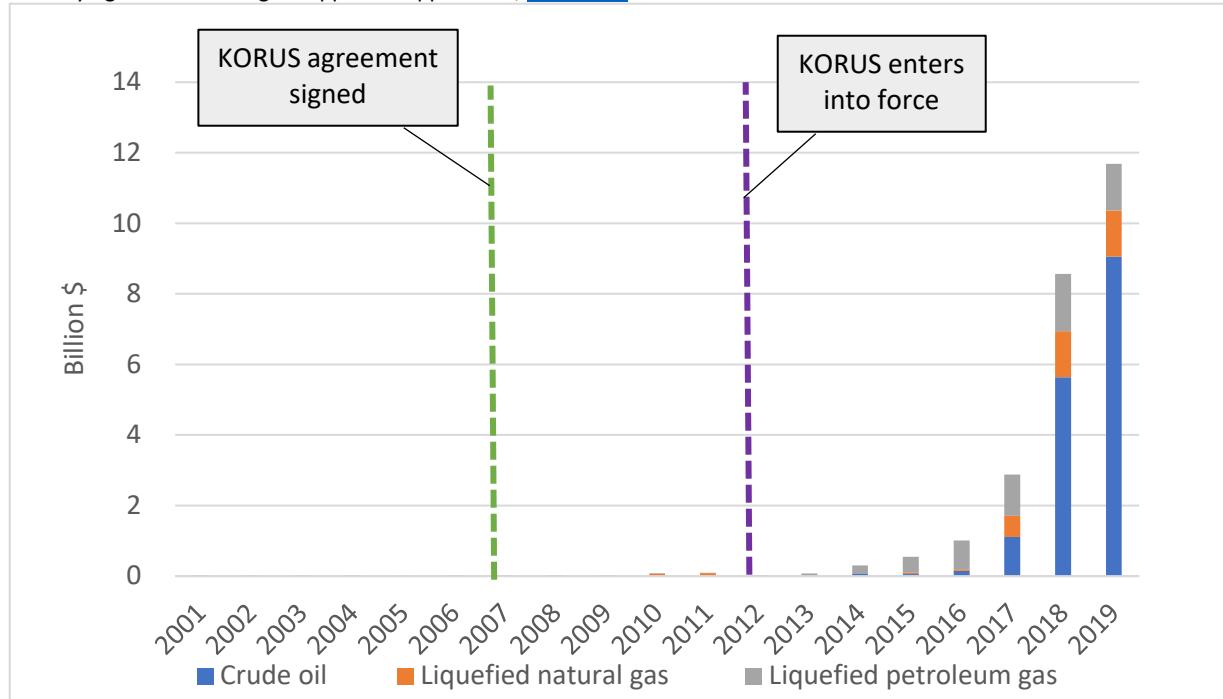
⁸²² The Shale Revolution refers to the widespread implementation of horizontal drilling and hydraulic fracturing techniques to extract oil and gas from shale deposits beginning in 2007, and the subsequent increase in domestic production of energy products that followed. Robert Strauss Center, “[The U.S. Shale Revolution](#),” accessed November 19, 2020.

⁸²³ Korea’s tariffs on imports of crude oil (HS 2709.00), LNG (HS 2711.11), and LPG (HS 2711.12 and 2711.13) have an MFN duty rate of 3 percent. The KORUS agreement eliminated tariffs on each of these HS subheadings.

particularly for crude oil (figure 4.15). As a result, Korea's share of total U.S. exports of energy products by value grew from 2 percent in 2007 to 23 percent in 2019.

Figure 4.15 U.S. energy product exports to Korea, 2001–19 (billion dollars)

Underlying data for this figure appear in appendix G, [table G.22](#).



Source: USITC DataWeb/Census, HS subheadings 2709.00, 2711.11, 2711.12, 2711.13, accessed July 30, 2020.

Background on U.S. Energy Sector and the KORUS Agreement

The United States and Korea officially announced their intent to negotiate an FTA in early 2006.⁸²⁴ The agreement was signed by both countries in 2007 but did not enter into force until 2012. The provisions examined in this case study were agreed on before the 2007 agreement signing and remained unchanged in the later negotiations.⁸²⁵

At the time of the KORUS negotiations, energy products did not account for a significant portion of total U.S.-Korea trade. The United States was viewed as being past peak production of crude oil and natural gas, and was in the process of building out infrastructure to import LNG.⁸²⁶ However, between 2007 and 2008, technological developments (such as horizontal drilling and hydraulic fracking) began to enable

⁸²⁴ Cooper and Manyin, “[The Proposed Korea-U.S. Free Trade Agreement \(KORUS FTA\)](#),” May 24, 2006.

⁸²⁵ Continued negotiations following the signing of KORUS in 2007 focused on adjusting auto-related provisions.

Williams et al., “[The U.S.-Korea Free Trade Agreement \(KORUS FTA\): Provisions and Implementation](#),” September 16, 2014, i.

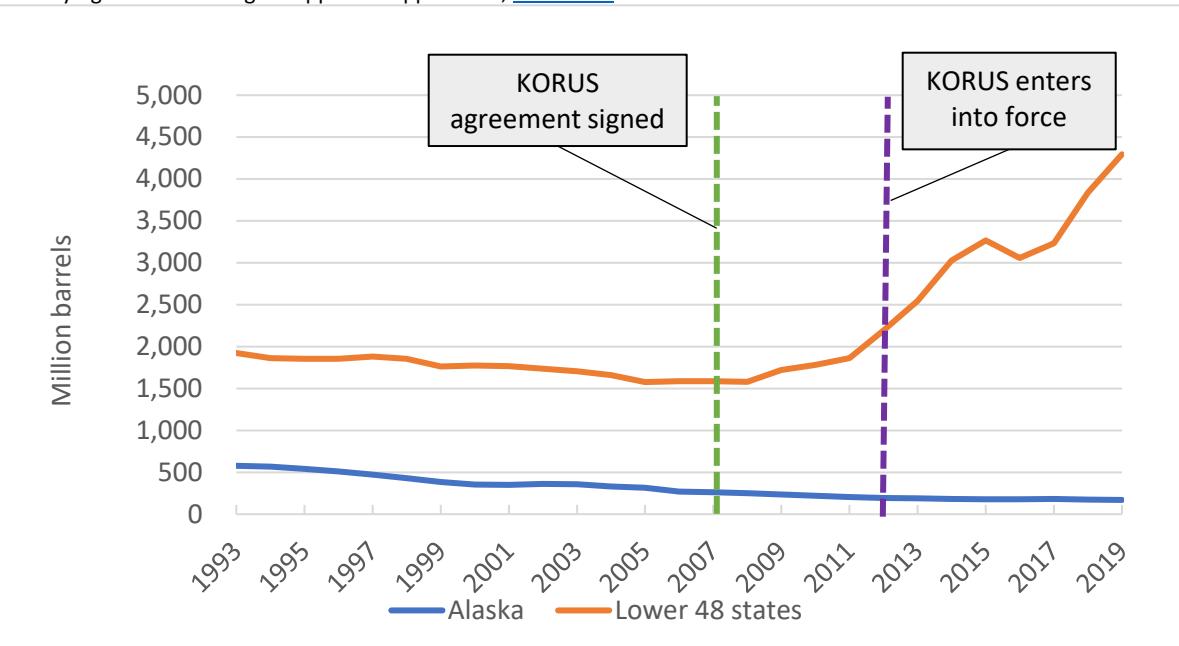
⁸²⁶ Crooks, “[The U.S. Shale Revolution](#),” April 24, 2015; EIA, “[Growth in Domestic Natural Gas Production](#),” March 4, 2016.

production from previously inaccessible or uneconomic geologic formations⁸²⁷ and led to significantly increased domestic production of natural gas. In about 2009, production of U.S. crude oil also began to grow as a result of these technological advancements and substantially increased after 2011 (figure 4.16).⁸²⁸ U.S. LPG output followed similar trends—it was in decline at the beginning of the KORUS negotiations, and saw significant growth between 2008 and 2019.⁸²⁹

The United States is now the world's largest crude oil producer, accounting for 14.7 percent of global production in 2019.⁸³⁰ U.S. production equaled nearly 4.5 billion barrels in 2019. In comparison, when KORUS was signed in 2007, U.S. crude production was less than 1.9 billion barrels per year and had been declining for over a decade.

Figure 4.16 U.S. crude oil production in Alaska and lower-48 states before and after KORUS, 1993–2019 (million barrels)

Underlying data for this figure appear in appendix G, [table G.23](#).



Source: EIA, "[Crude Oil Production](#)," accessed October 9, 2020.

Note: "Provisions" in this figure refers only to the tariff reduction and national treatment provisions discussed in this study. Some other provisions of the KORUS agreement were renegotiated after 2007.

⁸²⁷ Horizontal drilling and hydraulic fracturing, methods of deriving oil and gas from tight shale deposits, enabled production from previously untapped geologic materials. While horizontal drilling and hydraulic fracturing were used commercially for many decades before the start of the Shale Revolution, these extractive methods have become much more widespread in recent years. In 2019, about 63 percent of domestic crude oil production came from tight oil resources (such as shale). EIA, "[FAQs: How Much Shale \(Tight\) Oil Is Produced in the United States?](#)" September 11, 2020.

⁸²⁸ Horizontal drilling and hydraulic fracturing were implemented by natural gas producers first. Crude oil producers began using the techniques after seeing the huge growth in shale gas production. Crooks, "[The U.S. Shale Revolution](#)," April 24, 2015.

⁸²⁹ LPG components are found in oil and gas deposits, so the Shale Revolution was also behind a lot of the LPG production growth as well. EIA, "[Exports Provide an Outlet for Growing Propane Production](#)," July 15, 2015.

⁸³⁰ Production data includes condensates. BP, [Statistical Review of World Energy](#), June 2020, 18.

Relevant Provisions

While KORUS does not contain energy-specific provisions, it does contain two broad provisions that significantly benefit U.S. energy product producers and exporters. First, increased market access via the removal of Korea's 3 percent tariffs on imports of energy products benefits the U.S. crude oil industry. Crude is generally a very competitively traded commodity, and U.S. exports to Asia tend to face higher production and transportation costs than low-cost suppliers in the Middle East.⁸³¹ Second, national treatment⁸³² provisions incorporated in KORUS are important for U.S. energy product exports, especially natural gas. Under the Natural Gas Act of 1938, U.S. firms looking to import or export natural gas are required to obtain authorization from the Department of Energy based on a determination of whether the trade is in the public interest.⁸³³ However, the Energy Policy Act of 1992 amended this law to require that applications to authorize the export of natural gas be granted without modification or delay if the recipient country has an FTA with the United States that provides for national treatment for natural gas trade.⁸³⁴

Economic Effects

Growth in Korean imports of U.S. energy products has greatly exceeded overall growth in Korean imports of these products. Between 2012 and 2019, Korea's total imports, by volume, of crude oil, LNG, and LPG increased by 10 percent, 13 percent, and 24 percent, respectively. However, Korea's imports of these products from the United States each increased by several orders of magnitude.⁸³⁵ In value terms, Korean imports of energy products from the United States grew by 9,433 percent, from about

⁸³¹ The Middle East has significantly larger proven oil reserves than the United States, and Saudi Arabia in particular has wells that are more productive and require less expensive extractive technologies. The principal energy-producing countries in the Middle East are Saudi Arabia, Iraq, Iran, the United Arab Emirates, Kuwait, Qatar, and Oman. Figures included in this study may also include production or trade statistics from Bahrain, Israel, and Yemen. Meanwhile, the United States also faces higher transportation costs in exporting to Korea. U.S. exports of crude, LNG, and LPG mainly come from ports on the U.S. Gulf Coast or (to a lesser extent) ports on the East Coast. The Panama Canal helps to shorten the route from these origins to the Pacific, but still adds costs and leaves a large distance of the Pacific Ocean to cross. Some U.S. exports instead take an even longer route across the Atlantic, either around the southern tip of Africa or in between Europe and Africa, through several narrow chokepoints. This is especially relevant given the recent surge in global freight rates for crude shipments. Russell, "[Asia Crude Oil Refiners Pay the Price for U.S. Sanctions on China Ships](#)," October 10, 2019.

⁸³² "National treatment" is a concept established and defined in Article III of GATT 1994 which requires that imports be treated no less favorably than the same or similar domestically produced goods once they have passed customs. WTO, "[Glossary—National Treatment](#)," accessed October 10, 2020.

⁸³³ Natural Gas Act of 1938, 15 U.S.C. § 717b(a).

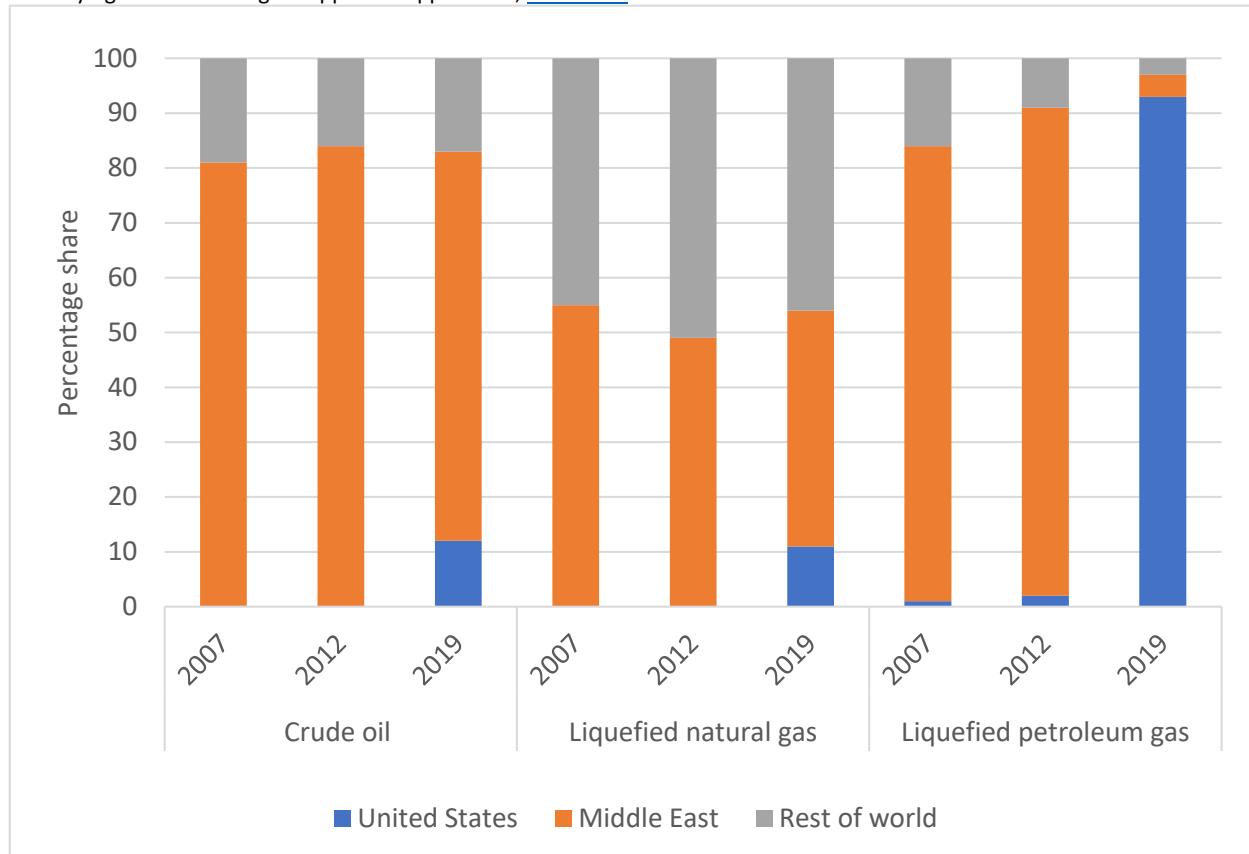
⁸³⁴ The Energy Policy Act of 1992 "aims to reduce U.S. dependence on petroleum and improve air quality by addressing all aspects of energy supply and demand, including alternative fuels, renewable energy, and energy efficiency." Energy Policy Act of 1992, 15 U.S.C. § 717b(c); USDOE, "[Information on Submitting an LNG Export Application](#)," accessed October 10, 2020.

⁸³⁵ Between 2012 and 2019, Korea's crude imports (by volume) from the United States increased by nearly 13.7 million percent, while Korea's imports of U.S. LNG and LPG increased by more than 9,000 and 6,500 percent, respectively. [IHS Markit](#), Global Trade Atlas database, HS 2709.00, 2711.11, 2711.12, 2711.13, accessed November 11, 2020.

\$150 million in 2012 to \$14.3 billion in 2019.⁸³⁶ Figure 4.17 depicts shares of Korea's energy imports from the United States, the Middle East, and the rest of the world, by product, from 2007 to 2019. Across all these products, the U.S. share of Korea's imports grew as Korea diversified away from the Middle East. U.S. export growth benefited from rising Korean demand while reflecting the fact that U.S. exports were taking market share in Korea from other major exporters.

Figure 4.17 Korea's imports of energy products, shares from leading sources, 2007–19

Underlying data for this figure appear in appendix G, [table G.24](#).



Source: [IHS Markit](#), Global Trade Atlas database, HS 2709.00, 2711.11, 2711.12, and 2711.13, accessed October 9, 2020.

Demand Shifts and Economic Effects of the Tariff Elimination

The dramatic emergence of U.S. energy product exports to Korea developed from the substantial growth in the U.S. supply of energy products. In addition, the lifting of the ban on U.S. exports of crude oil outside of Alaska in 2015, and the creation of U.S. infrastructure to export LNG in 2016 supported

⁸³⁶ Korea's total value of imports of crude oil, LNG, and LPG grew to \$9 billion, \$2.2 billion, and \$3.2 billion, respectively, in 2019. [IHS Markit](#), Global Trade Atlas database, HS 2709.00, 2711.11, 2711.12, 2711.13, accessed November 11, 2020.

exporters ability to take advantage of this new supply.⁸³⁷ However, the magnitude of these exports is striking. The U.S. share of the Korean market for crude oil and LPG was more than double the U.S. global market share for these products in 2019.⁸³⁸ This suggests that the tariff advantage provided under KORUS could be incentivizing a larger flow of energy product exports from the United States to Korea than can be explained by the supply shock from the U.S. shale revolution.

However, it is also possible that strategic purchases have driven some of the increase in U.S. energy product exports to Korea. The director of the Korea International Trade Association confirmed that “buying more U.S. oil and gas was part of (Seoul’s) strategy as our wide trade surplus against the United States was grounds for revising the Korea-U.S. free trade deal.”⁸³⁹ In addition, Korea has been using transportation rebates for refiners who import from regions outside the Middle East in order to incentivize refiners to diversify away from the Middle East in recent years. Exports from the Middle East to Korea are mainly transported through the Straits of Malacca, a region with major concerns related to piracy.⁸⁴⁰ Moreover, being so heavily dependent on imports from the Middle East makes Korea more susceptible to the price shocks that often follow conflict in that region.⁸⁴¹

Given multiple factors may have contributed to the influx of U.S. energy products in Korea, this case study uses quantitative analysis to isolate the effects of the reduction in tariffs on changes in Korea’s imports of energy products from the United States and the rest of the world. The partial equilibrium model presented below analyzes a counterfactual scenario, by estimating the hypothetical effects on Korea’s imports of crude from the United States if these imports still faced a 3 percent MFN tariff. The chosen model simulates the effects on a country with no domestic producers, as Korea sources nearly all of its energy products from abroad.⁸⁴²

According to model estimates, based on the value of Korea’s 2019 imports from the United States versus Korea’s imports from the rest of the world, the re-implementation of a 3 percent tariff would potentially reduce the value of imports from the United States by 7.4 percent or about \$547 million. The model estimates that the price of Korean imports of U.S. crude would rise by 1.4 percent, and the

⁸³⁷ The substantial growth in U.S. supply of energy products following the Shale Revolution motivated changes in both the export ban and LNG infrastructure investment. For information on the crude oil export ban see GAO, “[Effects of the Repeal of the Crude Oil Export Ban](#),” October 2020, 7. For information on LNG infrastructure investment, see USDOE, “[Map: U.S. Natural Gas Exports Continue Record Growth](#),” accessed May 20, 2021.

⁸³⁸ The United States supplied 5 percent of global crude imports in 2019, but 12 percent of Korean crude imports. Likewise, United States supplied 33 percent of global LPG imports in 2019, but 93 percent of Korean imports. The U.S. share of global LNG imports did outweigh its share of Korean imports, but Korea was still the largest destination for U.S. LNG exports in 2019. [IHS Markit](#), Global Trade Atlas database, HS 2709.00, 2711.11, 2711.12, 2711.13, accessed November 11, 2020.

⁸³⁹ Chung and Tan, “[Korea’s Big Buys on U.S. Oil, Gas to Keep Bilateral Ties Strong](#),” January 30, 2019.

⁸⁴⁰ Lee, “[S. Korea to Offer Refiners Incentives to Diversify Crude Import Sources](#),” July 11, 2014.

⁸⁴¹ Concerns about conflict and related supply disruptions in the Middle East region have often escalated crude prices. In September 2019, for example, drone strikes on Saudi Arabian oil facilities led to a dramatic reduction in the country’s production and worries about a spike in crude prices. Kelly, “[Attacks on Saudi Oil Facilities—What Will it Mean for Consumers?](#)” September 16, 2019. Other events increasing the risk of regional conflict, such as the Syrian chemical weapons incident (August 2013), have also been followed by price spikes. HRW, “[Attacks on Ghouta](#),” September 2013. EIA, “[Global Crude Oil Supply Disruptions and Strong Demand Support High Oil Prices](#),” September 10, 2013.

⁸⁴² EIA, “[Korea](#),” November 6, 2020.

industry average price to Korean consumers would rise by 0.4 percent.⁸⁴³ These results indicate that the increase in imports presently occurring is likely not only a result of the supply shock or of strategic purchasing, but also related to the tariff benefit. These results also indicate that the tariff elimination increases U.S. competitiveness by allowing U.S. firms to offer a lower price to Korean purchasers.

Economic Effects of National Treatment

As described above, the U.S. provision of national treatment to natural gas trade with Korea is significant to U.S. LNG producers, as it grants them automatic U.S. government approval for exports to Korea. Meanwhile, U.S. firms planning to export to non-FTA countries must seek approval from the U.S. Department of Energy (USDOE).⁸⁴⁴ All LNG facilities in the United States, whether currently operating or under construction, have an authorization to export to non-FTA countries,⁸⁴⁵ and it appears that most applications to export to non-FTA countries are eventually approved. However, there was substantial uncertainty about the approval process when new U.S. LNG export facilities were being developed in the early 2010s, and the USDOE process has received criticism for its lengthy approval times.⁸⁴⁶ Thus, the ability of domestic energy firms to establish sales contracts with firms from FTA countries in the early stages of these firms' development may have increased the viability of their investments.⁸⁴⁷

⁸⁴³ Within the model, the U.S. export supply was given a moderate supply elasticity of (5), while the rest of the world was given a lower supply elasticity (3). This is based on the idea that U.S. producers have more flexibility to adjust their supply up or down in response to price fluctuations. Shale/tight oil production is on a shorter development cycle than the conventional oil production used by most other oil producers. Only a handful of other oil-producing countries have substantial spare capacity. Most global spare capacity is concentrated in Saudi Arabia, where oil production is controlled by a single, state-owned enterprise and coordinated with other OPEC members. EIA, "[EIA Forecasts U.S. Crude Oil Production Will Keep Growing](#)," January 27, 2020; Reuters, "[Global Spare Oil Capacity in US Hands after Saudi Outage](#)," September 14, 2019. A high substitution elasticity (7) and negative elasticity of demand (-1) were determined based on elasticities suggested in various scholarly research, along with qualitative considerations of Korea's sophisticated refining abilities, making Korea more flexible about changing sources than the average crude importer. Caldara, Cavallo, and Iacoviello, "[Oil Price Elasticities and Oil Fluctuations](#)," July 2016; Soderbery, "[Trade Elasticities, Heterogeneity, and Optimal Tariffs](#)," September, 2018; Ahmad and Riker, "[Updated Estimates of the Trade Elasticity of Substitution](#)," May 2020.

⁸⁴⁴ Before seeking USDOE approval to export, all firms must first get approval from the Federal Energy Regulatory Commission (FERC) in order to operate. FERC, "[LNG](#)," accessed March 10, 2021.

⁸⁴⁵ EIA, "[U.S. Liquefaction Capacity](#)," April 22, 2020.

⁸⁴⁶ A 2013 article discussing the need for non-FTA export approval claimed that the long wait for LNG export permits was "leading some foreign countries to shy away from potentially unstable [purchase] contracts because contracts need to be made before the [DOE] permit is granted and the DOE might not grant the permit." Later, a 2016 article discussing the need for expedited approval processes cited 29 non-FTA applications that were waiting for approval by USDOE at the time. Many of these applications were more than two years old. Although the rate of LNG approvals picked up in 2017, eight applications remained pending that year, seven of which were submitted in 2013 or earlier. Miles, "[LNG Exports: Why Permits to Non-FTA Countries Need Expediting](#)," August 3, 2013; Green, "[The Case for Expediting LNG Export Approvals](#)," September 21, 2016; USDOE, "[Long Term Applications by DOE/FE to Export](#)," September, 2017.

⁸⁴⁷ It should be noted that Japan, a non-FTA country, also made significant investments between 2013 and 2014 in the Freeport LNG project and other LNG projects. However, Japan's historically strong bilateral trade relationship with the United States, and the fact that Japan and the United States were in the process of negotiating the Trans-Pacific Partnership (TPP) at the time, may have given Japanese companies more confidence in their ability to receive U.S. LNG exports than other non-FTA countries. Kyodo, "[Despite Lacking FTA, Japan to Get U.S. LNG](#)," May 19, 2013; JBIC, "[Project Financing for Freeport LNG Project in U.S.](#)," October 30, 2014.

Meanwhile, increased certainty about Korean access U.S. natural gas may have encouraged Korean firms to sign long-term contracts that supported the development of some of the first U.S. LNG export terminals.⁸⁴⁸ Two of the first four U.S. LNG liquefaction export terminals to make final investment decisions (FIDs)—Cheniere and Freeport LNG—had established sales contracts with Korean firms before making those decisions. These two operators also account for the largest domestic liquefaction capacity and the largest volume of exports of U.S. LNG.⁸⁴⁹

Cheniere's 20-year sales and purchasing agreement with Korean firm KOGAS, established in January 2012, was quickly followed by Cheniere's positive FID on its first two export liquefaction lines ("trains") at Sabine Pass in July 2012.⁸⁵⁰ The Export-Import Bank of Korea and Korea Trade Insurance Corporation also agreed to provide \$1.5 billion worth of credit to fund the construction of the first four LNG trains at the Sabine Pass Facility in May 2013.⁸⁵¹ This announcement came as Cheniere made positive final investment decisions on its third and fourth trains.⁸⁵² Non-FTA export authorization for these four trains was given in August 2012.⁸⁵³ Later in 2017, Korea's national agriculture cooperative invested \$30 million into Cheniere's Corpus Christi LNG export development project.⁸⁵⁴

In September 2013, Korean firm SK E&S LNG entered into a 20-year liquefaction tolling agreement with Freeport LNG, accounting for about 16 percent of Freeport's current export contracts by volume.⁸⁵⁵ A positive FID was made on Freeport's first two trains in October 2014, and on the third train in April, 2015.⁸⁵⁶ Non-FTA authorization was given in December 2016.⁸⁵⁷ Considering the significant investments by Korean firms in these LNG terminals and contracts, it is possible that they played a critical role in kickstarting U.S. LNG exports as a whole, including to other countries besides Korea.

⁸⁴⁸ An article from the Council on Foreign Relations from 2015 claims that national treatment provisions provide confidence in foreign countries' ability to access U.S. LNG. Levi, "[What the TPP Means for LNG](#)," November 17, 2015.

⁸⁴⁹ EIA, "[U.S. LNG Exports by Liquefaction Terminal](#)," December 12, 2019.

⁸⁵⁰ Cheniere, "[Cheniere Partners' Board of Directors Made Positive Final Investment Decision \("FID"\) for First Two Liquefaction Trains](#)," July 30, 2012. A liquefaction "train" is a facility which converts natural gas into its liquid state through cooling, making it easier to transport long distances.

⁸⁵¹ The Korea Herald, "[K-sure, Eximbank to Finance U.S. LNG Project](#)," May 27, 2013.

⁸⁵² Korean financial institutions later funded a fifth train at Sabine Pass, as well as construction on the first two LNG trains at Cheniere's second export facility in Corpus Christi, Texas.

⁸⁵³ Conditional non-FTA authorization was given in 2011. USDOE, [Sabine Pass Liquefaction, LLC—FE Dkt No. 10-111-LNG](#), accessed January 13, 2021.

⁸⁵⁴ Lee and Kim, "[Brookfield, NH Investment Co-invest \\$100 Mn in CBs of US LNG terminal](#)," November 30, 2017.

⁸⁵⁵ Freeport LNG, "[Freeport LNG Signs 20-year Liquefaction Tolling Agreement with SK E&S LNG](#)," September 9, 2013.

⁸⁵⁶ Chubu, "[Final Investment Decision and Execution of Loan Agreements for Freeport LNG Project in U.S.](#)," October 30, 2014; Liao, "[U.S. Freeport LNG Makes Final Investment on Train 3](#)," April 28, 2015.

⁸⁵⁷ USDOE, [Freeport LNG Expansion, L.P., Fe Dkt. No. 16-108-LNG](#), accessed January 13, 2021.

Chapter 5

The Impacts of Trade Agreements on the U.S. Economy: A Literature Review

This chapter updates and expands upon the literature review in the U.S. International Trade Commission’s *Economic Impact of Trade Agreements Implemented Under Trade Authorities Procedures, 2016 Report* (hereafter “USITC 2016”).⁸⁵⁸ Specifically, it focuses on empirical studies that estimate the impacts of U.S. trade agreements on trade flows, gross domestic product (GDP) and consumer welfare, employment, wages, investment, as well as outcomes in the U.S. industries most directly affected by the agreements.

The chapter begins by summarizing the findings from the literature covered in USITC 2016. The following section covers research published since that study—the majority of which have focused on the effects of the North American Free Trade Agreement (NAFTA). The subsequent sections focus on studies from 2002 onward that estimate the impacts of specific provisions within the trade agreements, such as labor and environmental provisions.

The principal results from the post-2015 literature estimating the impacts of U.S. trade agreements include:

- The recent research continues to estimate that, in aggregate, NAFTA had a large, positive impact on bilateral trade flows between the United States, Canada, and Mexico. It also continues to find mixed results for different sectors/regions. For example, NAFTA’s removal of tariff-rate quotas on sugar hurt U.S. sugar producers, whereas, NAFTA also made the Texas economy more susceptible to aggregate shocks but less susceptible to changes in oil prices.
- There are only a limited number of estimates of the trade flow effects of agreements other than NAFTA and they vary significantly.
- The analysis of trade agreements’ distributional effects is evolving with recent research exploring the varying impacts of trade agreements on different types of workers and firms. Findings show that, in localities that had industries which had been protected by tariffs on Mexican goods, NAFTA led to reduced wage growth for blue-collar workers in those U.S. industries and localities and led to lower wage growth for blue-collar women than men, as well as out-migration of workers without a high-school degree. Studies also show that effects of trade agreements vary by firm size.

Additionally, the principal results from the post-2002 literature estimating the impacts of specific provisions within trade agreements are as follows:

- While labor provisions prompted FTA partner governments to take certain steps to address labor issues, there are few studies on the effects of these provisions on workers. One study suggests that for middle-income countries, labor earnings increased when reciprocal trade

⁸⁵⁸ USITC, *Economic Impact of Trade Agreements*, 2016.

agreements (RTAs) included labor provisions, while the study did not find impacts on the other conditions such as hours worked and occupational injury rates.

- Analysis of the effects of intellectual property rights (IPR) provisions in free trade agreements (FTAs) is limited. To date, the gains from these agreements appear to vary by type of IPR provision, industry sector, and country development levels. However, there is an emerging consensus in the literature that the stronger patent protections associated with the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) generally have increased imports and exports among developed and middle-income economies of IPR-intensive goods and services, while some studies show there may be conditions under which more IPR does not enhance trade in IPR-intensive products.
- Environmental provisions have set new standards for monitoring and reporting environmental impacts in partner countries and have led to the adoption of environmental protection laws in some FTA partners, but the literature has not yet assessed to a great degree the environmental or economic impacts of environmental provisions. One available study suggests they may increase investment in environmentally clean sectors and reduce it in polluting industries.
- There are inconclusive results when estimating the impact of investment provisions in trade agreements, as well as bilateral investment treaties. Some analyses show that these provisions and treaties decrease foreign direct investment while others show that they increase investment.

As in USITC 2016, this chapter focuses on applied empirical research that is data-intensive rather than theoretical, and research that is retrospective rather than forecasting future effects.⁸⁵⁹ The literature review primarily cites peer-reviewed articles and reports published by government agencies, research journals, and research institutions. However, in some cases, high-quality unpublished working papers are included when the analysis is particularly unique and relevant. The coverage also includes some qualitative research.

Findings from the 2016 USITC Retrospective Report

USITC 2016 canvassed the academic literature published from 2002 to 2015.⁸⁶⁰ Many of the publications focused on the effects of World Trade Organization (WTO) membership, which resulted from the Uruguay Round Agreements (URAs) or the earlier General Agreement on Tariffs and Trade (GATT), and on the effects of NAFTA. Generally, more recent literature has estimated positive impacts from these

⁸⁵⁹ Commission reports that estimate the potential economic effects of trade agreements before they have been signed are not covered in this chapter. However, an overview of the findings in the Commission's public studies is presented in appendix H of USITC 2016. Since USITC 2016's release, the Commission has produced one probable economic effects study, covering the U.S.-Mexico-Canada Trade Agreement (USMCA). That study estimates USMCA will increase U.S. real GDP by \$68.2 billion, U.S. exports to Canada and Mexico by \$33.3 billion, and U.S. imports from Canada and Mexico by \$31.5 billion. USITC, [U.S.-Mexico-Canada Trade Agreement](#), 2019, 14.

⁸⁶⁰ Literature prior to 2002 is covered in USITC, [The Impact of Trade Agreements](#), 2003; and USITC, [The Impact of Trade Agreement Implemented](#), 2005.

trade agreements for WTO members, although the estimated magnitudes varied considerably.⁸⁶¹ Regarding membership in the WTO/GATT system, the literature estimated increases to members' trade flows ranging from 16 percent to 277 percent. The literature regarding both U.S. and non-U.S. bilateral and regional trade agreements estimated an increase in partners' trade flows ranging from 30 percent to 114 percent over the 10 years after an agreement's entry into force. The variance in estimates across the literature is likely driven by differences in model specifications, as well as differences in coverage of countries and time-periods in the underlying data.

In terms of individual FTAs, the literature disproportionately focused on NAFTA; this trend continues in more recent years. This focus partly stems from the granularity and amount of NAFTA-related trade data available to researchers, which allows for deep analysis. In addition, focus on NAFTA is likely due to the fact that NAFTA had by far the largest impact on U.S. trade among U.S. agreements.⁸⁶² The research estimated the effects of NAFTA tariff reductions on different states, industries, and types of workers. Generally, increased exports to Canada had a positive impact on employment in some states, such as those in the Northeast, and employment in some sectors, such as nonferrous metal, iron and steel, and machinery. However, the additional competition from Mexican imports led to contractions in less skill-intensive industries and industries that were protected by high tariffs before NAFTA—specifically, the footwear, textiles, and plastics industries. Furthermore, the additional competition led to reduced wage growth for blue-collar workers and those without a high school degree.

At the time, USITC 2016 also contributed new estimates of the impacts of U.S. FTAs, which may differ from the current study. Most notably, it estimates bilateral and regional trade agreements were estimated to have the following impacts in 2012:

- The agreements reduced tariff and nontariff barriers, which increased bilateral trade with agreement partners by 26.3 percent—increasing U.S. exports by 3.6 percent and U.S. imports by 2.3 percent.⁸⁶³
- Agreements increased U.S. real GDP by \$32.3 billion, or 0.2 percent.⁸⁶⁴
- And the agreements increased real wages by 0.3 percent and total employment by 159,300 full-time equivalent employees.⁸⁶⁵

USITC 2016 also included several other estimated effects of FTAs. The report notes that the agreements had a positive impact on U.S. bilateral trade balances, consumers, and specific industries.⁸⁶⁶

An important development since USITC 2016 is that literature on the effects of FTAs has increasingly focused on the differences (or heterogeneity) in the provisions included in trade agreements. As noted

⁸⁶¹ Earlier literature did not find an effect of WTO membership on members' trade flows. More details can be found in USITC 2016, 248.

⁸⁶² The impacts that the North American Free Trade Agreement (NAFTA) has had on trade flows are shown in chapter 3 of this report and USITC 2016, among other pieces of empirical research.

⁸⁶³ USITC 2016, 21, 126.

⁸⁶⁴ This estimate is based on the impact of tariff reductions from agreements with 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. USITC 2016, 124, 127–8.

⁸⁶⁵ USITC 2016, 124. As in the current study, the economy-wide model in USITC 2016 assumed full employment but employment effects are still possible because the aggregate labor supply is responsive to changes in real wages.

⁸⁶⁶ USITC 2016, 21.

in USITC 2016, Baier and Bergstrand (2007) estimate bilateral trade agreements increase members' trade by up to 114 percent over the first 10 years.⁸⁶⁷ However, their methodology relies on the development of an "average" FTA effect. Analysis by Baier, Bergstrand, and Clance (2018) note that those estimates do not distinguish between types of trade agreements.⁸⁶⁸ The branch of the literature that distinguishes effects by type of FTA is still developing, and the following sections cover results from such papers that include U.S. FTAs.

Recent Literature on the Effects of NAFTA

This section reports on the findings of literature on the effects of NAFTA published since the release of USITC 2016. NAFTA has continued to be a prominent focus of research into the economic impact of trade agreements. One reason is that NAFTA entered into force more than 25 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. And as Zylkin (2016) observed, "because NAFTA has remained controversial in North American politics, it has motivated a substantial literature dedicated to analyzing its effects on trade, welfare, and other outcome variables."⁸⁶⁹

NAFTA's Effects on Trade Flows

Zylkin (2016) compares NAFTA with FTAs that entered into force from 1990 to 2002 and finds that NAFTA promoted twice as much trade as the other non-U.S. FTAs in his sample. The author finds that NAFTA increased aggregate trade by 78.6 percent, compared to 37.6 percent for all other FTAs.⁸⁷⁰ He also estimates NAFTA's impact on directional trade and finds that the United States experienced an 85 percent increase in total manufacturing trade from the additional access to the Mexican market. In return, Mexico experienced a 171 percent increase in total manufacturing trade due to increased access to the U.S. market. In a similar vein, Parilla (2017) analyzed the importance of NAFTA to the North American manufacturing sector.⁸⁷¹ He stated that intermediate goods trade with Canada and Mexico is much higher compared to other world regions or countries. He also points out that NAFTA affects U.S. states differently: for instance, Michigan and Texas imported 61 and 40 percent, respectively, of intermediate goods from Canada and Mexico.

Literature finds that changes in trade flows following trade agreements accumulate over time as trading partners adjust to economic conditions after an agreement is implemented.⁸⁷² Baier and Bergstrand (2007) propose two hypotheses that may explain why trade flows take time to grow after an agreement

⁸⁶⁷ USITC 2016, 254; Baier and Bergstrand, "[Do Free Trade Agreements](#)," 2007, 90.

⁸⁶⁸ Baier, Bergstrand, and Clance, "[Heterogeneous Effects of Economic Integration Agreements](#)," 2018, 589. Baier, Yotov, and Zylkin (2019) add that "... an obvious weakness of estimating an 'average' FTA effect is that the effects of a given agreement may be substantially different from the average." Baier, Yotov, and Zylkin, "[On the Widely Differing Effects of Free Trade Agreements](#)," 2019, 209–10.

⁸⁶⁹ Zylkin, "[Beyond Tariffs: Quantifying Heterogeneity](#)," 2016.

⁸⁷⁰ Zylkin, "[Beyond Tariffs: Quantifying Heterogeneity](#)," 2016, 14. For complete list of FTAs included, see Zylkin, "[Beyond Tariffs: Quantifying Heterogeneity](#)," 2016, 34.

⁸⁷¹ Parilla, "[How U.S. States Rely on the NAFTA Supply Chain](#)," 2017.

⁸⁷² For example, Baier and Bergstrand, "[Do Free Trade Agreements](#)," 2007 and Anderson and Yotov, "[Terms of Trade and Global Efficiency Effects](#)," 2016.

goes into effect.⁸⁷³ The first hypothesis is that FTAs typically phase out bilateral tariffs, so trade gradually increases over the phase out period. A second possibility is that the changes in tariffs take time to pass through to prices, and trade flows increase as price changes are realized. Besedes, Kohl, and Lake (2020) analyze trade flows under the Canada-U.S. FTA (CUSFTA) and NAFTA to test the hypotheses from Baier and Bergstrand (2007). More recently, Besedes, Kohl, and Lake (2020) find little evidence to support either hypothesis. For the first hypothesis, their estimates show that the import patterns of products that had a five-year phaseout period were very similar to those of products that had their tariffs eliminated at the outset of NAFTA. To test the second hypothesis, they explore the effects of tariff phaseout on the unit values of imported products. They find that there is little difference in price patterns when comparing products that receive tariff cuts in NAFTA and products that were not subject to duty before and after NAFTA, which indicates the tariff cuts were immediately and fully realized by U.S. importers. The authors also explore some other possible explanations but do not find support for them. However, their results still support the finding that FTAs have lagged effects on trade; the underlying reasons for the lagged effect go beyond tariff phaseout and require further research.⁸⁷⁴

Heo and Doanh (2020) also examine the trade effects of NAFTA, but with a focus on trade creation and trade diversion.⁸⁷⁵ Trade creation occurs when the removal of trade barriers leads to a reduction in prices of goods traded, which increases trade flows. On the other hand, trade diversion occurs when imports from some trading partners are replaced with imports from other markets that have entered into a trade agreement and benefit from tariff preferences.⁸⁷⁶ Using data from 1989 to 2016, they estimate that NAFTA primarily led to trade creation by increasing trade among Canada, Mexico, and the United States by 58.2 percent. The agreement also led to trade diversion as it reduced imports by the three members from the rest of the world by 15.4 percent. Heo and Doanh (2020) note that, because the amount of trade creation is larger than the amount of trade diversion, NAFTA increased welfare. They find similar results when disaggregating their estimates into agricultural and nonagricultural trade, as shown in table 5.1.

Table 5.1 NAFTA's effects on trade creation and trade diversion, percent change in value in percentages.

Trade creation is the change in intra-NAFTA trade; trade diversion is the change in imports from the rest of the world.

Type of trade	Trade creation	Trade diversion
Agricultural	68.2	-16.5
Nonagricultural	47.8	-14.6
Overall	58.2	-15.4

Source: Heo and Doanh, 2020, 231, 233.

Ghazalian (2017) also analyzes agricultural trade flows between Canada, Mexico, and the United States.⁸⁷⁷ The author uses trade data at the Standard International Trade Classification level over 1964

⁸⁷³ Baier and Bergstrand, “[Do Free Trade Agreements](#),” 2007 found that bilateral trade agreements increase members’ trade by up to 114 percent over the 10 years after the agreement goes into effect. The hypotheses intended to provide possible explanations for the lag in the effect on trade flows. Besedes, Kohl, and Lake, “[Phase Out Tariffs, Phase in Trade?](#),” 2020, 2.

⁸⁷⁴ Besedes, Kohl, and Lake, “[Phase Out Tariffs, Phase in Trade?](#),” 2020, 23.

⁸⁷⁵ Heo and Doanh, “[Is NAFTA Trade-Creating or Trade-Diverting?](#),” 2020.

⁸⁷⁶ As new trade agreements are put into place, trade diversion may also occur from trading partners that are a part of earlier trade agreements.

⁸⁷⁷ Ghazalian, “[The Effects of NAFTA/CUSFTA on Agricultural Trade Flows](#),” 2017.

to 2013 and finds that NAFTA and CUSFTA led to increases in U.S. exports and imports of meat and meat preparations, cereal and cereal preparations, and fruits and vegetables industries. Lastly, Baier, Yotov, and Zylkin (2019) find that NAFTA increased trade flows by 93.9 percent.⁸⁷⁸

Other Effects of NAFTA

The amount and quality of data available for NAFTA's historical analysis has allowed for granular measurement of its impacts. One instance is the work done by Schmitz and Lewis (2015), who assess the impacts of NAFTA on the U.S. sugar market after the agreement was fully implemented.⁸⁷⁹ Although NAFTA went into effect in 1994, a side agreement on sugar delayed duty-free treatment of sugar until 2008. Before 2008, Mexican sugar exports to the United States were subject to a tariff-rate quota (TRQ), which limited imports from Mexico to about 4 percent of total U.S. sugar imports in fiscal year (FY) 2007. However, after the side agreement ended, this share rose, reaching almost 70 percent of total imports by FY 2013.⁸⁸⁰

Schmitz and Lewis (2015) develop a partial equilibrium model that accounts for Mexico's unrestricted access to the U.S. sugar market after 2008. When compared to a counterfactual situation, where Mexico would have still been subject to TRQs after 2008, they estimate that its unrestricted access to the U.S. sugar market reduced U.S. producer surplus by \$474 million to \$1.3 billion per year from FY 2008 through FY 2013.⁸⁸¹ However, these reductions were more than offset by increases to consumer surplus, leading to an average annual increase in total welfare of \$138 million to \$362 million.⁸⁸²

Ginn and Roach (2015) focus on NAFTA's localized effects by looking at Texas's oil industry.⁸⁸³ They find that NAFTA's implementation amplified the effects of broad economic shocks (i.e., changes) to the Texas economy, although they found the opposite effect for oil price shocks, specifically.⁸⁸⁴ The latter outcome is notable as the mining industry, which includes oil and natural gas, accounts for about 15 percent of the Texas economy.⁸⁸⁵ The authors build a model with oil price, aggregate supply, and aggregate demand shocks that apply to the United States overall and to Texas in particular. They then estimate how Texas' economy responds to these shocks before and after 1994, the year NAFTA entered into force. Ginn and Roach (2015) find that a U.S. aggregate supply shock increased the state's income more than if such a shock had occurred before NAFTA. Similarly, a negative U.S. aggregate demand shock had

⁸⁷⁸ Baier, Yotov, and Zylkin, "[On the Widely Differing Effects of Free Trade Agreements](#)," 2019, 214. The authors estimate an FTA partial-effect coefficient of 0.662 for NAFTA, which implies an increase to trade flows of $(e^{0.662} - 1) \times 100 = 93.9$ percent.

⁸⁷⁹ Schmitz and Lewis, "[Impact of NAFTA on U.S. and Mexican Sugar Markets](#)," 2015.

⁸⁸⁰ Schmitz and Lewis, "[Impact of NAFTA on U.S. and Mexican Sugar Markets](#)," 2015, 401.

⁸⁸¹ Schmitz and Lewis, "[Impact of NAFTA on U.S. and Mexican Sugar Markets](#)," 2015 use a range of elasticities from the Food and Agriculture Policy Research Institute and the academic literature which leads to a range of estimated impacts.

⁸⁸² Schmitz and Lewis, "[Impact of NAFTA on U.S. and Mexican Sugar Markets](#)," 2015, 400. The authors also state that these results may be overestimates, since they do not know whether the U.S. Department of Agriculture would have chosen to increase the TRQ on sugar imports had unrestricted access to Mexico never been granted.

⁸⁸³ Ginn and Roach, "[An Oil-Producing State's Ability](#)," 2015.

⁸⁸⁴ Broad economic shocks include changes in supply and demand, such as a drought creating supply constraints for agricultural products or the COVID-19 pandemic creating demand spikes for certain goods. Examples of oil shocks may include changes in production from large oil-producing countries.

⁸⁸⁵ Ginn and Roach, "[An Oil-Producing State's Ability](#)," 2015, 311.

a larger negative impact on Texas after NAFTA than before. The authors propose that a possible explanation is that Texas' economy has diversified under NAFTA, which has made it more linked to the economies of other states, and thus more susceptible to aggregate shocks. Regarding oil price shocks, they find smaller effects on Texas' income after NAFTA and posit that the industrial diversification after NAFTA has helped the state's economy to reduce its oil dependence.⁸⁸⁶

Finally, three articles assess the effects NAFTA had on the environment. First, focusing on the U.S. environmental impact, Cherniwchan (2017) analyzes the relationship between NAFTA and the emissions of particulate matter and sulfur dioxide by U.S. manufacturing plants.⁸⁸⁷ The author finds that the increased access to the Mexican market and increased access to intermediate goods from Mexico, resulting from NAFTA, led to declines in emissions of both pollutants in the United States after imports supplanted domestic production of some goods. Cherniwchan (2017) estimates that a 1 percent increase in Mexican tariff preferences for U.S. goods reduces emissions of particulate matter by 1.3 percent and sulfur dioxide by almost 1.5 percent, for the average U.S. manufacturing plant. The effect is larger when focusing on intermediate goods that the U.S. imports from Mexico: for a 1 percent increase in U.S. tariff preferences on Mexican intermediate inputs, U.S. emissions for particulate matter are reduced by almost 3.3 percent, and emissions of sulfur dioxide are reduced by almost 13.2 percent.⁸⁸⁸ This effect suggests that post-NAFTA, U.S. plants began to import "relatively dirty" intermediate goods instead of producing them domestically.⁸⁸⁹ Overall, the author estimates that NAFTA reduced U.S. emissions of particulate matter by about 1.7 percent per year and sulfur dioxide by about 3.1 percent per year, on average.⁸⁹⁰

Nemati, Hu, and Reed (2019), find that NAFTA did not increase greenhouse gas emissions in the United States and Canada; however, it did increase them in Mexico, and global emissions increased overall.⁸⁹¹ They also find that the FTA with Australia led to a reduction in U.S. greenhouse gas emissions.⁸⁹² They analyze NAFTA as an example of a trade agreement where both developing and developed countries are involved, and the Australia-U.S. FTA as an example where a trade agreement only involves developed countries.⁸⁹³ Generally, the authors argue that their results indicate that the effect an FTA has on the

⁸⁸⁶ Ginn and Roach, "[An Oil-Producing State's Ability](#)," 2015, 332–3.

⁸⁸⁷ Cherniwchan, "[Trade Liberalization and the Environment](#)," 2017.

⁸⁸⁸ Cherniwchan, "[Trade Liberalization and the Environment](#)," 2017, 131. "On average, NAFTA increased Mexican tariff preferences by 6.06 to 6.51 percentage points . . ." Cherniwchan, "[Trade Liberalization and the Environment](#)," 2017, 136.

⁸⁸⁹ The author defines "relatively dirty" industries as those that are in the top 10 percent of emissions distribution; "relatively dirty" intermediate goods are products that are sourced from those industries. Cherniwchan, "[Trade Liberalization and the Environment](#)," 2017, 132.

⁸⁹⁰ Cherniwchan, "[Trade Liberalization and the Environment](#)," 2017, 131.

⁸⁹¹ Nemati, Hu, and Reed, "[Are Free Trade Agreements Good for the Environment?](#)," 2019.

⁸⁹² Nemati, Hu, and Reed, "[Are Free Trade Agreements Good for the Environment?](#)," 2019, 450.

⁸⁹³ The authors use the MERCOSUR agreement as an example of a trade agreement between developing countries and find that it led to a reduction in greenhouse gas emissions. Nemati, Hu, and Reed, "[Are Free Trade Agreements Good for the Environment?](#)," 2019, 444–5.

environment is largely dependent on the characteristics of the trading partners in the agreement, especially in terms of relative incomes.⁸⁹⁴

Lastly, Gutiérrez and Teshima (2018) explore the environmental effects of NAFTA in Mexico.⁸⁹⁵ They find that NAFTA's tariff reductions led to increased import competition, which was associated with increases in energy efficiency at and lower emissions from Mexican manufacturing plants. The authors believe that the increased energy efficiency was a result of improvements in general technology at the plants. However, they find that the tariff changes are associated with reductions in direct investment in environmental abatement by the plants. Because the two results move in opposite directions, the overall effect on the environment is uncertain.⁸⁹⁶

Effects of other U.S. Free Trade Agreements

Beyond analyses of the effects of NAFTA, there is some limited recent literature on the effects of other U.S. trade agreements on trade flows. Baier, Yotov, and Zylkin (2019), mentioned above, attempt to disentangle the heterogeneous effects of trade agreements by developing a model that accounts for agreement-specific provisions such as agreement-specific lags in implementation. They estimate specific effects for 65 different agreements, including six U.S. agreements which are presented in table 5.2.⁸⁹⁷

Table 5.2 Estimates of U.S. FTA effects from Baier, Yotov, and Zylkin (2019), percent change

In percentages.

An asterisk (*) by a country's name means that the effect for that country is not significant. Estimates for all other countries are significant at the 5 percent level.

FTA	Effect on trade flows (%)
Australia	-15.6
Canada	-31.3
Chile	32.7
Jordan*	159.6
NAFTA	93.9
Morocco*	10.1
Singapore*	-24.3

Source: Baier, Yotov, and Zylkin, 2019, 214. Calculations by USITC.

The impacts of the U.S.-Korea Free Trade Agreement (KORUS) have also been analyzed. Recent literature finds the agreement led to increases in U.S. GDP and welfare and to declines in output, and describes some of the trade diversion that occurred. Using the Global Trade and Analysis Project (GTAP) model, Wei, Chen, and Rose (2019) estimate that, in 2014, KORUS increased U.S. welfare by

⁸⁹⁴ Nemati, Hu, and Reed, “[Are Free Trade Agreements Good for the Environment?](#),” 2019, 451. The authors note that a limitation of their model is that third countries are not included and trade diversion to those markets may affect environmental quality.

⁸⁹⁵ Gutiérrez and Teshima, “[Abatement Expenditures, Technology Choice, and Environmental Performance](#),” 2018.

⁸⁹⁶ Gutiérrez and Teshima, “[Abatement Expenditures, Technology Choice, and Environmental Performance](#),” 2018, 265, 268–69.

⁸⁹⁷ The Commission’s analysis of barriers to trade in goods in chapter 3 is based on the methodology from Baier, Yotov, and Zylkin (2019). The results in table 3.2 in chapter 3 also show that some agreements have a positive effect on trade flows, some have a negative effect, and some have no effect. Differences in the Commission’s underlying data and approach lead to some results that differ from those of Baier, Yotov, and Zylkin (2019).

\$368 million, increased GDP by \$45 million, and decreased total gross output by \$143 million.⁸⁹⁸ The model estimates output losses in 34 of 57 U.S. sectors, including 3 advanced manufacturing sectors—auto parts, machinery, and electronic equipment—which each see output reductions of more than \$175 million.⁸⁹⁹ However, agriculture, mining, construction, and primary manufacturing sectors experience output gains. Regarding trade flows, the authors estimate that total U.S. imports increased by \$1.6 billion in 2014.⁹⁰⁰

In a second analysis, Russ and Swenson (2019) focus on the effects of KORUS on trade diversion and the bilateral trade deficit.⁹⁰¹ They estimate total trade diversion (i.e., the United States importing from Korea instead of other countries) to be \$13.1 billion in 2013 and \$13.8 billion in 2014.⁹⁰² They note that their estimates of trade diversion in 2013 and 2014 are very similar in magnitude to the increase in the U.S. bilateral trade deficit with Korea in those years, implying that the agreement did not have a significant effect on the U.S. trade deficit with all countries. The authors estimate half of the U.S. imports that were diverted to Korea originally were supplied by China and 14 percent were originally supplied by Mexico. The primary categories of goods that were diverted to Korea were apparel and other textiles, as well as electronics and parts.⁹⁰³ Regarding motor vehicles, the authors highlight that, although U.S. passenger vehicle imports from Korea rose by 82.5 percent from 2011 to 2017, the KORUS agreement was not a driving factor as the bulk of the increase occurred before tariff preferences had phased in. Lastly, their results indicate that KORUS partly offset the trade effects of prior U.S. trade agreements by causing trade diversion from countries that were already FTA partners of the United States.⁹⁰⁴

Distributional Impact of FTAs

Although the impacts of trade on different types of individuals, regions, and firms is well established, the literature that estimates the effects of specific trade agreements across different groups is still relatively new.

Effects on Individuals

The work by Hakobyan and McLaren (2016) has produced a number of estimates of the effects of NAFTA on different demographic subgroups. NAFTA reduced wage growth from 1990 to 2000 for blue-collar

⁸⁹⁸ Wei, Chen, and Rose, “[Estimating Economic Impacts](#),” 2019.

⁸⁹⁹ Results are for 2014 in 2011 dollars. Wei, Chen, and Rose, “[Estimating Economic Impacts](#),” 2019, 306–07.

⁹⁰⁰ Wei, Chen, and Rose, “[Estimating Economic Impacts](#),” 2019, 313. The paper reports changes in U.S. imports but does not report changes in U.S. exports. Instead, it reports changes in Korean imports, but it is unclear whether this refers to Korean imports from the world or Korean imports from the United States.

⁹⁰¹ Russ and Swenson, “[Trade Diversion and Trade Deficits](#),” 2019.

⁹⁰² Russ and Swenson, “[Trade Diversion and Trade Deficits](#),” 2019, 22. The authors argue that “... trade diversion may increase the U.S. bilateral trade imbalance with an FTA partner, but cannot affect the overall U.S. trade balance since it simply transfers U.S. import demand from one trading partner to another.”

⁹⁰³ Russ and Swenson, “[Trade Diversion and Trade Deficits](#),” 2019, 28–9.

⁹⁰⁴ Russ and Swenson, “[Trade Diversion and Trade Deficits](#),” 2019, 27.

workers in U.S. industries and localities that had previously been protected from Mexican imports.⁹⁰⁵ They find an 8 percent reduction in wage growth for blue-collar workers who are high school drop-outs in NAFTA-vulnerable locations, including workers in non-tradeable service sectors who might appear to be immune to trade shocks, and a 17 percent reduction for the same subgroup if they were in vulnerable industries. Effects are statistically insignificant for college-educated workers. The authors also find that high school dropouts left vulnerable locations over the 1990s. The authors measure a location's vulnerability to NAFTA by looking at the industries and number of workers that compete with imports from Mexico, while considering the tariffs that those competing imports faced before NAFTA's implementation. They estimate that a U.S. locality containing industries that initially faced an average tariff of 4 percent that was eliminated by the year 2000 lost 18 percent of its high school dropouts from out-migration over 10 years. The authors also find that increases in petitions for trade adjustment assistance were correlated with NAFTA tariff reductions.⁹⁰⁶

In a separate study, Hakobyan and McLaren (2018) continue to estimate the wage-effects of NAFTA on different demographic subgroups—now focusing on gender.⁹⁰⁷ They find that NAFTA led to lower blue-collar wage growth for women, when compared to men, and lower for married women, when compared to single women across most education levels.⁹⁰⁸ When looking at specific characteristics, they highlight that employed married women without a high school degree, who also had an employed spouse and were located in areas with industries that were protected by tariffs on Mexican imports prior to NAFTA, saw an 18 percentage point drop in wage growth over the 1990s. When comparing the effects at an industry level, the same group faced wage growth that was 33 percentage points lower than similar workers who were in industries that originally had no tariff protection.⁹⁰⁹

Benguria (2020) similarly estimates NAFTA's effects across different groups of people and local labor markets, and also finds that tariff liberalization led to larger manufacturing employment declines among women than men.⁹¹⁰ The study also finds that the agreement led to a larger increase in unemployment among nonwhite workers than white workers. Among other effects, it finds that the tariff reductions associated with NAFTA led to reductions in employment in the South and parts of Midwestern United

⁹⁰⁵ USITC 2016, 258–59; Hakobyan and McLaren, “[Looking for Local Labor Market Effects of NAFTA](#),” 2016. Previously covered in USITC 2016 as an unpublished working paper, Hakobyan and McLaren (2016) has since been published and the main findings of the previous paper have not changed, although there are some minor changes. For example, the authors find that a 35 percent increase in Mexican import share implies a 37.5 percentage point decrease in the cumulative wage growth of a high school dropout. However, in the unpublished version of the paper, this decrease in wage growth was 35.5 percent. Hakobyan and McLaren, “[Looking for Local Labor Market Effects of NAFTA](#),” 2016, 739. Furthermore, because of data limitations, the authors state that they are “likely to underestimate the effects of trade on wages in both geographic and industry dimensions.” Hakobyan and McLaren, “[Looking for Local Labor Market Effects of NAFTA](#),” 2016, 732.

⁹⁰⁶ Hakobyan and McLaren, “[Looking for Local Labor Market Effects of NAFTA](#),” 2016, 740.

⁹⁰⁷ Hakobyan and McLaren, “[NAFTA and the Wages of Married Women](#),” 2018. The authors explore why there is such a pronounced effect on the average wage of married women. They find support for the hypothesis that those women are also disproportionately paid more than other groups of workers in their industry, so when they leave the workforce, the average wage for married women faces a sharper decline than for other types of workers. However, the authors believe that this hypothesis is only part of the explanation for differences in wage growth.

⁹⁰⁸ Hakobyan and McLaren, “[NAFTA and the Wages of Married Women](#),” 2018, 10.

⁹⁰⁹ Hakobyan and McLaren, “[NAFTA and the Wages of Married Women](#),” 2018, 11–12.

⁹¹⁰ Benguria, “[The Impact of NAFTA](#),” 2020, 22.

States and that they led to an increase in manufacturing unemployment and labor force nonparticipation among workers aged 35–65.⁹¹¹

This branch of literature on distributional impacts is still developing, and there are likely other instances where trade agreements have disparate effects on different socioeconomic groups.⁹¹² Beyond the studies covered above, the following studies provide additional information on the ways in which competition from international trade affects different groups. These studies focus on trade, rather than the effects of trade agreements specifically. Essaji, Sweeny, and Kotsopoulos (2010); Agesa, Agesa, and Lopes (2011); and Agesa and Agesa (2012) investigate the effect of increased import exposure on the wage gap between black and white workers.⁹¹³ Brussevich (2018) and Benguria and Ederington (2017) study the effect of increased import exposure on the gender gap, and Gurevich and Riker (2018) consider whether export-intensive firms alter the gender wage gap.⁹¹⁴ In addition, Sauré and Zoabi (2014) investigate how the expansion of trade affects female participation in the labor force.⁹¹⁵

Effects on Firms

Baccini, Pinto, and Weymouth (2017), focuses on how the gains from free trade agreements are distributed among firms.⁹¹⁶ The authors explore how the foreign affiliate sales of U.S. multinational corporations (MNCs) respond to changes in tariff preferences and find that the largest firms benefit disproportionately from reductions in tariffs related to FTAs.⁹¹⁷ Specifically, they measure how foreign affiliate sales to the United States (or, U.S. imports from foreign affiliates of U.S.-headquartered firms) are affected by tariff reductions and their results show that a tariff cut reduces the sales of smaller affiliates, but increases the sales of larger affiliates, and that the increase scales positively with the affiliate's size.⁹¹⁸ They also find that agreements that are deeper are also associated with higher sales for larger firms.⁹¹⁹

⁹¹¹ Benguria, “[The Impact of NAFTA](#),” 2020, 5, 7.

⁹¹² Preliminary work by Choi et al. (2021) seems poised to support Hakobyan and McLaren “[Looking for Local Labor Market Effects of NAFTA](#),” 2016 as they find that NAFTA led to employment losses in certain U.S. counties with industries that were exposed to import competition from Mexico. Choi et al., “[Local Economic and Political Effects of Trade Deals](#),” January 26, 2021.

⁹¹³ Essaji, Sweeny, and Kotsopoulos, “[Equality Through Exposure to Imports?](#),” 2010; Agesa, Agesa, and Lopes, “[Can Imports Mitigate Racial Earnings Inequality?](#),” 2011; Agesa and Agesa, “[Imports, Unionization, and Racial Age Discrimination in the U.S.](#),” 2012.

⁹¹⁴ Brussevich, “[Does Trade Liberalization Narrow the Gender Wage Gap?](#),” 2018; Benguria and Ederington, “[Decomposing the Effect of Trade](#),” 2017; Gurevich and Riker, “[Exporting and Gender Earnings Differentials](#),” 2018.

⁹¹⁵ Sauré and Zoabi, “[International Trade, the Gender Wage Gap](#),” 2014.

⁹¹⁶ Baccini, Pinto, and Weymouth, “[The Distributional Consequences](#),” 2017.

⁹¹⁷ Baccini, Pinto, and Weymouth “[The Distributional Consequences](#),” 2017 estimate impacts based on agreements in brought into effect from 1989 to 2009. However, they were unable to obtain tariff data for the U.S. agreements with Canada, Colombia, Korea, and Panama. Baccini, Pinto, and Weymouth, “[The Distributional Consequences](#),” 2017, 32.

⁹¹⁸ Baccini, Pinto, and Weymouth, “[The Distributional Consequences](#),” 2017, 13. Affiliate size is based on the number of people employed by the affiliate.

⁹¹⁹ FTA depth is determined by the inclusion of provisions in trade agreement such as provisions related to services, investment, and intellectual property rights. Baccini, Pinto, and Weymouth, “[The Distributional Consequences](#),” 2017, 47.

The authors propose that this result reflects two market effects that affect firm profitability. The first is that liberalization leads to more competition as some costs of tariffs are removed—the new competition leads to lower prices and profits. And the second effect is that the more productive firms increase their sales, which increases demand for labor and puts upward pressure on wages in the countries in which MNCs operate. The two outcomes are more impactful on the profits of smaller, less productive firms and cause them to either contract or leave a market. Hence, larger firms reap a larger share of the benefits from liberalization.⁹²⁰

Spilker et al. (2018) study the effects of the Dominican Republic-Central America-United States Free Trade Agreement (CAFTA-DR) on exporting firms in Costa Rica.⁹²¹ They evaluate the distributional consequences of trade liberalization within industries, researching whether firms export more of a product they already export (i.e., the intensive margin) or they start to export a product they did not previously export (i.e., the extensive margin). The authors find that some industries which export heterogenous goods (i.e., firms in these industries trade a number of goods with low substitutability) seem to benefit through the extensive margin by exporting more varieties of their products. Contrasting with Baccini, Pinto, and Weymouth (2017), they find that it is small firms that are primarily able to benefit in this case.⁹²² However, when it comes to homogeneous products, it is mainly the larger firms that benefit. The authors argue that, with heterogeneous products, new firms can enter the export market and obtain market share with their new varieties of goods. It is harder for new firms to enter and compete in the export market for homogeneous goods after a trade agreement enters into force, as the market has already been captured by more productive firms.⁹²³

Impact of FTA Provisions

FTAs can have far-reaching impacts beyond trade flows and the effects are felt in areas such as labor and the environment. To address and potentially shape these impacts, FTAs may include provisions specific to these areas. The impact of these provisions depends on the specific obligations and whether and how they are enforced. The research on the types of provisions included in specific U.S. FTAs is very limited. Hence, the following sections primarily summarize the academic literature's analysis of the topics and broad provisions as they apply to trade agreements.⁹²⁴ The analysis of these provisions is both qualitative and empirical, which is reflected in the summaries. Furthermore, these assessments provide additional context for the modeling results in chapter 3.

Labor Provisions

The first subsection below reports on the limited literature regarding the impact of labor provisions in trade agreements on labor conditions and government actions in partner countries. The second summarizes the impact on trade flows and foreign direct investment (FDI).

⁹²⁰ Baccini, Pinto, and Weymouth, "[The Distributional Consequences](#)," 2017, 8.

⁹²¹ Spilker et al., "[Trade at the Margin](#)," 2018.

⁹²² Spilker et al., "[Trade at the Margin](#)," 2018, 216–7.

⁹²³ Spilker et al., "[Trade at the Margin](#)," 2018, 197.

⁹²⁴ This section covers literature from 2002 onwards to align with the time period of the literature covered in USITC 2016. That literature review did not focus on the effects of specific provisions.

Impacts on Labor Conditions

There are few studies on the effects of U.S. FTA labor provisions on workers. The effects in the United States tend to be grouped together with other countries in studies analyzing the effects labor provisions have on high-income countries. For example, in a study that analyzes countries by income, Kamata (2014) researches the effect of trade agreements with labor clauses on labor-related outcomes in the signatory countries during 1995–2012. Analyzing 200 agreements, Kamata (2014) estimates the effects of RTAs with and without labor provisions on two outcomes: domestic labor conditions and trade growth with the other RTA member. Within the first outcome, the study analyzes four labor “conditions”: (1) labor earnings, (2) manufacturing labor hours, (3) occupational injury rate, and (4) the number of ILO’s core conventions ratified.⁹²⁵ The author finds that for middle-income countries labor earnings increased when RTAs included labor provisions, while the study did not find impacts on the other three conditions. When analyzing high-income countries, the study finds no effect on any of the four outcomes. The author also finds some evidence that labor provisions may reduce the trade-promoting effect of trade agreements for middle-income countries, especially when the agreement partner is a high-income country.^{926 927}

Three studies explore the effect of labor provisions in U.S. FTAs on the actions of FTA partner governments on labor issues: Kim (2012), Dewan and Ronconi (2018), and U.S. Government Accountability Office (GAO) (2014). Kim (2012) investigates whether U.S. trade partners are likely to improve the protection of labor rights at home before they sign, or even enter into negotiations for, a trade agreement.⁹²⁸ He tests this hypothesis in the context of the United States and its trading partners between 1982 and 2005.⁹²⁹ The study provides evidence that trading partners were more likely to improve labor protections before signing a trade agreement with the United States than after they sign. They did so to signal the importance they were placing on labor protections.⁹³⁰

Dewan and Ronconi (2018) analyze the impact U.S. FTAs have on labor inspectors and inspection numbers in Latin America partners. Except for Mexico, they find that signing an FTA with the United States appears to improve labor law enforcement through additional inspection resources and activities. In the case of Mexico, the authors analyze a narrower dataset on labor inspections to gauge the effects of NAFTA’s side agreement on labor (the North American Agreement on Labor Cooperation, or NAALC)

⁹²⁵ Kamata, “[Regional Trade Agreements with Labor Clauses](#),” 2014, 19.

⁹²⁶ Although Kamata (2014) does not provide specific examples, it is reasonable to assume that the United States would be classified as a high-income country.

⁹²⁷ Chair Kearns observes that in the context of the Kamata (2014) study, enforceable labor provisions that are properly enforced are more likely to affect labor and trade outcomes than weaker provisions. Illustrating the pitfalls of analyzing previous RTAs with relatively weak provisions, the Kamata (2014) study includes the NAALC in its grouping (Group 1) of the most stringent labor provisions under analysis. Worker rights advocates did not find NAALC to include meaningful provisions. As the AFL-CIO wrote in 2014, “There is no obligation [within NAALC] to adopt stronger laws or adhere to international labor standards...The NAALC process has not resulted in significant enhancements in standards or enforcement.” AFL-CIO, “[NAFTA at 20](#),” 2014, 11–12.

⁹²⁸ Kim, “[Ex Ante Due Diligence](#),” 2012.

⁹²⁹ The data start in 1982, three years before the first U.S. trade agreement (U.S.-Israel in 1985) to explore Israel’s labor protection laws changes prior to entrance of U.S.-Israel FTA into force.

⁹³⁰ Additionally, his analysis reveals that markets with higher preceding levels of labor protections are less likely to pursue improvements in their labor laws as these countries already have strong labor protections. Kim, “[Ex Ante Due Diligence](#),” 2012, 710.

on Mexico's labor laws enforcement. They find no evidence that NAALC had an impact on Mexico's enforcement of labor laws.⁹³¹

GAO (2014) assesses the implementation status of FTA labor provisions in partner countries of four U.S. trade agreements: CAFTA-DR and the agreements with Colombia, Oman, and Peru.⁹³² The report states that these countries have taken steps to implement FTA labor provisions and other initiatives to strengthen labor rights. These steps include an increase in the number of labor inspectors and the number of judges and courts to hear labor cases in El Salvador; establishing criminal penalties for employers that interfere with employees' ability to bargain collectively and right to organize in Colombia; and a royal decree that protect the organization of labor unions and union-related activities in Oman.⁹³³ GAO noted that since 2001, U.S. agencies have provided \$222 million in technical assistance and capacity building for these four FTAs. However, GAO (2014) finds persistent labor rights challenges, such as limited enforcement capacity, subcontracting to avoid direct employment, and violence against union leaders in Colombia and Guatemala.

Impacts on International Trade Flows and FDI

There are two lines of thought regarding the possible trade and investment effects of FTA labor provisions. One is that higher labor standards will help boost U.S. exports through higher incomes of workers abroad. The other is that labor provisions help prevent low import prices from significantly undercutting production in the U.S. market.

DiCaprio (2004) examines whether labor provisions in nine U.S. trade agreements address labor rights violations or whether they are designed to limit access to the U.S. market, and finds they are not.⁹³⁴ The study reveals that leverage over working conditions using labor provisions is greatest during the course of negotiations, when the U.S. government can influence partner countries to improve working conditions and domestic labor laws before signing an agreement. DiCaprio (2004) concludes that FTA labor provisions in these agreements are not intended as a tool to protect industries from foreign competition, given that few petitions result in trade flow changes. Instead, the study argues labor provisions serve as one of a variety of tools to raise worker rights through the threat of limiting market access.⁹³⁵

⁹³¹ For additional details on dispute settlements under NAFTA, see chapter 2, U.S. Bilateral and Regional Trade Agreements section. See chapter 4 for additional details on labor impacts from NAALC and USMCA in Mexico. Dewan and Ronconi, "[U.S. Free Trade Agreements](#)," 2018, 52.

⁹³² GAO, "[U.S. Partners Are Addressing Labor Commitments](#)," 2014.

⁹³³ GAO, "[U.S. Partners Are Addressing Labor Commitments](#)," 2014, 11–13.

⁹³⁴ DiCaprio, "[Are Labor Provisions Protectionist](#)," 2004. The study analyzes several unilateral trade agreements (CBERA, GSP, ATPA, and AGOA), bilateral trade agreements (US-Cambodia Bilateral Textile Agreement), and free trade agreements (NAFTA and agreements with Chile, Jordan, and Singapore).

⁹³⁵ DiCaprio, "[Are Labor Provisions Protectionist](#)," 2004, 33.

Lechner (2018) studies the effects of non-trade issues (NTIs) inclusion in U.S. trade agreements on FDI flows.⁹³⁶ The author analyzes two specific NTIs: environmental protections and labor protections. Specifically, she investigates if NTIs affect FDI to the partner country depending on the type of industry—whether high/low polluting and low-skilled/high-skilled labor endowed. She finds that labor standards in trade agreements reduce FDI in low-skilled labor intensive industries relative to the average by 19 percent but increase investment in high-skilled labor intensive sectors by 6 percent.⁹³⁷ The findings suggest that heterogeneity across sectors matters and that different standards attract some investors and deter others.

Intellectual Property Rights Provisions in Trade Agreements and Economic Effects

The framework governing the protection of intellectual property rights (IPRs) in trade agreements is complex and evolving, as described in chapter two of this study. The following section summarizes key aspects of the literature on the impacts of IPR requirements on trade flows, FDI and innovation.

IPR Provisions in TRIPS and Reciprocal Trade Agreements

While the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) represents a milestone in the development of international IPR norms, it specifically reserves discretion for its members to implement “more extensive protection” than required by the agreement.⁹³⁸ Reflecting this discretion, U.S. FTAs have grown in breadth and scope to incorporate IPR standards that exceed those in TRIPS (known as TRIPS-plus provisions), as described in chapter 2. Similarly, IPR provisions in RTAs involving the European Union (EU), the European Free Trade Association countries (Switzerland, Norway, Liechtenstein, and Iceland), and others have expanded to include more TRIPS-plus provisions.⁹³⁹

The literature documents increasing levels of IPR protection as countries have implemented the requirements of TRIPS, U.S. FTAs and other RTAs, and their own reforms. As a rough proxy for IPR protection, much of the literature has relied on an index of legislative patent protection, the GP Index created by Ginarte and Park (1997), which covers nearly all countries on a five-year basis beginning in 1960.⁹⁴⁰ Although the GP Index does not explore the reasons why countries have changed their levels of patent protection, the items measured by the index (patentability of different types of inventions,

⁹³⁶ Lechner, “[Good for Some, Bad for Others](#),” 2018. The author coded 660 PTAs on 262 data points covering civil and political rights, economic and social rights, environmental protection, and security issues. Notwithstanding that some studies find that labor provisions can affect trade, this study defines “non-trade issues” as “economic and social as well as environmental protection issues,” which encompass labor and environmental provisions. Lechner, “[Good for Some, Bad for Others](#),” 2018, 164.

⁹³⁷ Lechner, “[Good for Some, Bad for Others](#),” 2018, 179–80. This study does not address how the decrease in low-standard-seeking FDI may positively affect workers. The findings in Lechner (2018) regarding pollution are covered in the upcoming section on environmental provisions.

⁹³⁸ WTO, [TRIPS, part I, art. 1](#).

⁹³⁹ Maskus and Ridley, “[Intellectual Property-Related Preferential Trade Agreements](#),” 2019, 1.

⁹⁴⁰ Rather than a subjective measure of de facto levels of patent protection, the Ginarte and Park index is based on five objective elements of patent laws on the books. Ginarte and Park, “[Determinants of Patent Rights](#),” 1997; Park, “[International Patent Protection](#),” 2008. See also Maskus, [Private Rights and Public Problems](#), 2012, 75–6.

membership in international treaties, the length of patent terms, enforcement mechanisms, and limitations on patent rights) overlap with TRIPS requirements.

GP Index data show substantial increases in countries' patent protection levels after the implementation of TRIPS.⁹⁴¹ In USITC 2016, the Commission found that increases in patent protections from 1995 to 2010 were larger for TRIPS members than nonmembers and that the average increase was greater for TRIPS members with a U.S. FTA than for those without. These facts suggested that patent reforms correlated with participation in trade agreements during this period, with the caveat that the United States entered into FTAs with countries that may have been reforming their patent systems for other reasons.⁹⁴²

Since USITC 2016, researchers have begun to catalog all IPR provisions in RTAs (not just patent provisions), including TRIPS-plus provisions.⁹⁴³ For example, Morin and Surbeck (2020) identify and code TRIPS-plus provisions in 126 RTAs signed between 1991 and 2016.⁹⁴⁴ They find that the most frequent types of TRIPS-plus provisions in RTAs are those related to patents, copyrights, and trademarks. U.S. FTAs cover these topics, as well as enforcement, the protection of undisclosed information (trade secrets), and other IPR issues. By contrast, TRIPS-plus provisions that cover geographical indications are highly prominent in EU RTAs but occur much less frequently in other RTAs.⁹⁴⁵

Economic Effects of IPR Provisions in Trade Agreements

Relying on the GP Index, and other measures of the level of IPR protections, researchers have found substantial support for the proposition that, while the ultimate goal of IPR is not simply to increase trade, the strengthening of patent protections has led to an increase in imports and exports of IPR-intensive goods among developed and middle-income economies.⁹⁴⁶ Extending this literature, USITC 2016 estimated how much higher U.S. services receipts for IPR royalties and license fees were in 2010 than they would have been if trading partners' patent protections had remained at pre-TRIPS levels. The estimated impact was a \$10.3 billion increase in U.S. receipts for royalties and license fees in the 1995 to 2010 period.⁹⁴⁷

However, two studies suggest that there are conditions under which more stringent IPR may not enhance trade in IPR-intensive products. Maskus and Ridley (2019) study the role of RTAs with detailed IPR chapters on the volume and composition of trade. Controlling for TRIPS compliance, they find that

⁹⁴¹ Park, “[International Patent Protection](#),” 2008, 763; Maskus, [Private Rights and Public Problems](#), 2012, 75–6.

⁹⁴² USITC 2016, 130.

⁹⁴³ See, for example, Wu, “[Chapter 7 - Intellectual Property Rights](#),” 2020, describing IPR provisions in reciprocal trade agreements (RTAs) based on the World Bank’s Deep Trade Agreements database.

⁹⁴⁴ Morin and Surbeck, “[Mapping the New Frontier](#),” 2020.

⁹⁴⁵ Morin and Surbeck, “[Mapping the New Frontier](#),” 2020, 4.

⁹⁴⁶ See, for example, Maskus and Ridley, “[Intellectual Property-Related Preferential Trade Agreements](#),” 2019, 2; Delgado, Kyle, and McGahan, “[Intellectual Property Protection](#),” 2013, which found a significant causal connection between the implementation of TRIPS patent rules and developing countries’ import of patent-intensive goods in the pharmaceutical, chemical, and information and communications technology sectors; Branstetter et al., “[Does Intellectual Property Rights Reform](#),” 2011; Ivis, “[Do Stronger Patent Rights Raise High-Tech Exports](#),” 2010.

⁹⁴⁷ USITC 2016, 129–30; see also USITC, “[Trans-Pacific Partnership Agreement](#),” 2016, 478 (estimating that royalty and license fee receipts from TPP countries were \$2.9 billion higher as a result of patent reforms during the 1995 to 2010 period).

the additional effects of membership in an IPR-related RTA are generally insignificant although there are variations. Membership in RTAs with IPR provisions boost exports of biopharmaceutical goods and medical devices from higher-income countries and exports of biopharmaceuticals and information and communications technology products from middle-income countries.⁹⁴⁸

Campi and Dueñas (2019) analyze whether entering into RTAs that contain IPR chapters influences bilateral trade flows as compared to those without such chapters.⁹⁴⁹ They find that RTAs with and without IPR chapters increase bilateral trade but that RTAs without IPR chapters have a stronger positive effect on overall trade. However, when the authors take into account that IPR chapters may require a longer time to implement, the expected increase in trade is similar for both types of RTAs. The authors further estimate that the effect on bilateral trade in IPR-intensive products is higher for RTAs with no IPR chapter than for those with IPR chapters. The authors note that RTAs that do not contain IPR chapters are more frequently signed by pairs of countries with similar characteristics, particularly least-developed countries, and thus may reflect higher propensities to trade than more expansive RTAs with IPR chapters. These mixed results suggest to the authors that the trade gains from RTAs that contain IPR chapters may not always compensate for the effort or costs entailed in IPR reform.⁹⁵⁰

Researchers have also studied the effects of IPR protections on innovation and FDI. Strong patent protections can also stimulate innovation, as measured by increased filings of patent applications or increased investments in research and development (R&D) by firms. The trade-off between spurring innovation through exclusive rights and adjusting for the possible impact of higher consumer prices is not directly addressed. Cross-country studies generally find a positive impact of increasing levels of patent protection on R&D stocks and patent applications at home and abroad.⁹⁵¹ However, this positive impact tends to be limited to developed countries and higher-income emerging economies. The effects are mixed or marginally negative in sampled developing countries. It appears that there are threshold impacts; that is, more patent protection does not spur innovation in poorer countries where there are impediments to R&D investments or where higher education and competition are limited.⁹⁵²

Panda, Sharma, and Park (2020) use input and output measures, such as R&D investment and number of patents, respectively, to build a technology effort index intended to measure “innovation.”⁹⁵³ They find that the source country’s IPR protection positively impacts technology efforts in high-income and middle-income countries, and increases high-technology exports from high-income countries. They further find that increased patent protection levels in destination countries help attract exports from high-income and middle-income countries.⁹⁵⁴ Similarly, Ghosh and Yamarik (2019) find a robust positive relationship between the number and type of IPR provisions in regional trade agreements and FDI but that this positive impact is limited to FDI flows between developed countries. The inclusion of IPR

⁹⁴⁸ Maskus and Ridley, “[Intellectual Property-Related Preferential Trade Agreements](#),” 2019, 40.

⁹⁴⁹ Campi and Dueñas, “[Intellectual Property Rights, Trade Agreements, and International Trade](#),” 2019.

⁹⁵⁰ Campi and Dueñas, “[Intellectual Property Rights, Trade Agreements, and International Trade](#),” 2019, 538–43.

⁹⁵¹ Maskus, “[The New Globalisation](#),” 2014, 275.

⁹⁵² Maskus, “[The New Globalisation](#),” 2014, 275; Haber, “[Patents and the Wealth of Nations](#),” 2016, 829–30. Haber (2016) uses historical and econometric evidence to establish a nonlinear relationship between the strength of patent rights and innovation; a country must have reached a critical level of economic and human capital development before strengthening patent rights will yield increases in innovation.

⁹⁵³ Panda, Sharma, and Park, “[Patent Protection, Technological Efforts, and Exports](#),” 2020, 149.

⁹⁵⁴ Panda, Sharma, and Park, “[Patent Protection, Technological Efforts, and Exports](#),” 2020, 158.

provisions in regional trade agreements is not enough to increase FDI flows from developed countries to developing countries.⁹⁵⁵

Environmental Provisions

Beginning in the 1990s, U.S. trade agreements began to address environmental concerns.⁹⁵⁶ Environmental provisions in FTAs are meant to improve environmental conditions in U.S. trading partners and ensure U.S. producers that comply with U.S. environmental regulations are not placed at a greater competitive disadvantage than they would be without those provisions.⁹⁵⁷ Recent literature focuses on actions governments have taken in response to environmental provisions but has not yet assessed to a great degree the environmental or economic impacts of these provisions.

A few studies focus on the process of and rationale for negotiating agreements with environmental provisions. Aggarwal (2013) asserts that environmental provisions constrained negotiations for 10 of 15 of the trade agreements under consideration between 1984 and 2007, in particular when the agreement is with a lower-income country.⁹⁵⁸ The controversy regarding the inclusion of such provisions seems to stem from the potential underlying goals that agreement partners may have. Blümer et al. (2020) hypothesize that these provisions may be “defensive” in nature, allowing trading partners to protect their regulatory sovereignty. For example, an exception to trade commitments to protect plant and animal life is a defensive provision. However, the authors also suggest that the inclusion of these provisions may be “offensive” as they may promote policy reforms in partner countries.⁹⁵⁹

Bastiaens and Postnikov (2017) find U.S. FTAs are effective in bringing about environmental policy changes in developing countries during an agreement’s negotiation process, since the partner countries likely implement environmental reforms to avoid fines or loss of trade privileges once an agreement is in place.⁹⁶⁰ However, these countries’ environmental policies may still face significant hurdles to meet their goals. For example, and as presented in chapter 4, the U.S.-Peru Trade Promotion Agreement requires Peru to increase the number and effectiveness of people managing and enforcing Peru’s forestry laws, but this effort has met with a number of implementation challenges.⁹⁶¹ Several studies consider the environmental standards institutionalized through the NAFTA/NAAEC process and the

⁹⁵⁵ Ghosh and Yamarik, “[Do the Intellectual Property Rights of Regional Trading Arrangements](#),” 2019, 190.

⁹⁵⁶ NAFTA itself contained environmental provisions and the North American Agreement on Environmental Cooperation (NAAEC), implemented concurrently with NAFTA, supported these provisions by offering an avenue for public participation. Fitzmaurice, “[Public Participation in the North American Agreement](#),” 2003. In 2001 the U.S.-Jordan FTA first introduced enforceable environmental obligations, the inclusion of which has now become standard practice for U.S. negotiations. EPA, “[Environment, Trade, and Investment](#),” accessed March 9, 2021.

Aggarwal, “[U.S. Free Trade Agreements and Linkages](#),” 2013, 93.

⁹⁵⁷ USITC, 2016, 94.

⁹⁵⁸ Aggarwal’s scoring system ranges from neutral (0) through a range of increasing constraints (-, --, and ---). Environmental provisions were assigned a neutral score for negotiations with Israel, Canada, Australia, Bahrain, and Oman, while other partners were assigned scores indicating varying degrees of constraint. In no case was a factor relating to the environment considered to be a driver for an agreement. This was also the case for labor and human rights provisions. Aggarwal, “[U.S. Free Trade Agreements and Linkages](#),” 2013, 94.

⁹⁵⁹ Blümer et al., “[Environmental Provisions in Trade Agreements](#),” 2020, 5–6.

⁹⁶⁰ Bastiaens and Postnikov, “[Greening Up](#),” 2017, 16, 22.

⁹⁶¹ See chapter 4 of this report for additional details on the impacts of the U.S.-Peru Trade Promotion Agreement Forest Sector Governance Annex.

establishment of the Commission for Environmental Cooperation (CEC). Wold (2008) notes that the NAAEC's existence was driven by concerns that Mexico's relatively weak enforcement of environmental laws would create a pollution haven for U.S. investment, and that trade liberalization would adversely affect the environment throughout North America.⁹⁶² The NAAEC was intended to address such concerns, but has had mixed results in meeting its goals. Its successes include the training of environmental officials in Mexico and the elimination of pesticides such as chlordane and DDT. But, the NAAEC has not been as successful in carrying out some of its endeavors, such as overseeing a citizen submission process that allows groups or individuals to identify instances where environmental laws are not being enforced.⁹⁶³ Knox (2010) also argues that NAFTA had mixed results in addressing trans-boundary environmental harm; it decreased water pollution along the U.S.-Mexico border, but otherwise added little to already existing bilateral institutions.⁹⁶⁴ He contends that NAFTA was successful at promoting sustainable development, as it contributed to stronger environmental protections, particularly in Mexico, but he notes its achievements appear minor when compared to the scale of the problems it faces.⁹⁶⁵

Following NAAEC and NAFTA, the United States continues to include reporting standards as a part of environmental provisions, which help document how trading partners have met their environmental commitments. Looking into these evaluation reports, George and Yamaguchi (2018) find environmental provisions in U.S. trade agreements have had considerable effects on actions taken by certain governments.⁹⁶⁶ For example, Chile adopted new environmental laws (U.S.-Chile FTA), CAFTA-DR markets adopted environmental impact assessment frameworks, Guatemala created an environmental auditing unit, and Morocco adopted new laws on air pollution (U.S.-Morocco FTA).⁹⁶⁷

In one of the few studies to tackle economic effects of environmental provisions, Lechner (2018) finds environmental provisions can have varying impacts on investors by sector. The study shows that, like labor provisions, environmental standards in FTAs do not have a uniform effect on investors. Although the study does not examine how provisions are enforced, it finds these provisions increase investment in comparatively clean sectors and reduce investment in polluting sectors.⁹⁶⁸

Estimating the environmental impact of environmental provisions requires further research. In one study, Martínez-Zarzoso (2018) finds that membership in an RTA led to improvements in environmental quality due to the reduction in two out of three pollutants investigated, regardless of whether the agreement had environmental provisions.⁹⁶⁹ However, the author notes that her analysis is unable to draw a statistical difference between the effects of agreements with and without environmental

⁹⁶² Wold, "[Evaluating NAFTA](#)," 2008, 203.

⁹⁶³ Wold, "[Evaluating NAFTA](#)," 2008, 204–05, 217.

⁹⁶⁴ Knox, "[The Neglected Lessons of the NAFTA](#)," 2010.

⁹⁶⁵ Knox, "[The Neglected Lessons of the NAFTA](#)," 2010, 392.

⁹⁶⁶ George and Yamaguchi, "[Assessing Implementation of Environmental Provisions](#)," 2018.

⁹⁶⁷ George and Yamaguchi, "[Assessing Implementation of Environmental Provisions](#)," 2018, 26.

⁹⁶⁸ Lechner, "[Good for Some, Bad for Others](#)," 2018, 182.

⁹⁶⁹ Martínez-Zarzoso, "[Assessing the Effectiveness of Environmental Provisions](#)," 2018. Specifically, the author finds decreases in emissions of sulphur dioxide and nitrogen dioxide in RTA member markets. Martínez-Zarzoso, 2018, 27.

provisions and it is likely that she would need additional data and modifications to her approach to do so.⁹⁷⁰

Investment Provisions

U.S. FTAs can affect FDI flows and have typically contained investment provisions. The literature focusing on the impact of bilateral and regional trade agreements on FDI does not look at the impact of investment provisions, *per se*. Instead this literature is focused on the overall impact of RTAs on investment, and it generally finds a negative effect on FDI when RTAs are between developed countries, but not necessarily between developed and developing countries. Trade agreements can lead to lower FDI if they generate substantial tariff liberalization such that firms find it more profitable to serve domestic markets through exports rather than locally via FDI. For example, Bergstrand and Egger (2007) 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 to 2000.⁹⁷¹ The authors conclude that the trade agreements in their sample had a significant negative effect on FDI flows. Stein and Daude (2007) also estimate that trade agreements had a negative impact on FDI using data from 1997 to 1999, though the impact is not statistically significant in most versions of their econometric model.⁹⁷² Jang (2011) estimates a negative impact of the agreements on FDI between developed countries for the period 1982 to 2005.⁹⁷³ The literature that specifically focuses on the effects of NAFTA mostly finds that the agreement increased FDI in the NAFTA countries.⁹⁷⁴

There is evidence that the content of investment provisions matters. Berger et al. (2013) examine whether the effects of countries' bilateral trade and investment agreements on FDI depend on the specific provisions they contain.⁹⁷⁵ Using FDI data from 1978 to 2004, they find that trade agreements increase FDI when they contain strong national treatment and investor-state dispute settlement provisions.⁹⁷⁶

A related and far more developed area of research on investment provisions is explored in the literature assessing the impact of bilateral investment treaties (BITs) on FDI. BITs are standalone treaties covering investment that are similar in scope and design to investment chapters in free trade agreements.⁹⁷⁷ The evidence of their impact on FDI, however, is mixed. While recent reviews of the literature have found that BITs, in general, have a positive effect on FDI, a substantial number (although minority) of studies

⁹⁷⁰ Martínez-Zarzoso, "[Assessing the Effectiveness of Environmental Provisions](#)," 2018, 28–29.

⁹⁷¹ Bergstrand and Egger, "[A Knowledge-and-Physical-Capital Model](#)," 2007.

⁹⁷² Stein and Daude, "[Longitude Matter: Time Zones](#)," 2007. This study's primary focus is on the effect of differences in time zones on the location of FDI.

⁹⁷³ Jang, "[The Impact of Bilateral Free Trade](#)," 2011.

⁹⁷⁴ MacDermott, "[Regional Trade Agreement and Foreign Direct Investment](#)," 2007; Feils and Rahman, "[Regional Economic Integration and Foreign Direct Investment](#)," 2008.

⁹⁷⁵ Berger et al., "[Do Trade and Investment Agreements](#)," 2013.

⁹⁷⁶ The authors define "strong" national treatment provisions as those that apply to the pre-establishment phase of the investment. 'Strong' investor-state dispute settlement provisions are those that include comprehensive pre-consent to arbitration. Berger et al., "[Do Trade and Investment Agreements](#)," 2013.

⁹⁷⁷ Indeed, the first BIT was negotiated in 1982, and BITs have served as the model for subsequent investment chapters in U.S. free trade agreements.

have shown the opposite.⁹⁷⁸ One study found that relationships between BITs and FDI range from weakly positive to strongly positive.⁹⁷⁹ Others have found either no relationship or a negative relationship.⁹⁸⁰ Lejour and Salfi (2015) find that the mixed results can be attributed to variation across regions and income groups.⁹⁸¹ Others attribute the mixed results to commonly underdeveloped frameworks, and find that BITs increase FDI under complex circumstances.⁹⁸² However, Aisbett (2007) observes that the high correlation between BITs and FDI is due to the endogeneity of BITs, a characteristic that still challenges FDI analysis today.⁹⁸³

⁹⁷⁸ Bonnitcha, “[Assessing the Impacts of Investment Treaties](#),” 2017; Bonnitcha, Poulsen, and Waibel, *The Political Economy of the Investment Treaty Regime*, 2017.

⁹⁷⁹ Elkins, Guzman, and Simmons, “[Competing for Capital](#),” 2006.

⁹⁸⁰ Hallward-Driemeier, “[Do Bilateral Investment Treaties](#),” 2003; Rose-Ackerman and Tobin, “[Foreign Direct Investment and the Business Environment](#),” 2005.

⁹⁸¹ Lejour and Salfi, “[The Regional Impact of Bilateral Investment Treaties](#),” 2015.

⁹⁸² Rose-Ackerman, “[The Global BITs Regime](#),” 2009.

⁹⁸³ Aisbett, “[Bilateral Investment Treaties and Foreign Direct Investment](#),” 2007. Because trade and investment policies may be more likely to be negotiated between country pairs that already engage in trade and investment with one another, trade and investment policy variables may suffer from endogeneity.

Additional Views of Chair Jason E. Kearns

In my view, this report provides many valuable insights into the impact of U.S. trade agreements, and my hope is that it gains a wide audience. However, the techniques used to evaluate such agreements are still evolving, and I believe the trade community needs to fundamentally rethink how to assess the impact of trade agreements on U.S. workers, businesses, and farmers. We need to ask more and different questions, question our assumptions, and dig deeper into the substantive terms of our trade agreements.

In this report, the quantitative economy-wide model focuses mainly on the long-run efficiency gains resulting from lower prices of imported goods, and relies on unrealistic assumptions about the economy, such as the assumptions of full employment (which implies that all workers seeking jobs are employed and that trade agreements cannot cause unemployment) and costless switching (that workers have the ability to freely move across industries and occupations). This contrasts with some recent academic studies that highlight how significant the transition costs are for U.S. workers and how long the transition can be after a wave of import competition. It is critical to see how our conclusions would change with a shorter-term analysis that incorporates these features. Supporters of trade agreements argue they create jobs; opponents argue they cost jobs. That has been the key issue in the debate over trade agreements for decades. Economic models cannot simply assume away the issue; more needs to be done to shed light on that debate.⁹⁸⁴

Furthermore, our modeling approach has been adapted from a time when removing or reducing tariffs and nontariff barriers was the focus of trade agreements. But trade agreements today do not simply reduce or eliminate (“liberalize”) trade barriers and expand trade, and not every domestic rule or regulation should be viewed as an “unnecessary obstacle to trade.” Trade policymakers today are often just as interested in negotiating provisions that require trading partners to adopt and implement rules and regulations concerning, for example, intellectual property rights, consumer protections on the internet, labor standards, and environmental protections.⁹⁸⁵

All of these rules can create winners and losers in our economy. But the distributional effects of trade agreements are not fully accounted for in most models,⁹⁸⁶ particularly when economies are not fully employed (and economies are rarely fully employed). I am encouraged that we are beginning to tackle the unequal economic outcomes of trade agreements across gender and other dimensions in this study.

⁹⁸⁴ In the USITC’s report on the likely economic effects of the USMCA, I made a similar point about the full employment assumption in the economy-wide model. As I wrote then: “The model . . . assumes that the economy operates at full capacity. But there is reason to believe that the U.S. economy may not be at full capacity utilization, now or when the USMCA is fully implemented.” U.S. International Trade Commission (USITC), [U.S.-Mexico-Canada Trade Agreement](#), 2019, 61.

⁹⁸⁵ See Rodrik, Dani. “[What Do Trade Agreements Really Do?](#)” *Journal of Economic Perspectives* 32, no. 2 (Spring 2018): 73–90.

⁹⁸⁶ Economist Dani Rodrik observes that the ratio of redistribution to efficiency gains from trade policy reforms could be as high as \$50 of redistribution for every \$1 of aggregate gain, a major reason being that tariffs are already so low. He writes: “It’s as if we give \$51 to Adam, only to leave David \$50 poorer.” Rodrik, Dani, *The Globalization Paradox: Democracy and the Future of the World Economy*. New York: W.W. Norton & Company, 2011, 57.

But as a result of the unrealistic assumptions in the economy-wide modeling, this report improbably concludes that all demographic subgroups (“labor types”) analyzed gained from trade agreements.

Economists’ default perceptions about what trade agreements actually do (and do not do) has likely slowed the development of alternative tools. Though this is changing, the broader profession has been slow to realize, for example, that not all labor or environmental provisions are created equal. The absence of strong and enforceable provisions in these areas has a significant impact on trade and can impact the U.S. economy in other ways. Under NAFTA, the ever-present threat of offshoring production to Mexico in the absence of enforceable labor provisions combined with tariff reductions on Mexican imports likely weakened U.S. manufacturing workers’ ability to bargain for higher wages; but standard models cannot account for that. As labor and environmental provisions themselves evolve, it will be increasingly untenable to ignore what these provisions actually obligate FTA members to do, in addition to how well these provisions are enforced.

Finally, too often, economic analysis of provisions in our trade agreements focuses too narrowly on the quantifiable expansion in trade, as if trade expansion is an end in itself, rather than a means to achieve the broader objectives articulated in our trade agreements, such as higher standards of living. While the impacts of trade agreements on things like living standards are harder to measure, doing so should be our goal.

The Commission is working to address these gaps, especially by incorporating standalone models, including “partial equilibrium” models, which speak to the relevant industry- and provision-specific questions that policymakers may have, as well as through qualitative analysis. I believe this report contributes meaningfully to the ongoing conversation about the impact of trade and trade agreements and positions the Commission to continue to innovate to address those questions.

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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

[the '361 patent] by Redesign Models P001 (Smart Wall Plate Charger, Decor Outlet, with USB charger) and P002 (Smart Wall Plate Charger, Duplex Outlet with USB charger)." ID/RD at 14. In the Redesign SD Motion, Enstant sought summary determination that powered cover plate model numbers P001 and P002 ("Enstant's Redesigns") do not infringe claims 1, 3–4, 10, 14, 17, 21, and 23–24 of the '361 patent. Redesign SD Motion at 16. The final ID finds, however, that "Enstant's and Vistek's Redesign SD Motion was effectively rendered moot by rulings on Motions in Limine even though Enstant and Vistek's Redesign SD Motion was granted during the March 29, 2019 Teleconference." ID/RD at 14 (citing Tel. Tr. at 7:15–9:14 (Mar. 29, 2019)).

The ALJ's rulings on Motions in Limine addressed: (1) Enstant/Vistek's Motion in Limine ("Respondents' MIL") to preclude Complainant SnapPower from asserting or providing evidence during the evidentiary hearing ("Hearing") that the Enstant Redesigns infringe any SnapPower patents, Order No. 42 at 1 (Aug. 12, 2019) (citing Motion Docket No. 1124–041 (Feb. 19, 2019); Respondents' MIL at 2); and (2) SnapPower's Corrected Motion In Limine ("SnapPower MIL") to preclude evidence of the Enstant Redesigns from the Hearing, and in the alternative, to permit SnapPower to assert infringement against the Redesigns by amending the Complaint and Notice of Investigation, Order No. 42 at 2 n. 2 (citing Motion Docket No. 1124–033 (Feb. 13, 2019), SnapPower MIL at 1). See also ID/RD at 14–15.

On October 11, 2019, the Commission determined to review the final ID in part and to remand the investigation to the ALJ for a remand initial determination ("RID") to address the final ID's finding that Enstant/Vistek's Redesign SD Motion is moot. 84 FR 55985–86 (Oct. 18, 2019).

By not reviewing the relevant portion of the final ID, *see id.* at 55986, the Commission found a violation of section 337 with respect to participating respondents Enstant and Vistek, and the Defaulting Respondents Dazone, Desteny, NEPCI, and MCI. *See id.* at 55985–86. See also ID/RD at 3–4, 125–26.

On January 30, 2020, the ALJ issued an RID, granting Enstant's Redesign SD Motion. Specifically, the RID finds that there is no dispute that Enstant's Redesigns do not infringe claims 1, 3–4, 10, 14, 17, 21, and 23–24 of the '361 patent—the only patent asserted against Enstant's Redesigns. RID at 15–20. No party petitioned for review of the RID. The Commission determined not to

review the RID. *See* 85 FR 21457–59 (Apr. 17, 2020) ("Commission Notice"). The Commission also requested written submissions on remedy, the public interest, and bonding. *Id.* at 21458–59.

On March 30, 2020, all parties to the investigation filed their opening written submissions on remedy, the public interest, and bonding. On April 7, 2020, all parties filed their responsive written submissions. No other submissions were received by the Commission.

Having examined the record in this investigation, including the parties' submissions on remedy, the public interest, and bonding filed in response to the Commission Notice, the Commission has determined that the appropriate form of relief in this investigation is: (1) A GEO prohibiting the unlicensed entry of infringing powered cover plates, which are electrical receptacle covers with built-in functionality, that infringe one or more of claims 1, 4, 8, 9, 10, 13, 17, and 19 of the '324 patent; claims 1, 4, 10, 14, 21, 23, and 24 of the '361 patent; claims 1, 2, 3, 7, 18, and 19 of the '430 patent; and the claim of the D'426 patent that are manufactured, and imported from, abroad; and (b) CDOs directed at Respondents Dazone, Desteny, MCI, and NEPCI, and their affiliated companies, parents, subsidiaries, or other related business entities, or their successors or assigns. As noted above, Enstant's Redesigns do not fall within the scope of these remedial orders with respect to the asserted claims of the 361 patent.

The Commission has further determined that the public interest factors enumerated in subsections (d)(1) and (f)(1) (19 U.S.C. 1337(d)(1), (f)(1)) do not preclude issuance of the above-referenced remedial orders. Additionally, the Commission has determined to impose a bond of one hundred (100) percent of entered value of the covered products during the period of Presidential review (19 U.S.C. 1337(j)).

The investigation is terminated.

The Commission vote for this determination took place on June 11, 2020.

The authority for the Commission's determination is contained in section 337 of the Tariff Act of 1930, as amended (19 U.S.C. 1337), and in Part 210 of the Commission's Rules of Practice and Procedure (19 CFR part 210).

By order of the Commission.

Issued: June 11, 2020.

Lisa Barton,

Secretary to the Commission.

[FR Doc. 2020–12994 Filed 6–16–20; 8:45 am]

BILLING CODE 7020–02–P

INTERNATIONAL TRADE COMMISSION

[Investigation No. TPA–105–008]

Economic Impact of Trade Agreements Implemented Under Trade Authorities Procedures, 2021 Update; Notice of Institution of Investigation and Schedule of a Public Hearing

AGENCY: U.S. International Trade Commission.

ACTION: Notice of investigation and scheduling of a public hearing.

SUMMARY: The Commission has instituted Investigation No. TPA–105–008, Economic Impact of Trade Agreements Implemented Under Trade Authorities Procedures, 2021 Report, for the purpose of preparing the second of two reports required by section 105(f)(2) of the Bipartisan Congressional Trade Priorities and Accountability Act of 2015. Section 105(f)(2) requires that the Commission submit to the House Committee on Ways and Means and the Senate Committee on Finance two reports, one by June 29, 2016, and a second by June 29, 2021, 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.

DATES:

September 21, 2020: Deadline for filing requests to appear at the public hearing.

September 25, 2020: Deadline for filing prehearing briefs and statements.

October 6, 2020: Public hearing.

October 23, 2020: Deadline for filing post-hearing briefs and statements.

November 6, 2020: Deadline for filing all other written submissions.

June 29, 2021: Transmittal of Commission report to the Committees.

ADDRESSES: All Commission offices, including the Commission's hearing rooms, are located in the U.S. International Trade Commission Building, 500 E Street SW, Washington, DC. All written submissions should be submitted electronically and addressed to the Secretary, U.S. International Trade Commission, 500 E Street SW, Washington, DC 20436. The public record for this investigation may be viewed on the Commission's electronic docket (EDIS) at <https://edis.usitc.gov>.

FOR FURTHER INFORMATION CONTACT:

Project Leaders Tamara Gurevich (202–205–3403 or tamara.gurevich@usitc.gov) or David Guberman (202–708–1396 or david.guberman@usitc.gov) for information specific to this

investigation. For information on the legal aspects of this investigation, contact William Gearhart of the Commission's Office of the General Counsel (202–205–3091 or [william.gearhart@usitc.gov](mailto:wiliam.gearhart@usitc.gov)). The media should contact Margaret O'Laughlin, Office of External Relations (202–205–1819 or margaret.olaughlin@usitc.gov). Hearing-impaired individuals may obtain information on this matter by contacting the Commission's TDD terminal at 202–205–1810. General information concerning the Commission may also be obtained by accessing its website (<https://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.

SUPPLEMENTARY INFORMATION:

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 (19 U.S.C. 4204(f)(2)) requires the Commission to submit two reports to the House Committee on Ways and Means and Senate Committee on Finance, one in 2016 and a second not later than mid-2021, 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 submitted its first report on June 29, 2016 (Inv. No. 332–555, Pub. No. 4614) and will submit the second report by June 29, 2021.

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), the United States-Mexico-Canada Agreement (USMCA), and U.S. free trade agreements 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 105(f)(2) of the Bipartisan Congressional Trade Priorities and Accountability Act of 2015 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 website.

Public Hearing: A public hearing in connection with this investigation will be held beginning at 9:30 a.m. on October 6, 2020. Information about the place and form of the hearing, including about how to participate in or view the hearing, will be posted on the Commission's website at (https://usitc.gov/research_and_analysis/what_we_are_working_on.htm). Once on that web page, scroll down to the entry for investigation No. TPA–105–008, Economic Impact of Trade Agreements Implemented Under Trade Authorities Procedures, 2021 Report, and click on the link to "hearing instructions." Interested parties should check the Commission's website periodically for updates.

Requests to appear at the public hearing should be filed with the Secretary, no later than 5:15 p.m., September 21, 2020 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., September 25, 2020; and all post-hearing briefs and statements should be filed not later than 5:15 p.m., October 23, 2020. In the event that, as of the close of business on September 21, 2020, 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 September 21, 2020, 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, and should be received not later than 5:15 p.m., November 6, 2020. 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), as temporarily amended by 85 FR 15798 (March 19, 2020). Under that rule waiver, the Office of the Secretary will accept only electronic filings at this time. Filings must be made through the Commission's Electronic Document

Information System (EDIS, <https://edis.usitc.gov>). No in-person paper-based filings or paper copies of any electronic filings will be accepted until further notice. Persons with questions regarding electronic filing should contact the Office of the Secretary, Docket Services Division (202–205–1802), or consult the Commission's Handbook on Filing Procedures.

Confidential Business Information.

Any submissions that contain confidential business information 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: Persons wishing to have a summary of their position included in the report should include a summary with their written submission and should mark the summary as having been provided for that purpose. The summary should be clearly marked as "summary for inclusion in the report" at the top of the page. The summary may not exceed 500 words, should be in MS Word format or a format that can be easily converted to MS Word, 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. The Commission will list 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: June 11, 2020.

Lisa Barton,

Secretary to the Commission.

[FR Doc. 2020-12995 Filed 6-16-20; 8:45 am]

BILLING CODE 7020-02-P

Appendix C

Calendar of Witnesses

CALENDAR OF PUBLIC HEARING

Those listed below appeared as witnesses at the United States International Trade Commission's hearing via videoconference:

Subject: Economic Impact of Trade Agreements Implemented Under Trade Authorities Procedures, 2021 Update
Inv. No.: TPA-105-008
Dates and Time: October 6 and 7, 2020 - 9:30 a.m.

Tuesday, October 6, 2020

Panel 1: CROSS-SECTORAL

ORGANIZATION AND WITNESS:

U.S. Chamber of Commerce
Washington, DC

John Murphy, Senior Vice President, International Policy

American Federation of Labor and Congress of Industrial Organizations (“AFL-CIO”)
Washington, DC

Eric Gottwald, Policy Specialist, Trade and Economic Globalization

University of Notre Dame
Mendoza College of Business
Notre Dame, IN

Jeffrey H. Bergstrand, Professor of Finance, Mendoza College of Business

Center for American Progress (“CAP”)
Washington, DC

Andy Green, Managing Director

The National Foreign Trade Council (“NFTC”)
Washington, DC

Jake Colvin, Vice President, NFTC; and Executive Director,
Global Innovation Forum

Panel 1: CROSS-SECTORAL (continued)

ORGANIZATION AND WITNESS:

Public Citizen's Global Trade Watch
Washington, DC

Lori Wallach, Director

Daniel Rangel, Research Director

Coalition for a Prosperous America
Alexandria, VA

Jeff Ferry, Chief Economist

Panel 2: MANUFACTURING

ORGANIZATION AND WITNESS:

The Aluminum Association
Arlington, VA

Lauren Wilk, Vice President, Policy and International Trade

Wiley Rein LLP
Washington, DC
on behalf of
Nucor Corporation

Ben Pickett, General Manager & Counsel, Nucor Corporation

Chris B. Weld) – OF COUNSEL

American Apparel & Footwear Association ("AAFA")
Washington, DC

Beth Hughes, Vice President, Trade & Customs Policy

Panel 2: MANUFACTURING (continued)

ORGANIZATION AND WITNESS:

Barnes & Thornburg, LLP
Washington, DC
on behalf of
U.S. Fashion Industry Association (“USFIA”)
Washington, DC

Julia Hughes, President, U.S. Fashion Industry Association

David M. Spooner) – OF COUNSEL

Wiley Rein LLP
Washington, DC
on behalf of
Decorative Hardwoods Association

Clifford Howlett, President, Decorative Hardwoods Association

Timothy C. Brightbill) – OF COUNSEL

International Wood Products Association (“IWPA”)
Alexandria, VA

Cindy L. Squires, Executive Director

Daniel Neumann, Vice President of Government Affairs,
Sorini, Samet & Associates

Motor & Equipment Manufacturers Association (“MEMA”)
Washington, DC

Ann Wilson, Senior Vice President, Government Affairs

Panel 3: CHEMICALS, AGRICULTURE, AND FISHERIES

ORGANIZATION AND WITNESS:

Fanwood Chemical, Inc.
Fanwood, NJ

V.M. (Jim) DeLisi, President

Impact of the Trade Agreements, 2021 Report

Society of Chemical Manufacturers & Affiliates (“SOCMA”)
Arlington, VA

Robert Helminiak, Vice President, Legal & Government Relations

American Chemistry Council (“ACC”)
Washington, DC

Ed Brzytwa, Director, International Trade

Distilled Spirits Council of the United States, Inc. (“DISCUS”)
Washington, DC

Robert Maron, Vice President, International Issues and Trade

Picard Kentz & Rowe LLP
Washington, DC
on behalf of
Southern Shrimp Alliance (“SSA”)

John Williams, Executive Director, Southern Shrimp Alliance

Nathaniel M. Rickard)

) – OF COUNSEL

Sophia Lin)

Fresh Produce Association of the Americas
Nogales, AZ

Lance Jungmeyer, President

Wednesday, October 7, 2020

Panel 4: DIGITAL ORGANIZATIONS AND SERVICES

ORGANIZATION AND WITNESS:

Coalition of Services Industries (“CSI”)
Washington, DC

Christine Bliss, President

Computer & Communications Industry Association (“CCIA”)
Washington, DC

Arthur Sidney, Vice President, Public Policy

ACT | The App Association
Washington, DC

Brian Scarpelli, Senior Global Policy Counsel

European Centre for International Political Economy (“ECIPE”)
Brussels, Belgium

Hosuk Lee-Makiyama, Director

The Information Technology and Innovation Foundation (ITIF”)
Washington, DC

Nigel Cory, Trade Policy Analyst

American Property Casualty Insurance Association (“APCIA”)
Washington, DC

David F. Snyder, Vice President

BSA | The Software Alliance
Washington, DC

Joseph P. Whitlock, Director, Policy

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Appendix D

Summary of the Views of Interested Parties

Interested parties had the opportunity to file written submissions to the Commission in the course of this investigation and to provide summaries of the positions expressed in the submissions for inclusion in this report. This appendix contains these written summaries, provided that they meet certain requirements set out in the notice of investigation. The Commission has not edited these summaries. This appendix also contains the names of other interested parties who filed written submissions during this investigation but did not provide written summaries. A copy of each written submission is available in the Commission's Electronic Docket Information System (EDIS), <https://www.edis.usitc.gov>. In addition, the Commission also held a public virtual hearing in connection with this investigation on October 6–7, 2020. The full text of the transcript of the Commission's hearing is also available on EDIS.

ACT | The App Association

No written summary. Please see EDIS for full submission.

AFL-CIO

No written summary. Please see EDIS for full submission.

Air-Conditioning, Heating, and Refrigeration Institute (AHRI)

No written summary. Please see EDIS for full submission.

American Apparel & Footwear Association

On behalf of the American Apparel & Footwear Association (AAFA), I am providing a post-hearing summary for inclusion in the Economic Impact of Trade Agreements report. AAFA is the trusted public policy and political voice of the apparel and footwear industry, its management and shareholders, its nearly four million U.S. workers, and its contribution of more than \$400 billion in annual U.S. retail sales.

Below are several recommendations on how to improve the negotiation and operation of U.S. trade agreements.

U.S. trade agreements must lower barriers to trade such as tariffs, customs, and regulatory red tape. Currently, 98% of apparel, footwear, and related goods sold in the United States today are imported. Yet the U.S. still maintains high duties on these products. At the same, we note there are sensitive subsectors in our industry – such as certain footwear lines where there is domestic production – that may require separate handling as a result of those sensitivities. Our strong recommendation is that any lengthy tariff phase outs that reflect those sensitivities be tailored so they affect just those products, and not impose border taxes unnecessarily on products that do not require special treatment.

Trade agreements must incorporate less restrictive rules of origin requirements if they are to be fully utilized. U.S. trade agreements should be aligned and be able to connect with each other to enable U.S. apparel and footwear companies more efficiently utilize supply chains and more effectively utilize the trade agreement. We recognize that sensitive products lines may require special treatment. Again, our

strong recommendation is that any restrictive rules be focused just on those sensitive lines so that other products are not afflicted more burdensome rules.

Trade agreements must include state-of-the-art sustainability provisions for the apparel and footwear industry. The industry is implementing rigorous social and environmental improvements to their global supply chains on a voluntary basis.

Trade agreements must include facilitative customs procedures that draw upon the WTO's Trade Facilitation Agreement to speed legitimate goods across borders and provide predictability and transparency to regulations, rulings, and border operations; trusted traders should be treated as partners and focus enforcement activities on traders who are more likely to present risks; and customs provisions must apply to the whole agreement and not single out any one industry.

Trade agreements must allow claims to be made at the 6-digit HTS level where possible; not require direct export, and instead permit interim storage locations; and include simple drawback rules that permit substitution drawback claims and facilitate returns (for repairs and reprocessing).

Trade agreements must include intellectual property (IP) provisions that clearly articulate requirements to easily record and register IP; commitments to enforce against counterfeiting, including through third party marketplaces; and efforts to cooperate on international efforts to thwart IP rights theft.

Trade agreements should reflect current U.S. law under the Berry Amendment that requires all clothing, textiles, and footwear purchased by the Defense Department to be made in the United States.

As a final note, we believe any future grant of trade promotion authority (TPA) include precise provisions detailing the steps the U.S. would take should we decide to discontinue a trade agreement. We believe renewal of TPA in 2021 provides an excellent opportunity to answer these questions fully and ensure full predictability in all aspects of our trade agreement programs.

American Chemistry Council

No written summary. Please see EDIS for full submission.

American Farm Bureau Federation

No written summary. Please see EDIS for full submission.

American Forest & Paper Association

No written summary. Please see EDIS for full submission.

American Peanut Council

No written summary. Please see EDIS for full submission.

American Phoenix Trade Advisory Services

Since the 1990s, trade rules have promoted what economist Dani Rodrik has referred to as “hyperglobalization.” The focus has been on liberalizing capital flows with few—or no—constraints on where that capital goes. However, liberalizing capital flows without rules to foster fair competition incentivizes countries to vie for capital investments—and to engage in race-to-the-bottom policies to secure them. Many countries lower costs through labor rights suppression, environmental deregulation, and de minimis tax rates. They may also use subsidies and currency manipulation to further rig cost structures.

This suite of rules is essentially laissez-faire in its orientation. Any government effort to promote competition is disparaged as a protectionist undertaking. The only goal worth pursuing, in this arrangement, is low cost and high returns, regardless of how they are achieved.

However, this low-cost model is expensive. It pits workers in one country against workers in another, as returns to capital increase while returns to labor decrease; it promotes the degradation of the environment; and it robs nations of sufficient revenues to fund the basic needs of their people. Increasingly, these policies are seen as part of a broader violation of the social contract.

Because of these rules, the global trading regime, and bilateral and regional trade agreements, benefit certain sectors, and certain classes, within each country. Yet, these rules do not benefit all sectors, or all classes. We have papered over these structural concerns by relying on the axiom that trade provides an aggregate good. Yet by focusing on the aggregate good, we ignore that the rules of trade decide, at an individual level, for whom trade is good.

It is possible to structure the rules of trade differently. Rather than writing rules to allow corporations maximum flexibility to exploit artificially low costs, we can write rules that promote fair competition. We can write labor and environmental standards that frustrate the ability of corporations to press a race to the bottom. We can write rules that prioritize the sovereign right to regulate over the corporate rejection of governance in the public interest. We can write rules to shine a light around which corporations are paying tax in which jurisdictions.

COVID exposed the national security risk of supply chains concentrated in the territory of a hostile foreign power. If regional trade agreements are meant to integrate regional economies, then the rules must actually deliver that outcome. Weak manufacturing rules of origin do not. Nor do rules that reward Darwinian behavior by stateless corporations that have no allegiance to any sovereign.

It is time to take rethink what we are trying to achieve, as we move away from trade agreements as a vehicle to serve the goal of liberalization for its own sake, toward trade agreements as a vehicle to promote reinforce relationships among countries with shared values. The text of an agreement that delivers on this promise can be found at <http://americanphoenixpllc.com/themodern-agreement-of-amity-and-commerce-toward-a-new-model-for-trade-agreements>.

American Property Casualty Insurance Association

The American Property Casualty Insurance Association (APCIA) represents nearly 1200 insurers and reinsurers, many of which operate internationally. We much appreciate the work of the Congress, this

agency and the other agencies of the U.S. Government that have helped open insurance markets and increase international trade in (re)insurance for U.S. companies.

The (Re)insurance Sector Has Benefited from International Trade Enabled by Trade Agreements

International (re)insurers benefit when trade and regulatory barriers are reduced in all sectors and international trade flows increase, for example through global supply chains, because demand for insurance is increased to cover potential losses. Insurers also benefit when countries with open insurance markets develop, because they create more internal demand for both local (re)insurance and cross-border (re)insurance.

The Strategic Value of Insurance Trade Has Been Increased by Trade Agreements

International trade in insurance has strategic value for the U.S. in terms of global social progress and security. While the financial and risk mitigation benefits are local, they also help reduce social inequities, build wealth, and generate an interest in economic prosperity and political stability. These outcomes are supportive of U.S. strategic global interests.

Despite the Progress, Barriers to International Trade in Insurance Persist

Trade agreements continue to be a critical tool in achieving progress, especially as they evolve to address not only past barriers but the new barriers in the form of data protection, data localization mandates, advantages for state owned enterprises and preferences for local reinsurers. Benefits also flow from trade agreements that include regulatory transparency commitments and the establishment of regulatory forums to discuss and resolve issues, that while regulatory in origin, have a negative impact on trade.

International Trade Priorities for U.S. Property Casualty (Re)insurers

APCIA strongly supports the on-going U.S.-UK and U.S.-Kenya trade negotiations and believes they will result in ambitious outcomes. APCIA also supports the Phase One trade agreements with Japan and China and hope they will lead to further negotiations and enforceable agreements. Here are our trade priorities:

Enforce existing and new international trade commitments; Eliminate barriers to cross-border reinsurance; Protect data flows for insurers; Strengthen and expand commitments on cross-border insurance trade for multinational customers; Eliminate foreign equity caps; Strengthen commitments on form of establishment; Limit anti-competitive advantages enjoyed by state-owned insurers; Continue commitments on nationality of senior management and boards; Create a level playing field with unregulated “affinity group” insurers; and Establish regulatory transparency and strengthen regulatory dialogues.

Trade Will Be Essential to Rebuilding After the Pandemic

The pandemic has caused widespread devastation. Once countries are able to contain the pandemic, rebuilding as rapidly and resiliently as possible will be essential. Insurers can help societies put in place mechanisms to better respond to future pandemics. Insurers also have expertise to help societies rebuild with more sustainable and inclusive economies.

American Soybean Association

No written summary. Please see EDIS for full submission.

American Sugar Alliance

No written summary. Please see EDIS for full submission.

Border Trade Alliance

No written summary. Please see EDIS for full submission.

Business Roundtable

No written summary. Please see EDIS for full submission.

Cato Institute

No written summary. Please see EDIS for full submission.

Center for American Progress

No written summary. Please see EDIS for full submission.

Century Aluminum Company

Century Aluminum Company is the largest domestic producer of standard grade and value added primary aluminum products, as well as high-purity aluminum. For many years, U.S. trade policy has tended to be premised on the view that perfect competition in the global marketplace for industrial goods either exists or can be achieved. Thus, the United States has pursued an aggressive policy of liberalizing the American market for industrial goods, such as primary aluminum, under the assumption that the most efficient producers will emerge.

However, the global marketplace is not characterized by perfect competition. Aluminum is an acute example of aggressive foreign government intervention in the market, for the purpose of promoting the survival of producers on their soil. This intervention means that producers in the United States, which do not benefit from such subsidies, are forced to compete on a market basis with companies that are able to survive non-market conditions. Primary aluminum subsidies are provided not just by China, but Australia, Bahrain, Brazil, Canada, India, Norway, Oman, Qatar, Russia, Saudi Arabia, and the United Arab Emirates. Many of these subsidies are either energy subsidies, or financial assistance.

The subsidies are generally concentrated at the primary aluminum smelting stage, and then flow through the value chain to downstream producers. For this reason, downstream producers, benefiting

from the subsidies, oppose the effort to address the widespread nature of the anticompetitive conditions affecting primary aluminum producers.

The competition problem is not due to subsidies alone. The structure of the global aluminum industry also has anticompetitive characteristics. The industry has seen an increase in both horizontal and vertical integration. Governments that intervene to support primary aluminum are also, increasingly, trying to ensure that they have a downstream production line as well. There is also integration upstream, as countries with bauxite and alumina production are able to attract multinational corporations with joint ventures in mining and refining, leading to downstream production of primary aluminum and other products.

These conditions have had a devastating impact on the domestic industry. Seventeen American smelters have closed in the United States since 2000. The United States has just six and may be down to only five by the end of the year. The effects of foreign government policies on the primary aluminum industry are beginning to be replicated downstream. The historical approach of prioritizing liberalization, and devaluing the importance of core manufacturing, is unsustainable in an era in which the pandemic has illustrated the risks to Americans of supply chain concentration abroad.

Coalition for a Prosperous America

No written summary. Please see EDIS for full submission.

Coalition of Services Industries

No written summary. Please see EDIS for full submission.

Computer & Communications Industry Association

The Internet is now integral to international trade in services and goods. However, in recent years U.S. trading partners have begun adopting laws and regulations that hinder the further growth of cross-border delivery of Internet services and hardware. As the Internet continues its exponential growth and becomes even more intertwined with international commerce, U.S. trade policy should continue to reduce digital trade barriers and empower U.S. firms of all sizes to export and expand into new markets. Free trade agreements can do this directly, and also help establish norms around the world.

Decorative Hardwoods Association

No written summary. Please see EDIS for full submission.

Distilled Spirits Council of the United States

No written summary. Please see EDIS for full submission.

ECIPE (European Centre for International Political Economy)

No written summary. Please see EDIS for full submission.

Fanwood Chemical, Inc.

No written summary. Please see EDIS for full submission.

Footwear Distributors and Retailers of America

No written summary. Please see EDIS for full submission.

Fresh Produce Association of the Americas

The citizens of the United States, and the economy of the nation as a whole, have benefitted in many ways from trade agreements, including and especially the new United States Mexico Canada Agreement, and NAFTA.

Especially in fresh produce, the benefits and economic impact are profound. Thanks to the USMCA, fresh produce is almost never out of season. Pricing and availability is consistent, and bare shelves are the anomaly. Supermarkets now carry over 400 produce items, compared to less than 250 prior to NAFTA.

The United States has the lowest cost of food in the world, in part because of trade agreements such as the USMCA.

Consumer choice abounds. Now, we don't just have green bell peppers. We have orange, red, yellow, green and even purple bell peppers. We have multi-colored packs of mini-sweet peppers. Hot peppers galore.

Since NAFTA, fresh produce consumption has grown, and the availability of fresh produce from Mexico is a key factor. In 1993, the USDA reports the average American consumed 311 pounds of fresh fruits and vegetables per year. By 2017, the amount grew to 344 pounds, about a 10% increase in fruits and vegetables consumed per capita.

Also, imported fresh produce from Mexico is a jobs driver nationally, and it's particularly important in certain regions, such as near ports of entry along the Southwest.

Consider the U.S. economic impact from imported Mexican tomatoes. In 2016 the about \$1.9 billion in imported Mexican tomatoes generated \$4.8 billion in U.S. sales, \$2.9 billion in GDP and 33,000 jobs, according to analysis from the University of Arizona.

Another recent analysis, from Texas A&M, looks at the U.S. economic impact of fresh avocados from Mexico. The analysis concludes that in FY 2019/20, U.S. imports of Mexican Hass avocados contributed the following to the U.S. economy: \$6.5 billion in output or spending; \$4 billion to the U.S. GDP (value-added); 33,051 jobs; \$2.2 billion in labor income; and \$1.1 billion in taxes.

During the USMCA negotiation, leaders in the three nations endeavored to cause no harm in agriculture. A request to include a seasonal produce trade remedy provision was kept out of USMCA. Unfortunately, some regional interests continued a political push to achieve their goals in seasonality, which resulted in hearings and promised actions from the Office of the U.S. Trade Representative.

Comparative advantage allows the US to send many agriculture goods including grains, dairy and meats to Mexico. Mexico has a climate and soil that favors production of fresh fruits and vegetables.

The spirit of the USMCA and the promised economic impact will be threatened if the US proceeds with trade actions that limit imported Mexican produce.

Hanesbrands

No written summary. Please see EDIS for full submission.

International Wood Products Association

No written summary. Please see EDIS for full submission.

Jeffrey H. Bergstrand

No written summary. Please see EDIS for full submission.

MFJ International

No written summary. Please see EDIS for full submission.

Motor and Equipment Manufacturers Association

No written summary. Please see EDIS for full submission.

National Cattlemen's Beef Association

No written summary. Please see EDIS for full submission.

National Council of Textile Organizations (NCTO)

No written summary. Please see EDIS for full submission.

National Foreign Trade Council

No written summary. Please see EDIS for full submission.

National Grain and Feed Association

Much of U.S. agriculture and the grain, feed, processing and export industry's value to the U.S. economy and job creation is attributable to the market access provided through trade agreements. The balance of trade surplus for U.S. feed and grain products [corn, distiller's dried grains with solubles (DDGS), soybeans, soybean meal, wheat, feeds and fodders, grain sorghum, barley, soybean oil, ethanol, biodiesel and pulse crops] increased from \$4 billion with trade agreement counterparts in 1984 to \$16.2 billion in 2019, in large part attributable to increased market access resulting from such accords.

The benefits of U.S. agricultural trade are not limited to farmers, ranchers, grain elevators, feed manufacturers, feed ingredient suppliers, grain and food processors, livestock, poultry and dairy operators, and the many other agricultural businesses whose livelihoods depend extensively on access to foreign markets. Indeed, the economic multipliers associated with the U.S. food and agricultural sector accrue to the broader U.S. economy, particularly in terms of job creation and economic growth. According to data from the U.S. Department of Commerce, as well as analysis conducted by the U.S. Department of Agriculture, the food and agricultural sector contributes \$1.1 trillion to the U.S. gross domestic product, a 5.2-percent share, and supports more than 22 million full- and part-time U.S. jobs – constituting 11 percent of total U.S. employment. Every dollar in U.S. agricultural exports generates an additional \$1.17 in U.S. economic activity.

Grain and feed trade with U.S. trade agreement counterparts is vibrant. Ratification of trade agreements has led to the elimination of many grain and feed tariff barriers that previously restricted U.S. access to these markets and in many cases has either leveled the playing field or provided the United States with a competitive advantage over foreign competitors. Further, the existence of trade agreements and subsequent efforts to address sanitary and phytosanitary impediments and encourage regulatory cooperation have assisted in addressing non-tariff barriers to trade. As a result, U.S. trade agreement counterparts have become large and reliable export markets for U.S. agricultural products.

For the aforementioned reasons, NGFA and NAECA urge Congress to reauthorize trade promotion authority, with appropriate consultation with the U.S. Trade Representative's Office, to enable the United States to initiate new, or continue ongoing, negotiations with other trading partners to consummate new trade agreements that reduce tariff barriers and remove non-tariff barriers to trade. As has been demonstrated repeatedly, other countries are reluctant to negotiate and come to agreement on trade accords with the United States if those agreements can be undone or modified significantly by Congress after-the-fact.

National Milk Producers Federation and U.S. Dairy Export Council

No written summary. Please see EDIS for full submission.

National Potato Council

The National Potato Council is strongly supportive of a U.S. trade policy that prioritizes U.S. bilateral and multilateral trade agreements. The economic benefits derived from U.S. trade agreements are substantial and benefit U.S. potato growers, processors, and manufacturers. The revenue generated from the export of U.S. fresh and processed potatoes to markets around the world supports the livelihoods of thousands of U.S. citizens across the country.

However, an agreement alone is insufficient. On too many occasions, and in too many markets, U.S. trade agreement partners fail to uphold the spirit and commitments of the agreements signed. To fully realize the benefit of any trade agreement, implementation must be tied to regular review and consultation with trading partners, and where necessary, mechanisms to ensure enforcement. These agreements should also be flexible enough to allow them to be updated as market dynamics change.

Looking forward, while the U.S. enjoys trade agreement with over 20 nations, the National Potato Council urges current and future administrations to pursue further agreements that prioritize tariff-reduction for all U.S. potato products, as well as strong, science-based sanitary and phytosanitary measures.

Key priorities for U.S. free trade agreements should include Thailand, Philippines, and Vietnam. The National Potato Council would also support U.S. membership of the Comprehensive and Progressive Agreement for Trans-Pacific Partnership.

North American Meat Institute

No written summary. Please see EDIS for full submission.

Nucor Corporation

No written summary. Please see EDIS for full submission.

Public Citizen's Global Trade Watch

In many communities nationwide, decades of trade agreements negotiated on a model established with the North American Free Trade Agreement (NAFTA) have caused economic damage to many and fueled anger and despair. The dwindling ranks of defenders of that model argue that it was not trade, but other policies and trends that have caused the problems that people “blame” on trade pacts. However, an underappreciated feature of Fast Track trade authority in general, and the version enacted from 1988-on, in particular, is that it empowered “trade” negotiators to diplomatically legislate wide swaths of non-trade policy via closed-door negotiations. Thus, much of what is in “trade” agreements from NAFTA onwards is not mainly about trade. Rather, the agreements required governments to implement various protections and privileges for commercial interests, including expansive investor protections and often private enforcement of those rights against governments and classic rent-seeking monopoly licenses in

the form of lengthy patent, copyright, and data exclusivity terms. This new species of pact also constrained government action on numerous “behind the borders,” non-trade policy issues, including issues from food and product safety to government procurement, and most lately to the regulation of digital platforms and firms.

In addition to the evident mismatch between the vast scope of authority that Congress has delegated to the Executive branch under current trade authorities and the invasive nature of today’s “trade” deals, the actual trade elements of these agreements have not worked out as promised, but rather have led to slower export growth and often larger trade deficits. As our 2015 comprehensive study on the outcomes of the agreements negotiated under Fast Track documented, these pacts brought considerable damage: from more than a million jobs losses certified by the Department of Labor just caused by NAFTA to 91,000 U.S. factories closed during the NAFTA-World Trade Organization (WTO) era to a massive overall trade deficit with the bloc of FTA countries to the large price increases for medicines caused by the extension of U.S. monopoly patent protections for medicines from the domestic standard of 17 years to the 20 years required by the WTO Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS).

For these reasons it is imperative that the ITC reviews and significantly alters its methodology to assess the economic impact of trade agreements enacted under Fast Track in the upcoming report. Key improvements to the ITC’s methodology that are needed include:

Stop assuming that all non-tariff measures (NTMs) are trade “barriers” that imply welfare reducing costs, including limits to data flows.

Include increased consumer costs, lack of access to medicines, and potential trade balance effects caused by extending the duration or scope of intellectual property protections to its assessment of economic impact of “trade deals.”

Adjust the assumptions baked into ITC modelling regarding: (i) the erosion of labor’s bargaining power generated by increased capital mobility; (ii) implementation challenges of labor provisions, such as those contained in the revised NAFTA concerning Mexico’s labor laws and institutions; and (iii) the impact of trade deals on levels of employment and income inequality. With respect to the last point, given the actual outcomes of numerous past agreements over the past two decades-plus, it is simply insupportable for ITC models to continue to assume full employment and that pacts have no impact on economic inequality.

Improve transparency by describing the assumptions that are being included in the model and making the data underlying the analysis available in every report.

Robert Agnew

No written summary. Please see EDIS for full submission.

Sandra Polaski

The cumulative impacts of US trade agreements on the US economy, labor force and communities have become clearer over the 35 years covered by the forthcoming USITC study. We can now see long-term

impacts based on hard data and newer research techniques that generate more granular insights than earlier trade studies. The public conversation about trade has also shifted, becoming a major topic in presidential elections and discussion of US resilience. As a result, this report should go well beyond the USITC's 2016 report in several ways, summarized here and spelled out in my attached submission.

First, the report should include analysis of the impact of trade with China and other countries that have joined the WTO. The 2016 report largely ignored trade with China and offered only highly aggregated assessments of the impact of trade with all WTO members. These limitations obscured some of the most important economic impacts of trade and should be corrected in the new report.

Second, the earlier report focused primarily on general equilibrium effects on the overall US economy. However both trade theory and abundant evidence demonstrate that trade has significant distributional consequences, with both winners and losers. Recent research compares labor markets and communities exposed to particular trade shocks with those less exposed. A study of communities most affected by NAFTA found dramatically lower wage growth for blue collar workers. A study examining rising Chinese import competition found depressed wages, lower labor-force participation and higher unemployment that lasted a decade or more. Another study found that negative trade shocks lead to reduced property and sales taxes; spending on public services declines, amplifying the effects on the locality.

The third point for inclusion in the Commission's 2021 report is the diminishing size of the overall economic gains from trade. A robust study found that almost all the growth in output per worker (productivity) due to tariff reductions occurred in the early post-war decades, while gains since the 1980s were small or negative. Most studies now conclude that the overall economic impact of NAFTA was a gain of only a fraction of one percent of GDP. The 2016 USITC report found that all free trade agreements combined increased total US employment by only one-tenth of one percent as of 2012. These trivial overall gains provide little justification for the deep and persistent harm caused to workers and communities negatively affected by trade.

A fourth point for inclusion in the new USITC report is the economic impact of offshoring of US jobs by US firms that exploit the trade pacts' enhanced protections for overseas investments, guaranteed market access back into the US, protections for intellectual property used in overseas production and constraints on foreign countries' regulatory space. The Commission's earlier assessments have not included this important channel.

An accurate assessment of the impact of US trade agreements must take into account these broad effects on US GDP, employment and overall welfare. This mandated report is an opportunity to take a clear-eyed, unbiased look at the evidence.

Semiconductor Industry Association

No written summary. Please see EDIS for full submission.

Society of Chemical Manufacturers & Affiliates

No written summary. Please see EDIS for full submission.

Southern Shrimp Alliance

U.S. trade agreements reached since 1984 have negatively impacted both U.S. consumers and U.S. industries. These negative effects have not been meaningfully addressed in prior analyses, as trade agreements have been historically evaluated by the amount of increased trade between partner countries, market access for U.S. exporters, and lowered prices for American consumers.

The federal government has argued that trade agreements provide leverage to improve the labor and environmental standards of our trading partners, thereby leveling the playing field for U.S. industries. Indeed, this objective is statutorily mandated as a trade negotiating priority. Nevertheless, although these trade agreements have lowered U.S. tariffs, increased import volumes, and facilitated U.S. investment in operations overseas, the labor and environmental standards of our trading partners have not been significantly impacted. Despite the existence of free trade agreements, the U.S. Department of Labor has identified nine partner countries as having a variety of goods produced with forced and/or child labor. No action has been taken pursuant to the trade agreements to address these abuses.

Separately, commercial seafood industries in partner countries continue to operate unencumbered by comparable limits regarding bycatch or their impact on the surrounding environment. For example, Mexican fishing vessels have been repeatedly found to be fishing illegally in U.S. waters, with significant adverse impacts on vulnerable marine turtle populations. Yet these practices have not affected the ability of the Mexican seafood industry to sell into this market. Because free trade agreements have failed to raise standards abroad or provide any effective mechanism to hold partner countries accountable for violating their obligations under the agreements, U.S. industries confront a widening chasm between the increasing regulation of their production activities and the lack of regulation of their foreign competitors.

Further, the provisions concerning Sanitary and Phytosanitary Measures (“SPS”) and Technical Barriers to Trade (“TBT”) in these trade agreements impose restrictions on the U.S. government’s ability to protect the health and safety of the general public and safeguard the integrity of the domestic and imported food supply. Specific examples include the WTO dispute over country of origin labeling requirements concerning beef and pork as well as the National Marine Fisheries Service’s voluntary delay in implementing the Seafood Import Monitoring Program with respect to shrimp and abalone. These examples demonstrate that the TBT and SPS provisions are not only used as cudgels to force the U.S. government to revise or repeal laws and regulations, but also create a regulatory chilling effect on lawmakers and agencies that might otherwise seek to improve markets to better reflect the public interest.

The harm to U.S. consumers and industries caused by these trade agreements’ failure to raise standards and level the playing field, as well as the restrictions placed on the U.S. government’s regulatory authority to pursue legitimate public policy objectives must be accounted for when considering the costs and benefits of free trade agreements. As such, the Southern Shrimp Alliance urges the U.S. International Trade Commission to incorporate these considerations in this report.

The Aluminum Association

No written summary. Please see EDIS for full submission.

The Information Technology and Innovation Foundation (ITIF)

No written summary. Please see EDIS for full submission.

The Software Alliance (BSA)

No written summary. Please see EDIS for full submission.

The U.S. Fashion Industry Association (USFIA)

No written summary. Please see EDIS for full submission.

U.S. Chamber of Commerce

No written summary. Please see EDIS for full submission.

U.S. Grains Council

No written summary. Please see EDIS for full submission.

U.S. Meat Export Federation

The U.S. red meat industry has benefited greatly from the free trade agreements (FTAs) implemented under TPA over the past decades, as well as the tariff reductions and science-based trading rules established in the Uruguay Round WTO Agreement. Expanded market access through the tariff reductions and science-based trade parameters have helped underpin demand for high-quality U.S. red meat in a wide range of countries. The United States' FTA partner countries accounted for a low of 30% of U.S. exports in 1995-1996 and grew to a high of 58% in 2018. The share eased to 54% in 2019, mainly reflecting growth in U.S. pork exports to China, largely to help offset China's supply deficit resulting from African Swine Fever (ASF). Growth in U.S. red meat exports to FTA countries has included growing per capita consumption in the import markets and growing U.S. market share.

The reduction and elimination of import duties, quotas and safeguards and continuous improvement in other areas, including resolving sanitary and phytosanitary (SPS) and other barriers, have helped pave the way for U.S. export growth. U.S. beef and pork exports to FTA countries increased by 404% comparing 2019 (2.14 million mt) to the 1994-96 average, while total exports to all markets increased by 219% (3.99 million mt). On a value basis, exports to FTA countries increased by 617% comparing 2019 (\$7.5 billion) to the 1994-96 average of \$1.046 billion. While total exports to all markets increased by 284% on value basis, to more than \$15 billion. This trend is also reflected in more recent growth comparisons. 2019 exports to FTA countries were 45% larger than 2010 export volumes (and 76% larger in value); the growth to all markets was 34% in volume and 70% in value. The growth to FTA countries has outpaced the global total.

Red meat exports are critical to the profitability of the U.S. red meat industry. Exports enable maximization of the value of every part of the animal, by selling into markets with different consumer tastes, preferences, and differing seasonal demands for certain items; as well as enabling the U.S. industry to help to offset cyclical and other production related challenges around the world, like ASF or drought, which create short-run supply imbalances. U.S. beef and pork production has grown from an average of 19.47 million mt in 1994-96 to 24.93 million mt in 2019, an increase of 28% and is expected to set further records in 2020 and in 2021, reaching 25.4 million mt. Exports have grown from 4% of pork production and 7% of beef production in 1994-96 to nearly 24% of pork and more than 11% of beef production, respectively in 2019. For Jan-Sept 2020, 27% of pork and 11% of beef production was exported, despite COVID-19 related challenges. These export shares are for muscle cuts only and do not include variety meats, of which the majority of edible production goes to the international markets, and add critical value to each animal harvested.

U.S. Wheat Associates

No written summary. Please see EDIS for full submission.

Appendix E

Chapter 2: Tables

Table E.1 Rules used to apply rules of origin (ROO) provisions for chemicals in U.S. free trade agreements (FTAs)

A round bullet (•) in a column under a particular U.S. FTA or partner country means that the FTA contains the provision described in the row. An asterisk (*) means that the FTA only minimally covers regional value content ROOs for chemicals. — (em dash) means that the provision is not in the FTA.

CAFTA-DR = Dominican Republic-Central America-United States Free Trade Agreement; KORUS = United States-Korea Free Trade Agreement; NAFTA = North American Free Trade Agreement; USMCA = United States-Mexico-Canada Agreement.

Rules used to apply chemical ROO provisions	Israel	NAFTA	Jordan	Chile	Singapore	Australia	CAFTA- DR	Peru	Colombia	KORUS	Panama	USMCA
Tariff shift	—	•	—	•	•	•	•	•	•	•	•	•
Regional value content	•	•	•	•	*	—	—	*	*	—	—	•
Chemical reaction	—	—	—	•	•	•	•	•	•	•	•	•
Separation prohibition	—	—	—	•	—	•	•	•	•	•	•	•
Additional process rules: purification, mixtures and blends, change in particle size, standards materials, and isomer separation	—	—	—	—	—	•	•	•	•	•	•	•
Biotechnological processes	—	—	—	—	—	—	—	—	—	—	—	•

Sources: Compiled by USITC from the chemical ROO provisions of the following U.S. FTAs: Israel, NAFTA, Jordan, Chile, Singapore, Australia, CAFTA-DR, Peru, Colombia, KORUS, Panama, and USMCA.

Notes: U.S. FTAs with Bahrain, Morocco, and Oman are not included because they do not contain provisions that are unique to these chemical products. Although replaced by USMCA, NAFTA ROO provisions for chemicals are included here because they provided the template for corresponding provisions in later agreements. ROO provisions in this table apply to products in the Harmonized Commodity Description and Coding System chapters 28–38. The different rules used to apply chemical ROO provisions are explained in chapter 2 of the report.

Table E.2 Customs and trade facilitation provisions in U.S. free trade agreements (FTAs) and WTO Trade Facilitation Agreement

A round bullet (•) in a column under a particular FTA or partner country means that the FTA contains the provision described in the row. — (em dash) means the provision is not in the FTA.

CAFTA-DR = Dominican Republic-Central America-United States Free Trade Agreement; KORUS = United States-Korea Free Trade Agreement; USMCA = United States-Mexico-Canada Agreement; WTO TFA = WTO Trade Facilitation Agreement.

Provision	CAFTA-										WTO		
	Chile	Singapore	Australia	Bahrain	DR	Morocco	Oman	Peru	Colombia	KORUS	Panama	TFA	USMCA
Publication (i.e., online publication)	•	•	•	•	•	•	•	•	•	•	•	•	•
Release and clearance of goods ^a	•	•	•	•	•	•	•	•	•	•	•	•	•
Penalties	•	•	•	•	•	•	•	•	•	•	•	•	•
Confidentiality	•	•	•	•	•	•	•	•	•	•	•	•	•
Impartiality, nondiscrimination and transparency ^b	—	•	•	—	—	—	—	—	—	—	—	•	•
Advance rulings	•	•	•	•	•	•	•	•	•	•	•	•	•
Review and appeal	•	•	•	•	•	•	•	•	•	•	•	•	•
Automation (electronic submission of customs-related documents)	—	—	—	•	•	•	•	•	•	•	•	•	•
Customs cooperation ^c	•	•	•	•	•	•	•	•	•	•	•	•	•
Capacity building ^d	—	—	•	•	•	•	—	—	—	—	—	•	•

Sources: Compiled by USITC from the customs administration and trade facilitation chapters of the U.S. FTAs with Chile, Singapore, Australia, CAFTA-DR, Bahrain, Oman, Morocco, Peru, Panama, Colombia, KORUS, and USMCA, and the text of the WTO Trade Facilitation Agreement (TFA).

Notes: U.S. FTAs with Israel and Jordan are not included because they do not contain separate chapters on customs and trade facilitation.

^a Disciplines on the release and clearance of goods include provisions on express shipments and risk management. These latter two items are included as separate articles in U.S. FTAs. In the WTO TFA, they are incorporated under art. 7: Release and Clearance of Goods.

^b In the WTO TFA, art. 5 refers to Other Measures to Enhance Impartiality, Non-discrimination and Transparency. In U.S. FTAs, this discipline is entitled "Administration." In USMCA, this discipline refers to art. 7.11 in the Customs Administration and Trade Facilitation chapter: "Transparency, Predictability and Consistency in Customs Procedures."

^c Customs cooperation refers to the exchange of information on customs laws and procedures between customs authorities, and coordination between border agencies to facilitate the movement of goods through border checkpoints.

^d In the Bahrain, Morocco, and Oman FTAs this discipline is entitled "technical cooperation and implementation."

Table E.3 Technical barriers to trade (TBT) provisions in U.S. free trade agreements (FTAs)

A round bullet (•) in a column under a particular FTA or partner country means that the FTA contains the provision described in the row. — (em dash) means the provision is not in the FTA.

CAFTA-DR = Dominican Republic-Central America-United States Free Trade Agreement; KORUS = United States-Korea Free Trade Agreement; USMCA = United States-Mexico-Canada Agreement.

Provision	Chile	Singapore	Australia	Morocco	Bahrain	CAFTA-DR	Oman	Peru	KORUS	Colombia	Panama	USMCA
Requires application of principles in TBT Committee Decision on International Standards to determine whether a standard is an international standard.	•	—	•	•	•	•	•	•	•	•	•	•
60-day requirement for comments on proposed technical regulations and conformity assessment procedures.	•	—	•	•	•	•	•	•	•	•	•	•
Recognizes range of mechanisms to facilitate acceptance of conformity assessment results.	•	—	•	•	•	•	•	•	•	•	•	•
Permits participation of other party in the development of standards, technical regulations, and conformity assessment procedures. Recommends same in nongovernmental standardizing bodies.	•	—	•	•	•	•	•	•	•	•	•	•
Notifications of proposed technical regulations and conformity assessments shall include explanations of objectives and rationales for standards, technical regulations, or conformity assessment procedures.	—	—	•	•	•	•	•	•	—	•	•	•
Notifications of proposed measures should include explanation of objectives, and how measures address objectives.	—	—	—	—	—	—	—	—	•	—	—	—
Establishes working group to cooperate on TBT matters.	—	•	—	—	—	—	•	—	—	•	—	•
Parties must immediately notify importers of detention of import for perceived failure to comply with a technical regulation.	—	—	—	—	—	—	—	—	•	•	•	—
Parties must consider reasonable requests for extending the comment period.	—	—	—	—	—	—	—	•	•	•	—	•
Parties must endeavor to respond to a request for information within 60 days.	—	—	—	—	—	—	—	•	•	•	•	•
Parties must make every effort for consultations to lead to a mutually satisfactory solution within 60 days.	—	—	—	—	—	—	—	•	—	•	—	•

Sources: Compiled by USITC from the TBT chapters of the following U.S. FTAs: Chile, Singapore, Australia, CAFTA-DR, Bahrain, Oman, Morocco, Peru, Panama, Colombia, KORUS, and USMCA.

Notes: U.S. FTAs with Israel and Jordan are not included because they do not contain TBT chapters.

Table E.4 Government procurement provisions in U.S. free trade agreements (FTAs)

A round bullet (•) in a column under a particular FTA or partner country means that the FTA contains the provision described in the row. — (em dash) means the provision is not in the FTA.

CAFTA-DR = Dominican Republic-Central America-United States Free Trade Agreement; KORUS = United States-Korea Free Trade Agreement; USMCA = United States-Mexico-Canada Agreement; n.a. = not applicable; SME = small and medium-sized enterprise.

	Chile	Singapore	Australia	Morocco	Bahrain	CAFTA-DR	Oman	Peru	Korea	Colombia	Panama	USMCA (USA and Mexico) ^a
GPA member?	No	Yes	No	No	No	No	No	No	Yes	No	No	Mexico— No
Goods & services (national) threshold (US\$) ^b	56,190	56,190	58,550	175,000	175,000	58,550	193,000	193,000	100,000	64,786	193,000	80,317
Goods & services (subnational) threshold (US\$) ^b	460,000	460,000	477,000	477,000	n.a.	477,000	n.a.	526,000	n.a.	526,000	526,000	n.a.
Construction threshold (US\$ million) ^b	6.5	6.5	6.7	6.7	7.6	6.7	8.4	7.4	7.4	7.4	7.4	10.4
Number of U.S. agencies covered by agreement	78	85	78	79	52	79	50	78	79	78	78	52
Number of U.S. states covered by agreement ^c	37	37	31	23	0	23 (17 for Honduras)	0	11	37	9	9	0
Timely information (Articles XI & VI)	•	•	•	•	•	•	•	•	•	•	•	•
Transparency (Articles XVI & XVII)	•	•	•	•	•	•	•	•	•	•	•	•
Technical specifications (Article X)	•	•	•	•	•	•	•	•	•	•	•	•
Tender documentation (Article X)	•	•	•	•	•	•	•	•	•	•	•	•
Limited tender (Article XIII)	•	•	•	•	•	•	•	•	•	•	•	•
Tender treatment and awards (Article XV)	•	•	•	•	•	•	•	•	•	•	•	•
Corruption- specific provisions	•	—	•	•	•	•	•	•	—	•	•	•
Committee on procurement	•	—	•	—	—	—	—	•	•	•	—	•
SME-specific provisions	—	—	—	—	—	—	—	—	•	—	—	•

Sources: Compiled by USITC from the government procurement provisions of the following U.S. FTAs: Jordan, Chile, Singapore, Australia, CAFTA-DR, Bahrain, Oman, Morocco, Peru, Panama, Colombia, KORUS, and USMCA.

Notes: While U.S.-Israel has a nascent government procurement chapter, it was established before the Uruguay Round Agreement on Government Procurement (GPA). It does note that both parties must apply the provisions of the Tokyo Round Government Procurement code of 1979, which covered central government entities and procurement of goods only. Because both the United States and Israel are party to the revised GPA, government procurement activities between them are covered by that agreement. The FTA with Jordan does not contain government procurement provisions. At the time of negotiation, Jordan was applying to the WTO's GPA. Concerning government procurement, the FTA only notes that "the Parties shall enter into negotiations with regard to Jordan's accession to that Agreement." As of the publication of this report, Jordan is still in the process of acceding to the GPA.

^a The government procurement chapter in USMCA covers only the United States and Mexico. Canada is not a party to the government procurement chapter in USMCA; however, government procurement between Canada and the United States is covered under the revised GPA.

^b Threshold amounts are subject to adjustment through inflation and conversion calculations at the time of tendering. These calculations are detailed in the government procurement annex of the relevant FTA. There may be higher minimum threshold amounts for specific government-owned assets, such as utilities.

^c The number of agencies within a state covered by the chapter varies by state and is noted in the government procurement annex to the relevant FTA.

Table E.5 Investment chapter provisions in U.S. free trade agreements (FTAs)

A round bullet (•) in a column under a particular U.S. FTA or partner country means that the FTA contains the provision described in the row. — (em dash) means the provision is not in the U.S. FTA.

CAFTA-DR = Dominican Republic-Central America-United States Free Trade Agreement; KORUS = United States-Korea Free Trade Agreement; USMCA = United States-Mexico-Canada Agreement; MFN = most-favored-nation.

Provision	Chile	Singapore	Australia	Morocco	CAFTA-DR	Oman	Peru	KORUS	Colombia	Panama	USMCA
National treatment	•	•	•	•	•	•	•	•	•	•	•
MFN treatment	•	•	•	•	•	•	•	•	•	•	•
Grants exceptions to the MFN clause	—	—	—	—	—	—	•	—	—	—	—
Prohibits or limits the use of performance requirements	•	•	•	•	•	•	•	•	•	•	•
Fair and Equitable Treatment (FET)	•	•	•	•	•	•	•	•	•	•	•
Covers direct expropriation	•	•	•	•	•	•	•	•	•	•	•
Covers indirect expropriation	•	•	•	•	•	•	•	•	•	•	• ^a
Includes a state-state dispute settlement mechanism	•	•	•	•	•	•	•	•	•	•	•
Includes an investor-state dispute settlement (ISDS) mechanism	•	•	—	•	•	•	•	•	•	•	• ^b

Source: World Bank Deep Trade Agreements database; compiled by USITC.

Note: U.S. FTAs with Israel, Jordan, and Bahrain are excluded because they do not contain investment chapters. However, the United States has bilateral investment treaties with Jordan and Bahrain. These treaties are similar in design to investment chapters in U.S. FTAs and can contain the same provisions.

^a USMCA limits indirect expropriation. Indirect expropriation will be determined case by cases; nondiscriminatory regulatory measures designed to protect legitimate public welfare objectives (for health, safety, and the environment) do not constitute indirect expropriations. Additionally, with the exception of a handful of Mexican industries, claims of indirect expropriation are not covered by ISDS.

^b USMCA eliminates the use of ISDS between the United States and Canada after a three-year period. It retains ISDS between the United and Mexico under specific circumstances, but investors must first exhaust domestic remedies, or spend 30 months trying, before ISDS is an option. As mentioned above, claims are only allowed for direct expropriation, national treatment, and MFN treatment, not indirect expropriation. Full ISDS is available to U.S. investors in Mexico with a "covered government contract" for investments in five "covered sectors" (oil and gas, power generation, telecommunications, transportation services, and some infrastructure).

Table E.6 E-commerce and digital trade provisions in U.S. free trade agreements (FTAs)

A round bullet (•) in a column under a particular U.S. FTA or partner country means that the FTA contains the provision described in the row. — (em dash) means the provision is not in the U.S. FTA.

CAFTA-DR = Dominican Republic-Central America-United States Free Trade Agreement; KORUS = United States-Korea Free Trade Agreement; USMCA = United States-Mexico-Canada Agreement; WTO = World Trade Organization; ICT = information and communications technology.

Provision	Jordan	Chile	Singapore	Australia	Morocco	Bahrain	CAFTA-DR	Oman	Peru	KORUS	Colombia	Panama	USMCA
Applicability of WTO rules to e-commerce	•	—	•	•	•	•	•	•	•	•	•	•	—
Applicability of trade rules to the digital service supply	—	•	•	•	•	•	•	•	•	•	•	•	•
Duty-free moratorium on digital products	•	•	•	•	•	•	•	•	•	•	•	•	•
Nondiscrimination for digital products (subject to certain exceptions)	—	•	•	•	•	•	•	•	•	•	•	•	•
Pledge for cooperation in the e-commerce and ICT area	•	•	—	—	—	•	—	—	—	—	—	—	•
Pledge to avoid unnecessary regulatory barriers to e-commerce	•	•	•	•	•	•	•	•	•	•	•	—	•
Transparency	•	—	—	—	—	•	—	•	—	•	•	—	—
Consumer protection	•	—	—	•	—	—	•	•	•	•	•	—	•
Authentication, certification, electronic signatures	•	—	—	•	—	—	—	•	•	•	•	—	•
Free flow of information and data	—	—	—	—	—	—	—	—	—	•	—	—	—
Paperless trade administration and customs facilitation	•	—	—	•	—	—	—	•	•	•	•	—	•
Cross-border information flows	—	—	—	—	—	—	—	—	—	•	—	—	•
Location of computing facilities	—	—	—	—	—	—	—	—	—	—	—	—	•

Provision	Jordan	Chile	Singapore	Australia	Morocco	Bahrain	CAFTA-DR	Oman	Peru	KORUS	Colombia	Panama	USMCA
Unsolicited commercial electronic communications	—	—	—	—	—	—	—	—	—	—	—	—	•
Cybersecurity	—	—	—	—	—	—	—	—	—	—	—	—	•
Source code	—	—	—	—	—	—	—	—	—	—	—	—	•
Interactive computer services (internet intermediary liability)	—	—	—	—	—	—	—	—	—	—	—	—	•
Open government data	—	—	—	—	—	—	—	—	—	—	—	—	•

Sources: Compiled by USITC from the e-commerce and digital trade chapters of the following U.S. FTAs: Jordan, Chile, Singapore, Australia, CAFTA-DR, Bahrain, Oman, Morocco, Peru, Panama, Colombia, KORUS, and USMCA.

Notes: The U.S. FTA with Israel does not contain e-commerce or digital trade provisions.

Table E.7 Selected “TRIPS-plus” provisions in U.S. free trade agreements (FTAs).

“TRIPS-plus” provisions are those that exceed the requirements of the WTO’s Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS).

A round bullet (•) in a column under a particular U.S. FTA or partner country means that the FTA contains the provision described in the row. — (em dash) means the provision is not in the U.S. FTA.

CAFTA-DR = Dominican Republic-Central America-United States Free Trade Agreement; KORUS = United States-Korea Free Trade Agreement; USMCA = United States-Mexico-Canada Agreement; IPR = intellectual property right.

Provision	Jordan	Chile	Singapore	Australia	Morocco	Bahrain	CAFTA-DR	Oman	KORUS	Peru	Colombia	Panama	USMCA
Extends copyright term to author’s life plus 70 years or first publication plus at least 70 years for corporate works	—	•	•	•	•	•	•	•	•	•	•	•	•
Requires implementation of Internet Treaties	•	•	•	•	•	•	•	•	•	•	•	•	•
Has provisions on internet service provider liability and safe harbors	—	•	•	•	•	•	•	•	•	•	•	•	•
Requires patent protections for new uses of known products	—	—	—	•	•	•	—	•	•	—	—	—	—
Requires patent term extension for pharmaceuticals for delays in the marketing approval process	•	•	•	•	•	•	•	•	•	— ^a	— ^a	— ^a	— ^b
Requires linkage of regulatory approval and patent status	•	•	•	•	•	•	•	•	•	— ^c	— ^c	— ^c	— ^c
Requires five years protection for pharmaceutical data	—	•	•	•	•	•	•	•	•	— ^d	— ^d	— ^d	— ^e
Requires recognition of sound and/or scent trademarks	—	•	•	•	•	•	•	•	•	•	•	•	•
Requires greater protections for well-known trademarks	•	•	•	•	•	•	•	•	•	•	•	•	•
Facilitates use of trademarks instead of geographical indications	•	•	•	•	•	•	•	•	•	•	•	•	•
Requires adoption of domain name dispute resolution system	—	•	•	•	•	•	•	•	•	•	•	•	•
Requires presumptions to facilitate proof of IPR ownership	•	•	•	•	•	•	•	•	•	•	•	•	•
Requires statutory damages, costs, and/or attorneys’ fees be made available	•	•	•	•	•	•	•	•	•	•	•	•	•
Enhances border enforcement measures	•	•	•	•	•	•	•	•	•	•	•	•	•
Provides criminal remedies for commercial-scale infringement and deterrent penalties	•	•	•	•	•	•	•	•	•	•	•	•	•

Sources: Compiled by USITC from the intellectual property chapters of the following U.S. FTAs: Israel, Jordan, Chile, Singapore, Australia, CAFTA-DR, Bahrain, Oman, Morocco, Peru, Panama, Colombia, KORUS, and USMCA.

Notes: U.S. FTA with Israel is not included because it contains no TRIPS-plus provisions.

^a Patent term extension requires Peru, Colombia, and Panama to use best efforts to expedite regulatory approval.

^b USMCA permits limits on the scope and timing of patent term extensions.

^c Patent linkage may be conditioned on notice and an opportunity to be heard, and effective rewards for a generic company’s successful patent challenge.

^d Data exclusivity cannot extend beyond the U.S. term, subject to certain conditions.

^e Based on 2019 revisions, USMCA does not include a 10-year period of data exclusivity for biologics, or an additional 3-year period for data supporting new uses of known products.

Table E.8 Labor provisions in U.S. free trade agreements (FTAs)

A round bullet (•) in a column under a particular U.S. FTA or partner country means that the FTA contains the provision described in the row. — (em dash) means the provision is not in the U.S. FTA. An * (asterisk) means the provision is not applicable.

CAFTA-DR = Dominican Republic-Central America-United States Free Trade Agreement; KORUS = United States-Korea Free Trade Agreement; NAFTA = North American Free Trade Agreement; USMCA = United States-Mexico-Canada Agreement; ILO = International Labour Organization.

Provision	Israel	NAFTA	Jordan	Chile	Singapore	Australia	Morocco	Bahrain	CAFTA-DR	Oman	Peru	KORUS	Colombia	Panama	USMCA
Labor laws defined to include measures affecting freedom of association; collective bargaining; forced labor; child labor; discrimination in employment and occupation; and acceptable work conditions.	—	• ^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				
Must adopt high standards in domestic labor laws and regulations.	—	—	—	—	—	—	—	—	—	—	•	•	•	•	•
Prohibit imports of goods produced using forced or compulsory labor.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	•
Address violence and threats of violence against workers.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	•
Ensure that their labor regulations protect migrant workers.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	•
Protect workers from discrimination.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	•
Includes specific government agency contact on labor issues.	—	•	—	•	•	•	•	•	•	•	•	•	•	•	•
Includes labor affairs council.	—	—	—	•	—	—	—	•	•	•	•	•	•	•	•

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Provision	Israel	NAFTA	Jordan	Chile	Singapore	Australia	Morocco	Bahrain	CAFTA-DR	Oman	Peru	KORUS	Colombia	Panama	USMCA
Includes labor cooperation.	—	—	—	•	•	—	•	•	•	•	•	•	•	•	•
Includes technical assistance/capacity building.	—	—	—	•	•	•	•	•	•	•	•	•	•	•	•
Provides for access to domestic tribunals or other judicial bodies with respect to labor laws.	—	—	—	•	•	•	•	•	•	•	•	•	•	•	•
Makes all provisions enforceable using the agreement dispute settlement chapter.	—	—	•	—	—	—	—	—	—	—	•	•	•	•	• ^d
Violations are assumed to occur "in a manner affecting trade and investment" unless proven otherwise.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	•

Sources: Compiled by USITC from the following FTAs: Israel, Jordan, NAFTA, Chile, Singapore, Australia, CAFTA-DR, Bahrain, Oman, Morocco, Peru, Panama, Colombia, KORUS and USMCA.

Notes: The provisions listed in this chart are limited to general application measures that appear in the text of the labor chapters, labor annexes, and labor side agreements of these agreements.

Provisions that are found in other sections of these agreements (such as in dispute settlement chapters) and provisions that address conditions in a specific member country (such as USMCA provisions that obligate Mexico to adopt laws that protect workers' right to unionize and bargain collectively) are not included in this table. This table provides a summary of labor provisions contained in U.S. FTAs, organized by types of provisions as categorized by USITC. 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.

^d In addition to the dispute settlement procedures included in previous agreements, the USMCA dispute settlement chapter includes a "Facility-Specific Rapid Response Labor Mechanism."

Table E.9 Environmental provisions in U.S. free trade agreements (FTAs)

A round bullet (•) in a column under a particular U.S. FTA or partner country means that the FTA contains the provision described in the row. — (em dash) means the provision is not in the U.S. FTA.

CAFTA-DR = Dominican Republic-Central America-United States Free Trade Agreement; KORUS = United States-Korea Free Trade Agreement; NAAEC = North American Agreement on Environmental Cooperation; NAFTA = North American Free Trade Agreement; USMCA = United States-Mexico-Canada Agreement.

Provision	NAFTA	Jordan	Chile	Singapore	Australia	Morocco	Bahrain	CAFTA-	DR	Oman	Peru	KORUS	Colombia	Panama	USMCA
Improve levels of protection	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Enforcement of domestic environmental law	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Environmental obligations will be enforced on the same basis as all FTA obligations	—	—	—	—	—	—	—	—	—	—	•	•	•	•	•
Ensure judicial remedies for violations of environmental law	•	—	•	•	•	•	•	•	•	•	•	•	•	•	•
Voluntary mechanisms to enhance environmental performance	—	—	—	—	•	•	•	•	•	•	•	•	•	•	•
Multilateral environmental agreements referenced generally	•	—	•	•	•	•	•	•	•	•	•	•	•	•	•
Commitment to specific multilateral environmental agreements in the trade agreement	•	—	—	—	—	—	—	—	—	—	•	•	•	•	•
Opportunities for public participation	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Inter-party committee	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Inter-party secretariat	•	—	—	—	—	—	—	•	—	•	•	•	•	•	•

Provision	NAFTA	Jordan	Chile	Singapore	Australia	Morocco	Bahrain	CAFTA-						
								DR	Oman	Peru	KORUS	Colombia	Panama	USMCA
Any person of a party may file an enforcement submission with FTA's secretariat	•	—	—	—	—	—	—	•	—	•	—	•	•	•
Factual records and related cooperation	•	—	—	—	—	—	—	•	—	•	—	•	•	•
Articles on specific environmental issues covering all parties (e.g., biological diversity)	•	—	—	—	—	—	—	—	—	•	—	•	—	•
USTR environmental review required	—	•	•	•	•	•	•	•	•	•	•	•	•	•
Violations assumed to occur "in a manner affecting trade and investment" unless proven otherwise	—	—	—	—	—	—	—	—	—	—	—	—	—	•

Source: Compiled by USITC from the following U.S. FTAs: NAFTA/NAAEC, Jordan, Chile, Singapore, Australia, Morocco, Bahrain, CAFTA-DR, Oman, Peru, Korea, Colombia, Panama, and USMCA, and a review of analysis covering 130 environmental provisions in Jinnah and Morin, "Greening through Trade," 2020, 42–51.

Notes: The FTA with Israel is not included because it does not contain environment-related provisions.

Table E.10 State-to-state dispute settlement provisions in U.S. free trade agreements (FTAs)

A round bullet (•) in a column under a particular U.S. FTA or partner country means that the FTA contains the provision described in the row. — (em dash) means the provision is not in the U.S. FTA.

CAFTA-DR = Dominican Republic-Central America-United States Free Trade Agreement; KORUS = United States-Korea Free Trade Agreement; USMCA = United States-Mexico-Canada Agreement; WTO = World Trade Organization.

Provision	Israel	Jordan	Chile	Singapore	Australia	Morocco	Bahrain	CAFTA-DR	Oman	Peru	KORUS	Colombia	Panama	USMCA
Scope: includes nullification or impairment of reasonably expected benefits of certain provisions	—	—	•	•	•	•	•	•	•	•	•	•	•	•
Choice of forum: complainant chooses (i.e., under WTO or FTA mechanisms but not both)	—	—	•	•	•	•	•	•	•	•	•	•	•	•
Consultations: parties may request and also refer matters to joint committees formed under the agreements	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Qualifications: panelists must have trade expertise, objectivity, and independence	—	—	•	•	•	•	•	•	•	•	•	•	•	•
Transparency rules: hearings and submissions are public, with exception of confidential information	—	—	•	•	•	•	•	•	•	•	•	•	•	•
Appropriate remedies available if violations not addressed (such as suspension of benefits, compensation, or monetary assessment)	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Non-implementation and compliance proceedings available	—	—	•	•	•	•	•	•	•	•	•	•	•	•
Monetary assessments only for labor or environmental matters (not suspension of benefits)	—	—	•	•	•	•	•	•	•	—	—	—	—	—

Sources: Compiled by USITC from the following U.S. FTAs: Israel, Jordan, Chile, Singapore, Australia, CAFTA-DR, Bahrain, Oman, Morocco, Peru, Panama, Colombia, KORUS and USMCA.

Notes: USMCA includes a specific dispute settlement tool for certain labor matters involving Mexico: the facility-specific rapid response labor mechanism.

Appendix F

Modeling

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

Gravity Model of Trade and Investment

The Commission used a structural gravity model to obtain its estimates of the effects of barriers to cross-border trade and investment from bilateral U.S. reciprocal trade agreements (RTAs).⁹⁸⁷ Following Yotov et al. (2016),⁹⁸⁸ a theory-consistent gravity model on international trade and investment is given as:

$$T_{ijt} = \exp(\beta_1 TP_{ijt} + S_{it} + D_{jt} + \lambda_{ij}) * \epsilon_{ijt} \quad (1)$$

T_{ijt} here can represent cross-border trade in goods, cross-border trade in services, investment, or foreign affiliate sales. TP_{ijt} represents the time-varying bilateral trade policies such as RTAs that can influence bilateral patterns of trade and investment. S_{it} and D_{jt} are the country-specific terms capturing all exporter-year and importer-year characteristics; these fixed effects are required to absorb the multilateral resistance terms arising from a structural gravity framework. As in Baier and Bergstrand (2007), country-pair fixed effects λ_{ij} are also included to capture the endogenous links between trade policy and other bilateral determinants of trade, ensuring that β_1 represents the average treatment effect of the trade policy in question.⁹⁸⁹

The Commission modified the gravity framework in (1) to capture the potentially heterogenous effects of U.S. FTAs on trade and investment while minding practical data limitations. For instance, the Commission's estimates of barriers to trade in goods look at agreement-specific effects of U.S. FTAs, while its estimates of barriers to trade in services focus on an average RTA effect for all RTAs, both U.S. and non-U.S. agreements, that contain services provisions. Similarly, the Commission's analysis on trade in goods and services was performed at the GTAP sector level, while its estimates on investment were at the aggregate level.

Following Santos Silva and Tenreyro (2006), the Commission relied on the Poisson Pseudo Maximum Likelihood (PPML) estimator for its structural gravity modeling.⁹⁹⁰ This estimator accounts for

⁹⁸⁷ Due to data limitations, the Commission's modeling analysis is for the most part limited to only U.S. bilateral agreements signed under a trade promotion agreement (TPA). One exception is the Commission's model estimating barriers to trade goods, which also covers U.S. agreements signed under the Uruguay Round.

⁹⁸⁸ Yotov et al., "[An Advanced Guide](#)," 2016.

⁹⁸⁹ Baier and Bergstrand, "[Do Free Trade Agreements?](#)" 2007. Note that country-pair fixed effects absorb all bilateral time-invariant factors such as geographic and cultural proximity in the estimations.

⁹⁹⁰ Santos Silva and Tenreyro, "[The Log of Gravity](#)," 2006.

unobserved heteroskedasticity in the trade data.⁹⁹¹ The PPML estimator is also able to handle zero values common in the sector-level bilateral trade data. In the estimations, standard errors were clustered at the country-pair level.⁹⁹²

Impacts of the Agreements on Barriers to Cross-border Trade in Goods

The Commission modified equation (1) to estimate the isolated effects of specific U.S. trade agreements on barriers to cross-border trade in goods. Following Baier, Yotov, and Zylkin (2019), the econometric specification is given as:

$$X_{ijt} = \exp(\sum_{m \in M} (\beta_m TA_{ijt}^m) + \sum_d (\theta_d DOM_{ijt}) + \gamma_1 WTO_{ijt} + \gamma_2 EU_{ijt} + S_{it} + D_{jt} + \lambda_{ij}) * \epsilon_{ijt} \quad (2)$$

Exports of goods from country i to country j in year t is denoted by X_{ijt} . Importantly, information on domestic trade is also included which allows for improved estimation of international trade frictions. The explanatory variables on the right-hand side include a collection of indicators for trade agreements (TAs) denoted by TA_{ijt}^m ; indicators for domestic trade denoted by DOM_{ijt} , which take a value of 1 if $i = j$; and indicators for joint World Trade Organization (WTO) and European Union (EU) membership denoted by WTO_{ijt} and EU_{ijt} , respectively. In the estimations, the effects of U.S. trade agreements are identified using a collection of indicator variables for each U.S. agreement—a separate β_m is estimated for each U.S. TA. On the other hand, trade agreements between other countries of the world are grouped together under a single TA indicator, reflecting the effect of all other TAs combined in the estimation.⁹⁹³ Thus, the set of TA variables (M) contains 17 indicators (16 TPA agreement indicators and 1 non-TPA agreement indicator).

As the necessary period of analysis covers multiple decades during which U.S. agreements were signed and requires information about domestic trade, trade data from multiple sources were used. First, data covering manufacturing, mining, and agriculture for the years 2000–2016 were sourced from the International Trade and Production Database for Estimation (ITPD-E) of Borchert et al. (2020).⁹⁹⁴ To cover earlier years, manufacturing trade data for 1980–2006 was sourced from the TradeProd database of de Sousa, Mayer, and Zignago (2012).⁹⁹⁵ Information about FTA, WTO, and EU membership was

⁹⁹¹ Heteroskedasticity refers to cases in which the variance of an independent variable is unequal for different values of the dependent variable.

⁹⁹² The estimations were conducted using the PPML tools of Correia, Guimarães, and Zylkin, “[Fast Poisson Estimation](#),” 2019; and Correia, Guimarães, and Zylkin, “[Verifying the Existence](#),” 2019.

⁹⁹³ The set of trade agreements is based on the preferential trade agreement variable of Gurevich and Herman “[Dynamic Gravity Dataset](#),” 2018, which reflects four types of agreements: free trade agreements, customs unions, partial scope agreements, and economic integration agreements.

⁹⁹⁴ Borchert et al., “[The International Trade and Production Database](#),” 2020. The data and additional information are available at <https://www.usitc.gov/data/gravity/itpde.htm>.

⁹⁹⁵ De Sousa, Mayer, and Zignago, “[Market Access](#),” 2012. The data and additional information are available at http://www.cepii.fr/cepii/en/bdd_modele/presentation.asp?id=5.

obtained from the Dynamic Gravity dataset of Gurevich and Herman (2018).⁹⁹⁶ Similarly, agriculture trade for 1991–2006 was sourced from FAOSTAT.⁹⁹⁷ In each case, the years of coverage were based on the data available from each source. While the ITPD-E and TradeProd databases contain information on domestic trade, the FAOSTAT database does not. Instead, domestic trade flows were constructed from the FAOSTAT data using domestic production and trade. Specifically, domestic trade was defined as total production of each crop minus total exports for each country and year in the sample.

All trade data were concorded at the GTAP sector level, and the gravity models were estimated separately for each of the 41 GTAP goods sectors in the sample as well as for aggregate trade across all these sectors. Since trade data sources may not be fully consistent or compatible with one another, specifications using the different trade data sources were estimated separately. The ITPD-E data was used to estimate the effects of the U.S. agreements that were signed between 2004 and 2016, including U.S.-Singapore, U.S.-Chile, U.S.-Australia, U.S.-Morocco, U.S.-Bahrain, Dominican Republic-Central America-United States Free Trade Agreement (CAFTA-DR), U.S.-Oman, Peru, U.S.-Korea (KORUS), Colombia, and Panama. The TradeProd data were used to estimate the effects the earlier agreements, including U.S.-Israel, U.S.-Canada Free Trade Agreement (CUSFTA), North American Free Trade Agreement (NAFTA), and U.S.-Jordan.

The gravity models estimate measures of the average impact that each trade agreement has had on the trade flows that occurred between all partner countries within the agreement. In order to provide a more intuitive interpretation of the results, the estimated impacts are presented as a tariff rate, in ad valorem equivalent terms.⁹⁹⁸ This is done by determining the tariff rate reduction that would have had the same impact on trade as each U.S. agreement.⁹⁹⁹ For example, the Commission’s analysis estimated that NAFTA increased trade flows between Canada, Mexico, and the United States—on average—by the same amount as an 8.15 percentage point reduction in ad valorem equivalent tariffs would have. These values reflect average impacts across all trade flows occurring after the trade agreement entered into force. To illustrate, NAFTA’s 8.15 percent tariff reduction equivalent effect is reflective of the average impact across all six NAFTA trade flows: Canada’s imports from Mexico and the United States, Mexico’s imports from Canada and the United States, and the United States’ imports from Canada and Mexico.

⁹⁹⁶ Gurevich and Herman, “[The Dynamic Gravity Dataset](#),” 2018. Details on the construction of the Dynamic Gravity dataset are presented in its technical documentation, which can be found at

https://www.usitc.gov/sites/default/files/data/gravity/dynamic_gravity_technical_documentation_v1_00_1.pdf.

⁹⁹⁷ [FAO stat database](#), accessed April 13, 2021.

⁹⁹⁸ An ad valorem equivalent computation allows trade costs to be expressed as a percentage of the price of imported good.

⁹⁹⁹ Tariff equivalents were calculated as in Yotov et al., “[An Advanced Guide](#),” 2016, using elasticities of substitution at the sector level. The elasticities of substitution were not estimated from the model; instead, their values were taken directly from the economy-wide model in order to ensure consistency between the two models.

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Tables F.1, F.2, and F.3 report estimates of the tariff equivalents at GTAP sector level for all U.S. bilateral agreements signed between 1985 and 2012.

Table F.1 Sectoral estimates of the impact of U.S. trade agreements signed between 1985 and 2001

An asterisk (*) = no significant reduction in barriers to trade at the GTAP sector level from an FTA.

GTAP sector	GTAP code	US-Israel	CUSFTA	NAFTA	US-Jordan
Wheat	wht	*	*	16.2	*
Cereal grains	gro	*	*	27.8	-15.9
Vegetables, fruit, nuts	v_f	*	*	4.2	12.6
Oil seeds	osd	*	*	*	94.9
Plant-based fibers	pfb	*	*	*	-23.7
Crops	ocr	*	*	*	33.6
Animal products	oap	*	*	*	*
Raw milk	rmk	*	*	*	52.3
Wool	wol	*	*	*	*
Bovine meat	cmt	*	*	*	-13.8
Meat products	omt	*	*	*	*
Vegetable oils and fats	vol	*	*	-13.7	*
Other food	ofd	7.0	*	15.9	*
Beverages and tobacco	b_t	0.0	8.8	10.6	-19.7
Manufacture of textiles	tex	11.6	4.4	12.7	113.1
Manufacture of wearing apparel	wap	42.9	3.9	28.8	144.5
Manufacture of leather	lea	22.0	-3.6	9.8	14.6
Lumber	lum	18.7	-6.1	*	8.2
Paper and paper products	ppp	5.4	-2.2	7.3	9.3
Petroleum and coke	p_c	271.5	*	26.0	-28.3
Manufacture of chemicals	chm	4.3	-3.0	4.1	5.0
Manufacture of rubber and plastics	rpp	10.7	-9.1	11.0	8.3
Manufacture of other nonmetallic mineral products	nmm	34.3	-3.9	11.2	*
Iron and steel	i_s	-4.8	*	4.6	12.5
Nonferrous metals	nfm	-3.7	37.4	*	26.5
Manufacture of fabricated metal	fmp	22.1	*	53.8	10.9
Manufacture of computer, electronic and optical products	ele	35.3	-14.3	12.5	9.0
Manufacture of electrical equipment	eeq	24.2	-4.1	0.0	0.0
Manufacture of machinery and equipment	ome	35.2	-7.0	*	4.5
Manufacture of motor vehicles, trailers and semi-trailers	mvh	8.6	-7.0	14.5	-10.2
Manufacture of other transport	otn	5.5	-4.6	9.2	-6.7
Other manufacturing	omf	*	*	*	13.0

Source: USITC estimates.

Table F.2 Sectoral estimates of the impact of U.S. trade agreements signed 2002–2007

An asterisk (*) symbol = no significant reduction in barriers to trade at the GTAP sector level from an FTA.

GTAP sector	GTAP code	US-Singapore	US-Chile	US-Australia	US-Morocco	US-Bahrain	US-CAFTA-DR
All sectors	AGG	*	9.9	*	13.6	6.0	5.3
Rice	pdr	*	17.8	*	*	34.2	*
Wheat	wht	*	9.3	40.9	5.8	-12.9	*
Other grains	gro	88.5	-22.8	-49.1	*	34.1	-27.4
Vegetables and fruit	v_f	*	*	*	31.1	9.8	-4.3
Oil seeds	osd	17.0	19.0	-21.6	12.6	-11.8	-7.6
Sugar cane and beet	c_b	*	-34.2	*	*	*	*
Fiber crops	pfb	*	*	*	43.3	-31.7	7.0
Other crops	ocr	*	*	-8.7	16.1	17.6	*
Cattle	ctl	27.7	*	-5.9	37.2	32.2	*
Other animal products	oap	*	-31.9	-22.5	56.4	*	*
Wool	wol	*	*	*	24.9	10.7	*
Oil	oil	*	16.8	-13.2	-63.0	-11.8	20.6
Gas	gas	*	4.8	-4.2	-26.0	-3.7	5.8
Cattle meat	cmt	*	*	*	45.1	18.5	*
Other meat	omt	4.0	*	-4.6	6.92	-17.9	5.4
Vegetable oils	vol	19.1	15.5	-17.7	29.0	*	-4.4
Milk	mil	*	14.3	8.8	64.1	30.0	4.2
Sugar and molasses	sgr	18.3	84.5	*	-23.6	-31.6	*
Other food	ofd	10.9	14.9	9.3	22.1	33.7	*
Beverages and tobacco	b_t	-28.8	22.7	34.0	-28.0	-34.8	*
Manufacture of textiles	tex	*	6.9	*	5.9	16.6	*
Manufacture of wearing apparel	wap	*	11.3	-6.1	*	*	-7.4
Manufacture of leather	lea	4.7	12.7	*	7.5	*	*
Lumber	lum	*	*	2.4	6.2	10.4	*
Paper and paper products	ppp	-4.1	8.1	-1.7	9.8	8.8	3.2
Petroleum and coke	p_c	-8.1	26.9	-32.9	13.1	*	*
Manufacture of chemicals	chm	-5.4	2.1	-4.9	18.6	5.5	*
Manufacture of pharmaceuticals	bph	-5.3	*	-5.7	3.3	*	*
Manufacture of rubber and plastics	rpp	6.0	8.9	2.0	11.4	22.0	2.9
Manufacture of other nonmetallic mineral	nmm	*	*	2.8	*	12.2	*
Iron and steel	i_s	-2.5	10.1	-7.4	*	3.4	*
Nonferrous metals	nfm	3.7	7.1	2.5	5.4	7.7	*
Manufacture of fabricated metal	fmp	4.6	*	*	-2.5	*	4.5
Manufacture of computer, electronic and optical products	ele	-1.8	*	*	*	5.2	3.7
Manufacture of electrical equipment	eeq	6.4	*	1.2	8.54	6.4	*

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GTAP sector	GTAP code	US-Singapore	US-Chile	US-Australia	US-Morocco	US-Bahrain	US-CAFTA-DR
Manufacture of machinery and equipment	ome	*	2.8	*	4.29	6.5	*
Manufacture of motor vehicles, trailers	mvh	4.8	10.0	*	24.1	11.1	*
Manufacture of other transport equipment	otn	*	23.1	-8.3	*	13.5	*
Other manufacturing	omf	4.3	-6.4	4.2	*	*	-6.2
Electricity	ely	*	*	*	*	*	-75.8

Source: USITC estimates.

Table F.3 Sectoral estimates of the impact of U.S. trade agreements signed 2008–2013

An asterisk (*) symbol = no significant reduction in barriers to trade at the GTAP sector level from an FTA.

GTAP sector	GTAP code	US-Oman	US-Peru	KORUS	US-Columbia	US-Panama
All sectors	AGG	11.9	7.6	3.5	*	-6.1
Rice	pdr	*	*	*	*	9.0
Wheat	wht	21.5	*	3.9	-3.2	*
Other grains	gro	*	111.4	*	53.5	*
Vegetables and fruit	v_f	*	-8.2	4.1	-11.8	-9.3
Oil seeds	osd	54.1	17.1	-8.8	20.0	50.5
Sugar cane and beet	c_b	-21.1	-25.5	*	-37.0	*
Fiber crops	pfb	19.0	20.1	5.7	*	15.4
Other crops	ocr	37.2	-2.2	3.0	*	-8.0
Cattle	ctl	46.7	*	*	*	*
Other animal products	oap	48.1	*	*	-15.6	-16.8
Wool	wol	*	*	4.5	-5.8	*
Oil	oil	4.5	*	*	*	10.1
Gas	gas	1.3	*	*	*	3.0
Cattle meat	cmt	*	*	7.6	-9.5	*
Other meat	omt	*	9.5	*	*	*
Vegetable oils	vol	*	13.2	-7.6	9.7	-42.6
Milk	mil	-6.2	11.8	4.1	10.1	-34.3
Sugar and molasses	sgr	*	-10.4	13.8	11.6	*
Other Food	ofd	22.5	52.9	15.8	18.7	*
Beverages and tobacco	b_t	-30.4	129.8	52.9	*	28.4
Manufacture of textiles	tex	*	3.5	*	-1.9	*
Manufacture of wearing apparel	wap	-23.4	*	-10.2	*	*
Manufacture of leather	lea	12.4	5.3	*	*	*
Lumber	lum	*	*	-8.5	-8.9	-18.4
Paper and paper products	ppp	4.3	7.2	-1.9	-4.6	-24.1
Petroleum and coke	p_c	*	*	*	7.5	-67.1
Manufacture of chemicals	chm	18.9	*	*	-2.3	*
Manufacture of pharmaceuticals	bph	13.5	4.3	6.4	*	-5.9

GTAP sector	GTAP code	US-Oman	US-Peru	KORUS	US-Columbia	US-Panama
Manufacture of rubber and plastics	rpp	43.3	4.1	*	*	-16.3
Manufacture of other nonmetallic mineral	nmm	-14.0	-11.7	*	-12.2	-17.5
Iron and steel	i_s	12.3	*	*	*	-37.2
Nonferrous metals	nfm	*	*	5.0	5.8	-10.7
Manufacture of fabricated metal	fmp	22.9	*	*	*	-18.4
Manufacture of computer, electronic and optical products	ele	6.4	*	-5.0	*	-7.1
Manufacture of electrical equipment	eeq	9.6	-2.0	*	-2.8	-9.7
Manufacture of machinery and equipment	ome	1.4	1.3	*	-2.8	-13.9
Manufacture of motor vehicles, trailers	mvh	8.4	*	5.9	*	-35.1
Manufacture of other transport equipment	otn	-5.3	-3.8	-2.8	-7.6	-10.2
Other manufacturing	omf	7.0	-9.8	-7.7	*	-9.1
Electricity	ely	*	-52.7	*	*	*

Source: USITC estimates

Impacts of the Agreements on Barriers to Cross-border Trade in Services

A sector-specific gravity model is used to assess the impact from agreements with services provisions on cross-border trade in services:¹⁰⁰⁰

$$Trade_in_Services_{ijt}^k = \exp(\beta_1 ServicesRTA_{ijt} + \beta_2 EU_{ijt} + S_{it} + D_{jt} + \lambda_{ij}) * \epsilon_{ijt} \quad (3)$$

The variable $Trade_in_Services_{ijt}^k$ is the bilateral exports of services in a GTAP sector k between origin country i and destination country j in time t . The $ServicesRTA_{ijt}$ is a dummy variable equal to 1 if countries i and j have an RTA in year t with at least one services provision.¹⁰⁰¹ EU_{ijt} controls for

¹⁰⁰⁰ Due to data limitations, the Commission focuses on estimating an average effect on trade in services from all RTAs with services provisions, both U.S. and non-U.S. agreements. The effect of RTAs with services provisions on foreign affiliate sales in services is presented as a standalone analysis later in the chapter.

¹⁰⁰¹ The $ServicesRTA$ dummy takes a zero value when a country pair either have an RTA without any services provisions or when they do not have any agreement between them. Thus, the underlying assumption is that only RTAs with services provisions have an effect on cross-border trade in services. A similar approach has been used by Borchert and Ubaldo, “[Deep Services Trade Agreements](#),” 2021, to study the effects of agreements with services provisions on cross-border services trade and countries’ engagement in global value chains.

membership in the European Union.¹⁰⁰² The fixed effects have the same interpretation as in equation (1).

Cross-border services trade data are taken from the ITPD-E.¹⁰⁰³ Data on trade agreements and services provisions are from the World Bank's Deep Trade Agreement (DTA) dataset.¹⁰⁰⁴ The DTA contains information on trade agreements by provisions as well as by country pairs and years. Merging these two datasets results in instances of overlapping agreements between country pairs. Cases of overlapping agreements were resolved by keeping agreements with the most liberal services provision for each country-pair year (based on liberalization approach of the agreements, among other criteria).¹⁰⁰⁵ For a few remaining overlaps, agreements with the most services provisions, and then those that most recently entered into force, have been kept. The full list of the 82 agreements with services provisions are presented in table F.4.¹⁰⁰⁶

Table F.4 List of agreements with services provisions, World Bank's Deep Trade Agreements Dataset and the International Trade and Production Database

Korea is the Republic of Korea; EFTA is the European Free Trade Association; ASEAN is the Association of Southeast Asian Nations.

Agreement	Year of entry into force
EFTA	1960
Australia-New Zealand	1983
North American Free Trade Agreement	1994
Canada-Chile	1997
Chile-Mexico	1999
EU-Mexico	2000
EFTA-Mexico	2001
New Zealand-Singapore	2001
EU-Macedonia	2001
United States-Jordan	2001
Japan-Singapore	2002
Canada-Costa Rica	2002
EFTA-Singapore	2003
Singapore-Australia	2003
China-Macao, China	2003
EU-Chile	2003
United States-Chile	2004
United States-Singapore	2004
China-Hong Kong, China	2004
Korea-Chile	2004
EFTA-Chile	2004

¹⁰⁰² As the ITPD-E sample is from 2000 to 2016, the EU dummy also controls for the accession of Cyprus (2004), Malta (2004), Hungary (2004), Poland (2004), Romania (2007), Bulgaria (2007), and Croatia (2013).

¹⁰⁰³ Borchert et al., “[The International Trade and Production Database](#),” International Economics, August 2020.

¹⁰⁰⁴ “[Deep Trade Agreements \(DTAs\)](#),” accessed November 17, 2020 (see the Excel file “dataset-on-the-intensive-margin-july-2020” listed under “DTA 2. Information by Trade agreements”).

¹⁰⁰⁵ For example, during 2006–2016, Costa Rica and Guatemala were parties to both the Central American Common Market (CACM) and the Dominican Republic-Central America-United States Free Trade Agreement (CAFTA-DR). For those years, the latter agreement replaces the former as the CAFTA-DR takes a broader approach to services liberalization.

¹⁰⁰⁶ USITC's Dynamic Gravity Data (DGD) was used to supplement ITPD-E country pairs with missing agreements in the DTA data. Observations for the United States and the Dominican Republic were also added as the DTA was missing information for this country pair.

Agreement	Year of entry into force
United States-Australia	2005
Thailand-Australia	2005
Japan-Mexico	2005
ASEAN-China	2005
Thailand-New Zealand	2005
India-Singapore	2005
United States-Morocco	2006
Korea-Singapore	2006
Dominican Republic-Central America–United States (CAFTA - DR)	2006
Japan - Malaysia	2006
EFTA-Korea	2006
United States-Bahrain	2006
Trans-Pacific Strategic Economic Partnership	2006
Chile-China	2006
Chile-Japan	2007
Japan-Thailand	2007
EU-Montenegro	2008
Pakistan-Malaysia	2008
Panama-Chile	2008
Japan-Indonesia	2008
Japan-Philippines	2008
China-New Zealand	2008
United States-Oman	2009
United States-Peru	2009
China-Singapore	2009
Australia-Chile	2009
Chile-Colombia	2009
Japan-Switzerland	2009
Japan-Viet Nam	2009
Peru-Chile	2009
ASEAN-Australia-New Zealand	2010
EU-Serbia	2010
ASEAN-India	2010
Chile-Guatemala	2010
ASEAN-Korea	2010
Korea-India	2010
Hong Kong, China-New Zealand	2011
EU-Korea	2011
India-Japan	2011
Canada-Colombia	2011
Korea-United States	2012
U.S.-Colombia	2012
EFTA-Ukraine	2012
EFTA-Hong Kong, China	2012
United States-Panama	2012
EU-Colombia and Peru	2013
New Zealand-Chinese Taipei	2013
Switzerland-China	2014
EU-Ukraine	2014
Iceland-China	2014

Agreement	Year of entry into force
Hong Kong, China-Chile	2014
Korea-Australia	2014
Canada-Honduras	2014
Eurasian Economic Union	2015
Japan-Australia	2015
Canada-Korea	2015
Korea-New Zealand	2015
Australia-China	2015
China-Korea	2015
Korea-Vietnam	2015
Pacific Alliance	2016

Source: Compiled by USITC staff.

The gravity models were estimated at the level of GTAP services sectors for the years 2000–2016.¹⁰⁰⁷ However, trade agreements do not directly address all the services sectors in the economy. Thus, the Commission estimated the impact from RTAs with services provisions only for those core services sectors that are typically covered within trade agreements and/or have sector-specific trade policies that agreements may legally bind. Estimations were not conducted for non-core services sectors that are not directly addressed in trade agreements. For example, a number of sectors included in the non-core services category such as education and health services are typically not traded across borders, but instead supplied via mode 2-consumption abroad (travel of consumers to suppliers' territory).¹⁰⁰⁸ Since most U.S. agreements do not include provisions on movement of natural persons, non-core services sectors should not be directly impacted by U.S. FTAs. Table F.5 shows the Commission's classification of GTAP services sectors either as core services or as non-core services.

Table F.5 Classification of Global Trade Analysis Project (GTAP) services sectors

GTAP services sector	GTAP code	Category
Construction	cns	Core
Wholesale and retail trade	trd	Core
Accommodation and food services	afs	Non-core
Other transport, water, air, and warehousing	otp, wtp, atp, whs	Non-core
Communications	cmn	Core
Financial services	ofi	Core
Insurance	isr	Core
Other business services	obs	Core
Recreation and other services	ros	Non-core
Government services	osg	Non-core
Education	edu	Non-core
Health and social work	hht	Non-core
Dwellings	dwe	Non-core

¹⁰⁰⁷ The Commission developed a concordance between the services sectors in ITPD-E and GTAP. For most part, there was a one-to-one match between the services sectors in ITPD-E and GTAP. An exception was the Other Business Services sector in GTAP, which was concorded to the following three ITPD-E sectors: other business services, charges for the use of intellectual property, and computer and information services. The current ITPD-E release does not provide data on Real Estate activities and so the corresponding GTAP sector (rsa) was not included.

¹⁰⁰⁸ Mann, “[Measuring Trade in Services by Mode of Supply](#),” 2019.

Source: USITC estimates.

Table F.6 reports the Commission's estimates of the impact of reciprocal trade agreements (RTAs) with services provisions on cross-border trade in services for the set of core GTAP services sectors described above. For those GTAP sectors that saw a significant effect, the Commission computed the tariff equivalent reductions in barriers from RTAs with services provisions.¹⁰⁰⁹ These estimates are reported in table 3.3 in chapter 3.

Table F.6 Estimates of the effects from reciprocal trade agreements (RTAs) with services provisions at the GTAP sector level

Variable	Communication	Construction	Insurance	Business services	Financial	Retail and wholesale
estimates and standard errors						
RTA services estimate	0.406*** (0.12)	-0.153 (0.24)	0.197 (0.15)	0.572*** (0.10)	0.496*** (0.11)	0.258* (0.16)
EU membership estimate	1.260*** (0.09)	0.381** (0.15)	1.122*** (0.13)	1.159*** (0.08)	1.799*** (0.14)	1.334*** (0.11)
Number of observations	56,407	41,656	46,584	64,367	49,275	42,480

Source: USITC estimates.

Note: Standard errors are clustered at the country-pair level. *** p<0.01, ** p<0.05, * p<0.1

Impacts of U.S. Bilateral and Regional Trade Agreements on Foreign Direct Investment

The Commission modified equation (1) to estimate the effects of RTAs with investment provisions on foreign direct investment (FDI).¹⁰¹⁰ The baseline model is as follows:

$$FDI_{ijt} = \exp(\beta_1 RTA_INV_{ijt} + \beta_2 BIT_{ijt} + \beta_3 EU_{ijt} + \beta_4 CU_{ijt} + S_{it} + D_{jt} + \lambda_{ij}) * \epsilon_{ijt} \quad (4)$$

The variable *FDI* is the stock of foreign direct investment between country *i* and country *j* in year *t*. *RTA_INV* is an indicator variable that is equal to one if the country pair has an RTA with investment provisions in year *t*, and *BIT* equals 1 if the country pair has a bilateral investment treaty in year *t*. *EU* equals 1 if the country-pair are both EU members in year *t*, while *CU* equals 1 if the country-pair are members of a customs union in year *t*. The country-pair fixed effects (λ) represent time-invariant factors

¹⁰⁰⁹ Gervais and Jensen, “[The Tradability of Services](#),” 2019, provided the sector-level elasticities of substitution for these tariff equivalent calculations.

¹⁰¹⁰ Due to data limitations, the Commission focuses on estimating an average effect on FDI from all RTAs with FDI provisions, both U.S. and non-U.S. agreements.

like international distance, common language, and historical institutions that affect FDI.¹⁰¹¹ Source and host-time fixed effects S_{it} and D_{jt} control for multilateral resistance terms. To account for the phase-in effects of an RTA, the model includes various lags, up to five years.

As mentioned at the beginning of the appendix, this analysis uses a structural gravity model to obtain econometric estimates of the effects of RTAs with investment provisions on FDI. The gravity equation has proven to be one of the most successful ways of explaining bilateral FDI.¹⁰¹² Furthermore, gravity for FDI has been derived from theoretical models of multinational activity.¹⁰¹³ Yet, motives for bilateral FDI are increasingly beyond bilateral; third-country effects (controlled for in this estimation by the multilateral resistance terms) are found to influence bilateral FDI decisions and such that omitting them from the estimating equation would result in omitted variable bias.¹⁰¹⁴

The dependent variable, inward FDI stock, is provided by the United Nations Conference on Trade and Development (UNCTAD) and includes 151 host countries and 212 source economies during 1980–2012. The main explanatory variable, an indicator variable that equals one if an RTA has investment provisions, comes from the Design of Trade Agreements (DESTA) Database and the World Bank Deep Trade Agreements Database.¹⁰¹⁵ For investment, key provisions mapped in these databases include: most-favored nation (MFN); national treatment; prohibition of expropriation; and a dispute settlement mechanism. Table F.7 summarizes the composition of trade agreements included in this analysis.

Table F.7 Summary of reciprocal trade agreements (RTAs) with and without investment provisions 1982–2012

	All agreements	U.S. agreements only
Number of RTAs with no investment provisions	180	4
Number of RTAs with investment provisions or an investment chapter	91	10
Total	271	14

Source: UNCTAD Bilateral FDI database; World Bank Deep Trade Agreements Database; DESTA; compiled by USITC.

Note: RTAs with investment provisions or chapters are coded 1 whether they have a distinct investment chapter or contain at least one of four substantive investment provisions: MFN; national treatment; protection from expropriation; and/or an investor/state dispute settlement mechanism.

Table F.8 reports the econometric estimates of the parameters in equation (5). The first specification estimates the impact of all RTAs, with or without investment provisions, on inward FDI. Consistent with earlier research on the overall impact of trade agreements on FDI, the result is negative and not significant. This suggests that the investment-diverting aspects of trade agreements overwhelm the

¹⁰¹¹ Country-pair fixed effects account for the endogeneity of RTAs. Because trade and investment policies may be more likely to be negotiated between country pairs that already trade and invest with one another, trade and investment policy variables may suffer from endogeneity. Baier and Bergstrand, “[Do Free Trade Agreements?](#)” 2007. Yotov et al., “An Advanced Guide,” 2016.

¹⁰¹² Blonigen and Piger, “[Determinants of Foreign Direct Investment](#),” 2014.

¹⁰¹³ Bergstrand and Egger, “[A Knowledge-and-Physical-Capital Model](#),” 2007; Head and Ries, “[FDI as an Outcome](#),” 2008; Kleinert and Toubal, “[Gravity for FDI](#),” 2010.

¹⁰¹⁴ Blonigen, et al., “[FDI in Space](#),” 2007; Baltagi, Egger, and Pfaffermayr, “[Estimating Models of Complex FDI](#),” 2007.

¹⁰¹⁵ The mapping of investment provisions in RTAs varies between these two databases. They were combined for greater coverage.

investment-promoting aspects of trade agreements for all agreements (i.e. those with and without substantial investment provisions). The second specification looks specifically at the impact of trade agreements with substantial investment provisions. The results suggest that agreements with investment provisions have a positive, significant effect on FDI stock (for all industries combined). Indeed, trade agreements that include investment provisions have led to a 14.7 percent increase in host country FDI. Further, the combined lagged effect (five-year period) of the explanatory variable is positive and significant, as shown by the third specification: over a five-year period, the average effect of RTAs with investment provisions on FDI increases to 18.6 percent.

Table F.8 Estimates on the impact of agreements with investment provision on foreign direct investment (FDI)

RTA = reciprocal trade agreement.

Variable estimates and standard errors	1 (FDI stock)	2 (FDI stock)	3 (FDI stock)
RTA estimate	-0.010	—	—
RTA standard error	(0.077)	—	—
RTA with investment provisions estimate	—	0.137*	—
RTA with investment provisions standard error	—	(0.076)	—
Bilateral Investment Treaty estimate	0.101	0.107	—
Bilateral Investment Treaty standard error	(0.074)	(0.074)	—
European Economic Area estimate	0.153	0.130	0.149
European Economic Area standard error	(0.162)	(0.168)	(0.180)
Customs Union estimate	-0.216*	-0.335**	-0.348**
Customs Union standard error	0.122	(0.135)	(0.139)
RTA with investment chapter (5-year lag) estimate	—	—	0.171*
RTA with investment chapter (5-year lag) standard error	—	—	(0.090)
Bilateral investment treaty (5-year lag) estimate	—	—	0.150*
Bilateral investment treaty (5-year lag) standard error	—	—	(0.089)
Source-year fixed effects	Yes	Yes	Yes
Host-year fixed effects	Yes	Yes	Yes
Country-pair fixed effects	Yes	Yes	Yes
Number of observations	69,065	69,070	66,900

Source: USITC estimates.

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Economy-wide Model

This section focuses on the economy-wide analysis in this report—the computable general equilibrium (CGE) analysis presented in chapter 3. CGE models use economic data reflecting an interconnected global economy. This allows for an economy-wide analysis about wide-ranging policy changes such as those associated with U.S. bilateral and regional trade agreements.

Specifically, the Commission used the output from the gravity models described above and the Global Trade Analysis Project (GTAP) database and model for the economy-wide analysis in this report. This section details the basic features of the GTAP framework and describes the adjustments that the Commission made to the standard database and model to assess the likely effects of U.S. bilateral and regional trade agreements on the U.S. economy and industry sectors.¹⁰¹⁶

The GTAP Framework

The Commission's economy-wide analysis was conducted using a common tool among trade practitioners: the Global Trade Analysis Project (GTAP). GTAP has two main components. The first is a documented global database on international trade, economy-wide inter-industry relationships, and national income accounts (the GTAP database). The other is a standard modeling framework used to organize and analyze the data (the GTAP model).¹⁰¹⁷ The model allows comparisons of the global economy in two environments: one in which the base values of policy instruments—such as tariffs, tariff-rate quotas (TRQs), and various nontariff trade costs—are unchanged, and one in which these measures are changed to reflect the U.S. bilateral and regional trade agreements' provisions being analyzed. The estimated effects from U.S. agreements are obtained from the three gravity models described above. These are then entered into the economy-wide model either as reductions in import tariffs or as efficiency-enhancing measures that reduce trade costs between the U.S. and its trading partners (table F.9).¹⁰¹⁸ The difference between these two scenarios represents the estimated impact of U.S. bilateral and regional trade agreements on the U.S. economy and industry sectors.

Table F.9 Individual models that provide inputs to the Commission's economy-wide model

Model	Inputs provided to the economy-wide model
Gravity model of trade in goods	Sector-level effects, by U.S. agreement, on barriers to U.S. trade in goods with free trade agreement (FTA) partners
Gravity model of trade in services	Sector-level effects on barriers to U.S. trade in services with FTA partners
Gravity model of investment	Aggregate effects on barriers to U.S. investment with FTA partners

In the GTAP model, domestic products and imports are consumed by firms, governments, and households. Product markets are assumed to be perfectly competitive (implying zero economic profit for the firm).¹⁰¹⁹ In the model, imports are imperfect substitutes for domestic products (i.e., consumers distinguish between products based on their foreign or domestic origin), and sectoral production is determined by global demand and supply.

¹⁰¹⁶ The simulated general equilibrium effects were obtained using General Equilibrium Modeling Package (GEMPACK), Horridge et al., [GEMPACK manual](#), 2018.

¹⁰¹⁷ The GTAP model is documented in Hertel, [Global Trade Analysis](#), 1997, and in Corong et al., “[The Standard GTAP Model](#),” 2017.

¹⁰¹⁸ To be precise, the Commission assumed that 50 percent of the estimated ad valorem reduction in trade costs from an FTA reduced import tariffs (implemented as a *tms* shock in GTAP) while the remaining 50 percent reduced trade costs due to productivity gains (implemented as an *ams* shock in GTAP).

¹⁰¹⁹ Under perfect competition, entering a market is costless, which drives the product price down to average cost and reduces profits to zero in the sense that every productive factor receives a wage or a return that is commensurate to its productivity.

Adapting the GTAP Framework for an Analysis of U.S. Bilateral and Regional Trade Agreements

The current version of the GTAP database (pre-release 11p1A) covers trade in 65 goods and service aggregates, or GTAP sectors, among 142 economies.¹⁰²⁰ For the purpose of the U.S. bilateral and regional trade agreements analysis, the database was aggregated into 30 regions. Twenty-one of these regions represent the economies of the United States and its 20 FTA trade partners.¹⁰²¹ The remaining economies are Japan, China, Hong Kong, the European Union (27 members), the United Kingdom, the European Free Trade Association (EFTA), India, Brazil, and a rest-of-the-world region representing all other economies.¹⁰²²

The Commission changed the GTAP baseline data for total U.S. trade in all goods sectors and in all services sectors to make them comparable to statistics published by the U.S. Bureau of Economic Analysis.

The Commission disaggregated the labor endowment and sectoral employment in the United States into 20 labor types. The labor types reflect differences in gender, levels of educational attainment, and types of occupations. A more complete description of the labor types in the model is provided in the next section of this appendix. The economy-wide supplies of each labor type were allowed to respond to changes in the real wage rate.

To account for the relationship between U.S. bilateral and regional trade agreements, U.S. investment, and growth, the standard GTAP model was modified, as suggested by Francois, McDonald, and Nordström in 1996, to allow for the linkage between investment in new capital goods and the capital employed in U.S. production.¹⁰²³

An additional component of the data is a set of parameters which, in the context of the model's equations, determine economic behavior. These are principally a set of elasticity values that determine, among other things, the extent to which imports and domestically produced goods are substitutes.¹⁰²⁴

Simulations with the standard GTAP model typically provide trade balance effects, which are based on both changes in relative prices and returns to investment. However, economic research indicates that changes in trade balances are more dependent on dynamic macroeconomic factors, such as

¹⁰²⁰ The data for the year 2017 are from GTAP Database Version 11 (beta version). The earlier GTAP 10 Data Base is documented in Aguiar, Chepelyev, Corong, McDougall, R., and van der Mensbrugghe (2019), "[The GTAP Data Base: Version 10](#)."

¹⁰²¹ The 20 U.S. FTA partners are: Australia, Bahrain, Canada, Chile, Colombia, Costa Rica, the Dominican Republic, El Salvador, Guatemala, Honduras, Israel, Jordan, Mexico, Morocco, Nicaragua, Oman, Panama, Peru, Singapore, and Korea.

¹⁰²² The European Free Trade Association is a free trade area consisting of four European states: Iceland, Liechtenstein, Norway, and Switzerland.

¹⁰²³ Francois, McDonald, and Nordström, "[Liberalization and Capital Accumulation](#)," 2016.

¹⁰²⁴ Armington elasticities for GTAP goods sector were taken from Hertel et al., "[How confident can we be of CGE-based assessments](#)," 2007 while Armington elasticities for GTAP services sector were obtained from Gervais and Jensen, "[The Tradability of Services](#)," 2019.

intertemporal savings and investment decisions, than on trade policy.¹⁰²⁵ Because of the dynamic nature of trade balance effects, static CGE models, like the standard GTAP model used for U.S. bilateral and regional trade agreements analysis, may not be well suited for providing accurate estimates of changes in trade balances.

Decomposition by Labor Type

There are two groups of changes needed to disaggregate the U.S. labor input in the GTAP database: changes to the database and changes to the model. For the former, wage bill shares were calculated using the method described in this section for each of the 20 labor types listed in table F.10.

Table F.10 20 Labor types in the U.S. economy, by occupation, sex and education.

Occupation	Female, high school	Female, college	Male, high school	Male, college
Management, business, and science	F-H-1	F-C-1	M-H-1	M-C-1
Services and technicians	F-H-2	F-C-2	M-H-2	M-C-2
Sales and office	F-H-3	F-C-3	M-H-3	M-C-3
Natural resources, construction, extraction	F-H-4	F-C-4	M-H-4	M-C-4
Production, transportation, materials moving	F-H-5	F-C-5	M-H-5	M-C-5

Note: This table presents the 20 labor types used to disaggregate the U.S. labor factor input in GTAP: 2 sexes, 2 education types, and 5 broad occupation categories. The labor type abbreviation is included in the table to help identify labor types later in this appendix.

Wage bill shares were calculated using the 2017 Current Population Survey (CPS) Annual Social and Economic Supplements (ASEC).¹⁰²⁶ The survey is a representative sample of U.S. households and contains detailed questions covering social and economic characteristics of each person who is a household member on the interview date.¹⁰²⁷ In the 2017 survey used for this analysis, 95,006 households and 185,914 people are surveyed, covering 278 selected core-based statistical areas (CBSA),

¹⁰²⁵ The Commission is not precluding the possibility that trade policies can affect trade balances by affecting savings and investment decisions. The factors present in the Commission's economy-wide model account for only a small portion of the determinants of global trade balances, implying that it is a tool that may not be well suited for such an analysis. While the economy-wide model provides economic relationships for aggregate savings and aggregate investment and the linkage between them, it does not consider several factors that affect savings and investment. Most important among these factors is the fact that expectations about the future vary between different saving and investing households, firms, and governments.

¹⁰²⁶ The CPS ASEC survey was used instead of U.S. Bureau of Labor Statistics (BLS) Occupational Employment Statistics (OES). The CPS ASEC works well for micro-level analysis because it contains rich employment and wage information for each observation. However, if one wanted to further disaggregate the survey by region, it may be difficult to perform state-level analyses with the CPS ASEC survey because of lower participation rates for some subpopulations. Flood et al., "[Integrated Public Use Microdata Series](#)," accessed April 14, 2021.

¹⁰²⁷ Observations do not include members of the Armed Forces living on post; only members living off post or living with their families on post where there is at least one civilian adult in the same household are included.

217 counties, and 76 central cities. The survey includes data on sex, education level, occupation, industry, and several measures of income.¹⁰²⁸

Labor types were chosen to replicate the model structure of Johnson and Keane (2013), the source used for elasticity estimates. This source includes two sexes: male and female.¹⁰²⁹ There are also two education types: high school and college. The label high school refers to observations who received a high school diploma or less. College indicates any observation who has more than a high school education, including those who started college but did not finish.¹⁰³⁰ Occupation types match the five broad occupation categories in the CPS, with some reclassifications. Occupation 1 includes management, business, and science occupations. Occupation 2 includes services occupations and technicians. Occupation 3 is sales and office occupations. Occupation 4 includes occupations relating to natural resources, construction, extraction, maintenance and repair. Occupation 5 are production, transportation and materials moving occupations. As in Johnson and Keane, some of group 1 occupations were reallocated to group 2 to better reflect skill levels and substitutability.

The next step was to concord each observation's North American Industry Classification System (NAICS) industry code to the 65 GTAP sectors using a customized GTAP-to- NAICS concordance.¹⁰³¹ First, GTAP sectors were concorded to the International Standard Industrial Classification of All Economic Activities (ISIC) Rev 4 codes using the concordance provided by GTAP.¹⁰³² Then, ISIC Rev 4 codes were concorded to NAICS codes using a concordance provided by Census.¹⁰³³ About a quarter of codes (23 percent) were manually matched based on the descriptions provided. Wage bill shares were then calculated for each GTAP sector and each of the 20 labor types using this concordance. Total wages, measured as pre-tax wage and salary income received as an employee for the previous calendar year, were summed for each labor group and GTAP sector. Shares were calculated within each sector as the labor type total wages divided by the total wages of the sector, with each sector's wage bill shares adding to one.

There is wide coverage of observations in each GTAP sector, with several dozen to several thousand observations per sector.¹⁰³⁴ There are, however, some labor types in some of the GTAP sectors that do not have a wage bill share allocation. For example, there are no college-educated women in the survey who fall into the natural resources, construction, and maintenance occupation in the Accommodation, Food and Service Activities (AFS) GTAP sector.

Also, the agriculture industry codes provided in the CPS ASEC survey are detailed enough to delineate between crops and livestock, but do not provide enough detail to map to individual GTAP agricultural

¹⁰²⁸ The CPS ASEC dataset was downloaded via the Integrated Public Use Microdata Series (IPUMS), a tool that provides census and survey data in readable formats for statistical software. Flood et al., "[Integrated Public Use Microdata Series](#)," accessed April 14, 2021.

¹⁰²⁹ More discussion about using sex versus gender in the CPS can be found in Ellis, et. al., "[Assessing the Feasibility](#)," 2017.

¹⁰³⁰ While workers could be potentially split by more than two education types, the Commission followed the Johnson and Keane, "[A Dynamic Equilibrium Model](#)," 2013, model structure.

¹⁰³¹ The 65 GTAP sectors are listed in GTAP, "[GTAP Data Bases: GTAP 10 Data Base Sectors](#)," accessed April 14, 2021.

¹⁰³² The GTAP-ISIC concordance can be found at GTAP, "[GTAP Data Bases: Two Concordances](#)," accessed April 14, 2021.

¹⁰³³ The ISIC-NAICS concordance can be found at U.S. Census, "[Concordances](#)," accessed April 14, 2021.

¹⁰³⁴ The only exception is GTAP sector DWE: ownership of dwellings. This sector has no observations.

sectors.¹⁰³⁵ For this reason, all GTAP crops sectors have the same crops wage bill shares, and all GTAP livestock-related sectors have the same livestock wage bill shares. Additional research and data sources are needed to calculate heterogenous shares across GTAP agricultural sectors.

Table F.11 reports labor shares for each of the labor types in this report both before and after the simulation. Labor supply increases for all labor types, as shown in column 3 of table F.11, leading to slight relative changes in U.S. labor shares. Labor types are sorted with highest increases in labor share on the top and most negative changes on the bottom. Both high-school and college educated males in natural resources, construction, and maintenance occupations show the largest relative increases in labor shares. Effects are modest due to the size of the labor supply changes.

Table F.11 Share of workers of each labor type, pre- and post-simulation

In percentages and percentage points.

F = female, M = male, C = college, H = high school, the last number (1 through 5) indicates the occupation type.

Labor type	Initial labor share (%)	Percent increase in labor supply (%)	Post-simulation labor share (%)	Change in labor share (percentage points)
M-H-4	5.784	0.627	5.802	0.018
M-C-4	3.362	0.515	3.369	0.007
M-H-1	1.915	0.436	1.918	0.002
F-C-2	13.760	0.324	13.761	0.002
F-C-1	9.300	0.323	9.301	0.001
F-C-4	0.224	0.630	0.225	0.001
F-H-4	0.340	0.519	0.341	0.001
F-H-1	1.273	0.333	1.274	0.000
F-C-3	8.505	0.312	8.505	0.000
F-H-2	6.694	0.304	6.693	-0.001
F-H-3	5.226	0.300	5.226	-0.001
F-H-5	1.722	0.269	1.721	-0.001
F-C-5	1.059	0.234	1.058	-0.001
M-H-5	5.512	0.294	5.511	-0.001
M-H-3	2.856	0.245	2.854	-0.002
M-C-5	3.380	0.240	3.378	-0.002
M-H-2	4.710	0.236	4.706	-0.004
M-C-3	5.130	0.225	5.126	-0.004
M-C-2	6.805	0.216	6.799	-0.007
M-C-1	12.443	0.242	12.434	-0.009

Source: USITC estimates.

Note: This table presents the initial labor shares and post-simulation labor shares for each labor type. The last column is the difference in the before and after shares.

As described above, the labor types align with the structural model in Johnson and Keane (2013), so the Commission's modified GTAP structure relies on their estimated substitution and labor supply elasticities. Their model allows changes in the wage structure to come from skill-based technical change, capital-skill complementarity, occupational demand shifts, demographic changes, and changing tastes for work and college. Model parameters were then fitted to the Panel Study on Income Dynamics (PSID) data from 1968–96, a survey that provides wages and employment data for each of their defined labor

¹⁰³⁵ For example, census industry code 0170, crop production, maps to NAICS code 111. Census industry code 0180, animal production, maps to NAICS code 112. But it is not possible to tell if 0170 should map to GTAP code PDR (rice: seed, paddy), WHT (wheat: seed, other), GRO (other grains: maize, sorghum, barley, rye, oats, millets, other cereals), or another one of the GTAP crops sectors.

types. Since 1996, the PSID has released new rounds of data but to the best of our knowledge, the elasticities have not been re-estimated. Table F.12 reports their estimated elasticities of substitution. These elasticities describe how different labor types substitute in the CES production function for value added.

Table F.12 Substitution elasticities in production from Johnson and Keane (2013)

Production factors	Elasticity Estimate
Capital, skilled labor	0.41
Capital + skilled, unskilled	1.75
Services, blue-collar	0.34
Service occupations	1.41
Blue-collar occupations	1.25
High school, college	1.59
Male, female	4.76

Note: This table presents elasticity of substitution estimates across labor types as estimated Johnson and Keane (2013). These elasticity estimates are based on the endogenous capital model in the paper cited.

Differences in education and gender among labor types can also reflect differences in decisions to enter or exit the labor market in response to changes in wages. A consistent finding in the literature is that the supply of female workers is more responsive to changes in wages than the supply of male workers.¹⁰³⁶ Similarly, the labor supply elasticity may also vary by education level, college educated workers may switch between nonparticipation and participation in the labor force at different rates than high-school educated workers. In its analysis, the Commission followed Johnson and Keane and employed labor supply elasticities that varied by both gender and education (table F.13).¹⁰³⁷ The inclusion of labor supply elasticities in the modified GTAP structure allows the labor inputs in the model to change in response to the real wage, the same methodology was used to model labor supply in Gurevich et al. (2020)

Table F.13 Labor supply elasticities from Johnson and Keane (2013)

Labor type	Elasticity estimate
High school male	0.74
College male	0.74
High school female	0.94
College female	1.13

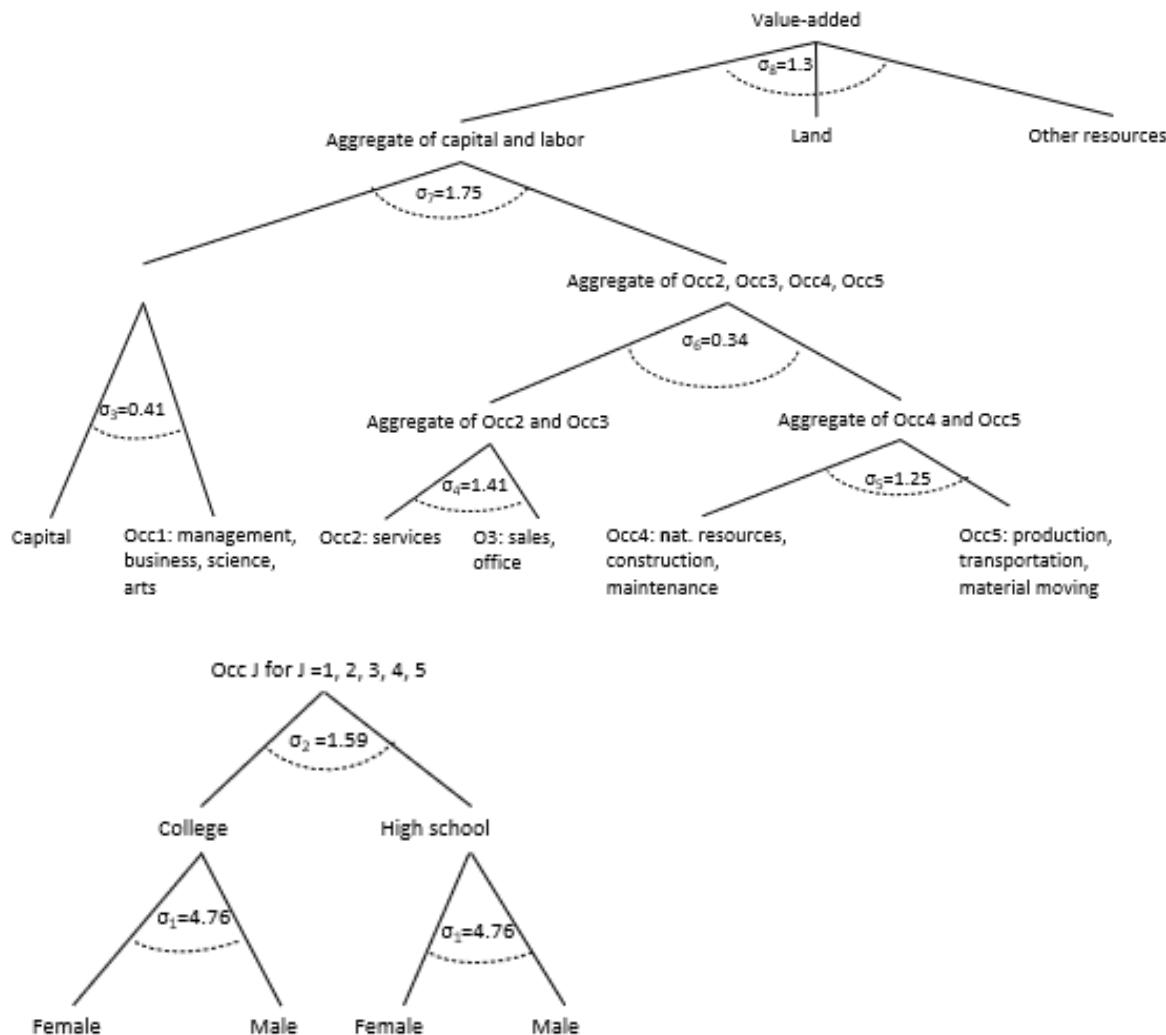
Note: This table presents labor supply elasticities for high school and college men and women, as estimated in Johnson and Keane (2013). The equality in high school and college males is a coincidence.

The modified GTAP model structure for U.S. sectors is presented in figure F.1. Occupations are placed in upper-level nests first, as combinations of occupation types are needed to produce a product or service. Education types are placed next to indicate the quality of the occupation's worker. Sex appears in the final tier of the structure. The Johnson and Keane model used the same ordering and indicated that the model fit the PSID data well under this formulation.

¹⁰³⁶ Evers et al., “[What Explains the Variation in Estimates of Labor Supply Elasticities?](#)” 2006, conduct a meta-analysis and find that females have a larger labor supply elasticity than males across 32 empirical studies.

¹⁰³⁷ Johnson and Keane, “[A Dynamic Equilibrium Model](#),” 2013.

Figure F.1 U.S. labor substitution possibilities in value added: Disaggregation by occupation, education, and sex



Sector-level Estimates

Table F.14 provides the list of GTAP sectors that are included in each of the seven broad sectors used by the Commission to report economy-wide effects at the sector level (table 3.5).

Table F.14 Groups of GTAP sectors used to report broad sector effects

nec = not elsewhere classified.

Broad sectors	GTAP sectors
Grains and crops	Paddy rice (pdr); Processed rice (pcr); Wheat (wht); Cereal grains nec (gro); Vegetables, fruits, nuts (v_f); Oil seeds (osd); Sugar cane, sugar beet (c_b); Plant-based fibers (pfb); Crops nec (ocr)

Broad sectors	GTAP sectors
Livestock	Bovine cattle, sheep and goats, horses (ctl); Animal products nec (oap); Raw milk (rmk); Wool, silk-worm cocoons (wol); Bovine meat products (cmt); Meat products nec (omt)
Mining and extraction	Forestry (frs); Fishing (fsh); Coal (coa); Oil (oil); Gas (gas)
Light manufacturing	Vegetable oils and fats (vol); Dairy products (mil); Sugar (sgr); Food products nec (ofd); Beverages and tobacco products (b_t); Textiles (tex); Wearing apparel (wap); Leather products (lea); Wood Products (lum); Paper products, publishing (ppp); Metal products (fmp); Motor vehicles and parts (mvh); Transport equipment nec (otn); Manufactures nec (omf)
Heavy manufacturing	Other Extraction (oxt); Petroleum, coal products (p_c); Chemical products (chm); Basic pharmaceutical products (bph); Rubber and plastic products (rpp); Mineral products nec (nmm); Ferrous metals (i_s); Metals nec (nfm); Computer, electronic and optical products (ele); Electrical equipment (eeq); Machinery and equipment nec (ome)
Core services	Trade (trd); Communications (cmn); Financial services nec (ofi); Insurance (ins); Business services nec (obs)
Non-core Services	Electricity (ely); Gas manufacture, distribution (gdt); Water (wtr); Construction (cns); Accommodation, Food and service activities (afs); Transport nec (otp); Water transport (wtp); Air transport (atp); Warehousing and support activities (whs); Real estate activities (rsa); Recreational and other services (ros); Public Administration and defense (osg); Education (edu); Human health and social work activities (hht); Dwellings (dwe)

Table F.15 reports the estimated effects of U.S. agreements at the individual GTAP sector level. Most U.S. sectors see a small and positive impact from the agreements. Sectors that see the biggest gains in production are Metal products (1.4 percent), Rubber and Plastic products (1.3 percent) and Construction (1.1 percent). Sectors that experience the greatest loss in production are Wool (-2.9 percent), Electronics and Computers (-2.5 percent) and Transport Equipment (-1.5 percent). Most U.S. sectors also see small changes in employment. The three sectors that experience the largest increase in employment—in percentages—are Metal products (1.3 percent or 27,447 FTEs), Construction (1.0 percent or 129,670 FTEs) and Vegetable Oils and Fats (0.9 percent or 246 FTEs). The three sectors that see the largest decrease in employment—in percentages—are Computer, Electronic, and Optical products (-1.4 percent or -20,229 FTEs), Wool, Silk-worm cocoons (-1.3 percent or -2 FTEs), and Basic Pharmaceutical products (-0.8 percent or -4,153 FTEs).¹⁰³⁸

¹⁰³⁸ FTE values are calculated using model-estimated percentage changes in employment and initial number of full-time workers in each sector reported in U.S. Census, BLS, [Current Population Survey](#), 2017 data.

Table F.15 Effects of U.S. trade agreements at the GTAP sector level

In millions of dollars, percentages, and full-time equivalent jobs.

nec = not elsewhere classified.

GTAP sector	GTAP code	Change in output (million \$)	Change in output (%)	Change in employment (full-time equivalent jobs)	Change in employment (%)	Change in real wages (%)
Paddy rice	pdr	22.25	0.78	43	0.60	0.73
Wheat	wht	49.43	0.46	97	0.37	0.50
Cereal grains nec	gro	131.21	0.24	246	0.20	0.33
Vegetables, fruit, nuts	v_f	218.32	0.29	455	0.25	0.37
Oil seeds	osd	-148.71	-0.35	-253	-0.24	-0.11
Sugar cane, sugar beet	c_b	17.95	0.64	46	0.50	0.63
Plant-based fibers	pfb	-45.36	-0.50	-74	-0.34	-0.22
Crops nec	ocr	-56.06	-0.39	-127	-0.27	-0.14
Bovine cattle, sheep and goats, horses	ctl	380.85	0.56	401	0.47	0.58
Animal products nec	oap	256.17	0.33	221	0.29	0.40
Raw milk	rmk	225.60	0.43	222	0.37	0.48
Wool, silk-worm cocoons	wol	-2.36	-1.78	-2	-1.32	-1.24
Forestry	frs	126.06	0.37	145	0.24	0.35
Fishing	fsh	14.20	0.18	23	0.15	0.25
Coal	coa	-3.80	0.00	-43	-0.04	0.12
Oil	oil	-247.00	-0.07	-456	-0.09	0.01
Gas	gas	58.50	0.12	89	0.12	0.23
Other extraction	oxt	111.45	0.18	327	0.16	0.28
Bovine meat products	cmt	744.50	0.49	1,498	0.42	0.49
Meat products nec	omt	344.50	0.29	740	0.26	0.33
Vegetable oils and fats	vol	347.67	1.15	246	0.94	1.02
Dairy products	mil	568.95	0.44	639	0.29	0.39
Processed rice	pcr	-35.69	-0.88	-43	-0.70	-0.63
Sugar	sgr	154.21	0.68	276	0.58	0.64
Food products nec	ofd	1,927.06	0.40	3,952	0.30	0.35
Beverages and tobacco products	b_t	816.16	0.44	1,060	0.31	0.38
Textiles	tex	1,158.47	0.59	3,489	0.50	0.57
Wearing apparel	wap	-680.12	-0.53	-1,777	-0.48	-0.46
Leather products	lea	30.16	0.15	95	0.14	0.19
Wood products	lum	2,912.47	0.74	10,866	0.65	0.74
Paper products, publishing	ppp	1,308.63	0.27	4,326	0.23	0.29
Petroleum, coal products	p_c	193.63	0.03	17	0.02	0.11
Chemical products	chm	-1,343.88	-0.20	-2,084	-0.14	-0.08
Basic pharmaceutical products	bph	-2,234.33	-1.05	-4,153	-0.77	-0.73
Rubber and plastic products	rpp	3,957.22	1.04	14,814	0.87	0.96
Mineral products nec	nmm	444.81	0.22	1,584	0.18	0.27
Ferrous metals	i_s	1,985.41	0.83	5,454	0.68	0.79
Metals nec	nfm	-1,023.11	-0.46	-1,929	-0.39	-0.31

GTAP sector	GTAP code	Change in output (million \$)	Change in output (%)	Change in employment (full-time equivalent jobs)	Change in employment (%)	Change in real wages (%)
Metal products	fmp	7,157.88	1.48	27,447	1.33	1.42
Computer, electronic and optical products	ele	-12,330.06	-1.49	-20,229	-1.36	-1.30
Electrical equipment	eeq	1,155.91	0.35	3,668	0.31	0.38
Machinery and equipment nec	ome	821.44	0.11	3,054	0.10	0.17
Motor vehicles and parts	mvh	-435.13	-0.05	-814	-0.05	0.04
Transport equipment nec	otn	-2,137.09	-0.62	-8,474	-0.57	-0.49
Manufactures nec	omf	-1,254.16	-0.35	-5,724	-0.32	-0.24
Electricity	ely	1,568.56	0.35	1,316	0.22	0.30
Gas manufacture, distribution	gdt	21.90	0.02	4	0.00	0.11
Water	wtr	1,459.34	0.37	5,293	0.30	0.39
Construction	cns	25,741.75	1.06	129,670	0.98	1.13
Trade	trd	11,981.50	0.40	54,852	0.33	0.39
Accommodation, food and service activities	afs	3,557.75	0.35	18,705	0.32	0.37
Transport nec	otp	902.50	0.14	3,099	0.11	0.20
Water transport	wtp	322.05	0.32	916	0.26	0.32
Air transport	atp	236.22	0.07	442	0.05	0.13
Warehousing and support activities	whs	253.70	0.11	877	0.09	0.15
Communications	cmn	3,717.38	0.31	17,359	0.28	0.34
Financial services nec	ofi	4,677.00	0.22	29,951	0.21	0.25
Insurance	ins	1,264.44	0.16	5,972	0.16	0.18
Real estate activities	rsa	2,717.69	0.35	9,784	0.28	0.33
Business services nec	obs	1,941.88	0.10	13,390	0.09	0.14
Recreational and other services	ros	6,926.50	0.39	19,095	0.33	0.37
Public Administration and defense	osg	6,128.00	0.39	31,031	0.35	0.37
Education	edu	4,842.13	0.30	38,621	0.29	0.29
Human health and social work activities	hht	9,397.25	0.37	65,108	0.35	0.39
Dwellings	dwe	10,041.00	0.52	10	0.25	0.30

Source: USITC estimates.

Stand-alone Estimates

Effect of Specific Services Provisions on Trade in Services

The Commission also estimated a stand-alone analysis of services—not incorporated into the Commission’s economy-wide model—that complements the overall estimated impacts of services RTAs

on cross-border services trade. More specifically, the Commission modified the gravity model in (3) in order to account for heterogeneity across services RTAs and assess impacts from specific provisions or categories of services provisions, which are estimated at the ITPD-E sector level:

$$Trade_in_Services_{ijt} = \exp(\beta_1 Full_{ijt} + \beta_2 Partial_{ijt} + \beta_3 EU_{ijt} + S_{it} + D_{jt} + \lambda_{ij}) * \epsilon_{ijt} \quad (5)$$

Full refers to a group of binary variables that equal one if a specific provision of interest or a set of provisions of interest are fully covered by a services RTA between countries *i* and *j* at time *t*. *Partial* here refers to a group of binary variables that equal one if a specific provision of interest or a set of provisions of interest are partially covered by a services RTA between countries *i* and *j* at time *t*.¹⁰³⁹

As discussed in chapter 3, three groups of services provisions are examined in the analysis: (1) liberalization approach (with services RTAs categorized into two groups: full liberalization approach and partial liberalization approach); (2) market access approach (with services RTAs categorized into two groups: U.S. market access approach and GATS/other market access approach); and (3) other substantive disciplines (with services RTAs categorized into three groups: full set of other substantive disciplines, partial set of other substantive disciplines, and no other substantive disciplines). Full regression results for the three sets of provisions across the core set of services sectors (using the ITPD-E sector classification) are presented below in tables F.16–F.18. Based on these estimations, for those sectors that saw a significant effect, the Commission computed and reported trade effects in chapter 3, table 3.10.

Table F.16 Estimates of the effects of services reciprocal trade agreements liberalization approach

Variable estimates and standard errors	Other business services	Charges for IP	Construction	Financial Services	Insurance	Telecommunications, computer, and information services	Trade related services
Full liberalization estimate	0.623***	0.155	-0.655	0.678***	0.447**	0.584***	0.659
Full liberalization standard error	(0.11)	(0.15)	(0.7)	(0.16)	(0.19)	(0.12)	(0.45)
Partial liberalization estimate	0.366	0.239	-0.0179	0.201	0.0159	0.318*	0.145
Partial liberalization standard error	(0.23)	(0.15)	(0.3)	(0.20)	(0.21)	(0.19)	(0.39)
EU membership estimate	1.103***	-0.142	0.381*	1.799***	1.122***	1.260***	0.851***

¹⁰³⁹ Certain specifications include full, partial, and no provisions. Binary groupings of provisions are mutually exclusive with respect to each other.

Variable estimates and standard errors	Other business services	Charges for IP	Construction	Financial Services	Insurance	Telecommunications, computer, and information services	Trade related services
EU membership standard error	(0.12)	(0.27)	(0.2)	(0.15)	(0.15)	(0.11)	(0.13)
Number of observations	61,437	44,058	41,656	49,275	46,584	56,407	39,010

Source: USITC estimates.

Note: Standard errors are clustered at the country-pair level. *** p<0.01, ** p<0.05, * p<0.1

Table F.17 Estimates of the effects of services reciprocal trade agreements market access approach

Variable estimates and standard errors	Other business services	Charges for IP	Construction	Financial Services	Insurance	Telecommunications, computer, and information services	Trade related service
Market access definition (US) estimate	0.618***	0.149	2.171***	0.636***	0.462**	0.660***	0.659
Market access definition (US) standard error	(0.11)	(0.17)	(0.36)	(0.16)	(0.20)	(0.13)	(0.45)
Market access definition (GATS/Other) estimate	0.385*	0.234*	-0.261	0.302	0.0154	0.292	0.145
Market access definition (GATS/Other) standard error	(0.22)	(0.14)	(0.32)	(0.20)	(0.21)	(0.18)	(0.39)
EU membership estimate	1.103***	-0.142	0.380*	1.799***	1.122***	1.260***	0.851***
EU membership standard error	(0.12)	(0.27)	(0.20)	(0.15)	(0.15)	(0.11)	(0.13)
Number of observations	61,437	44,058	41,656	49,275	46,584	56,407	39,010

Source: USITC estimates.

Note: Standard errors are clustered at the country-pair level. *** p<0.01, ** p<0.05, * p<0.1

Table F.18 Estimates of the effects of services reciprocal trade agreements inclusion of other substantive disciplines

Variable estimates and standard errors	Other business services	Charges for IP	Construction	Financial Services	Insurance	Telecommunications, computer, and information services	Trade related services
Full other substantive disciplines estimate	0.612***	0.130	-0.660	0.679***	0.414**	0.580***	0.887**
Full other substantive disciplines standard error	(0.11)	(0.16)	(0.70)	(0.16)	(0.18)	(0.12)	(0.44)
Partial other substantive disciplines estimate	0.629*	0.442***	-0.295	0.323	-0.0976	0.338	-1.545***
Partial other substantive disciplines standard error	(0.35)	(0.16)	(0.26)	(0.33)	(0.13)	(0.21)	(0.29)
No other substantive disciplines estimate	0.289	0.158	0.00840	0.136	0.139	0.310	0.684*
No other substantive disciplines standard error	(0.27)	(0.18)	(0.33)	(0.21)	(0.32)	(0.27)	(0.39)
EU membership estimate	1.103***	-0.142	0.381*	1.799***	1.123***	1.260***	0.852***
EU membership standard error	(0.12)	(0.27)	(0.20)	(0.15)	(0.15)	(0.11)	(0.13)
Number of observations	61,437	44,058	41,656	49,275	46,584	56,407	39,010

Source: USITC estimates.

Note: Standard errors are clustered at the country-pair level. *** p<0.01, ** p<0.05, * p<0.1

Impact of Agreements with Services Provisions on Foreign Affiliate Sales of Services

The Commission also estimated a stand-alone analysis to estimate the impact of services RTAs on foreign affiliate sales of services. This analysis covers the impact of services RTAs overall, as well as

impacts from specific provisions or categories of services provisions within these RTAs. Due to data constraints, the gravity equation for estimating impacts from services RTAs includes country-pair covariates in place of country-pair fixed effects, as shown below in (5).¹⁰⁴⁰ This equation is estimated separately for each sector:

$$\text{Foreign_Affiliate_Sales}_{ijt} = \beta_1 \text{ServicesRTA}_{ijt} + \beta_2 \text{EU}_{ijt} + Z_{ijt} + S_{it} + D_{jt} + \epsilon_{ijt} \quad (6)$$

In this equation, foreign affiliate sales represent bilateral foreign affiliate sales and purchases between origin country i and destination country j in time t . Services RTA is a dummy variable that equals 1 if countries i and j have a RTA in year t with at least one services provision and EU represents membership in the European Union. Z_{ijt} is a vector of gravity covariates including: *log(distance)*, which captures the distance between country-pairs, *contiguity*, which equals one if country-pairs share a common border, *common language*, which equals one if country-pairs share a common language, and *colony*, which equals one if country-pairs share a colonial relationship.

Gravity estimations assessing impacts from individual or groups of provisions replace the Services RTA dummy in (6) with binary groupings capturing full or partial provisions. These groupings of provisions are identical to the cross-border services trade estimations presented in equation (5).

Data on foreign affiliate sales and purchases used in this model cover 3 services sectors (wholesale/retail, professional, and financial services), 91 countries, and 9 years (2010–18). Data come from three sources: the U.S. Bureau of Economic Analysis (BEA), Eurostat, and the Organisation for Economic Co-operation and Development (OECD).¹⁰⁴¹ All data for U.S. foreign affiliate sales and purchases comes from the BEA. Data for country-pairs involving European countries where the United States is not a partner come from Eurostat, while data from the OECD is used to supplement a small number of non-U.S. and non-EU country pairs. The dataset is unbalanced, as many country pairs do not have data for all sectors or all years. Additionally, some countries have data on inward or outward sales from a particular country, but not total inward or outward sales.¹⁰⁴² Missing data is due to both the lack of country and industry coverage in the source data and to suppressions to avoid the disclosure of data

¹⁰⁴⁰ In particular, due to the more limited time period available for foreign affiliate sales (2010–18), there is insufficient time variation in the Services RTA variable to include country-pair fixed effects. Inclusion of country-pair fixed effects results in the Services RTA variable being dropped from the estimation due to collinearity. The dataset contains both foreign affiliate sales and purchases (also called outward and inward foreign affiliate sales by many data sources) obtained from the BEA, Eurostat, and the OECD. In an effort to obtain coverage of as many country-pairs as possible, a more limited time period and sectoral aggregation was used.

¹⁰⁴¹ USDOC, BEA, “[Data on Activities of Multinational Enterprises, United States direct investment abroad, Total Sales](#),” accessed November 11, 2020; USDOC, BEA, [Data on Activities of Multinational Enterprises, Foreign direct investment in the United States, Total Sales](#),” accessed November 11, 2020; Eurostat, “[Foreign controlled EU enterprises – inward foreign affiliate statistics](#),” accessed November 11, 2020; Eurostat, “[Foreign affiliates of EU enterprises – outward foreign affiliate statistics](#),” accessed November 11, 2020. OECD, “[AMNE Database – Activity of Multinational Enterprises, Outward activity of multinationals by investing country](#),” accessed November 11, 2020; industry representative, email message to USITC staff (special data pull from OECD for inward FATS), August 24, 2020. Apart from the three services groupings (wholesale/retail, professional, and financial services), analysis of a total services category for foreign affiliate sales is not presented, as it is not possible to consistently separate good and services in total reported foreign affiliate sales across countries.

¹⁰⁴² For example, data are available for U.S. sales to and purchases from Brazil but not for total foreign affiliate sales in Brazil for all countries.

of individual companies. Eurostat data have been converted from euros to dollars, and data from the OECD have been converted from various local currencies into dollars.¹⁰⁴³ USITC's Dynamic Gravity Data (DGD) is the source of gravity covariates used in foreign affiliate sales analysis.¹⁰⁴⁴

As with the cross-border trade in services analysis, data on trade agreements and services provisions are from the World Bank's Deep Trade Agreements (DTAs) dataset.¹⁰⁴⁵ Due to differences in country coverage, fewer trade agreements (less than half) are included in the foreign affiliate sales analysis relative to the cross-border services trade analysis presented in table F.3. The number of agreements also varies across the services categories.

Table F.19 reports full regression results for the impact of services RTAs on foreign affiliate sales. Across the three sectors, services RTAs have a positive and significant effect on foreign affiliate sales, relative to countries without services RTAs. As expected, when they are statistically significant, a common language, a colonial relationship between country-pairs, and/or a common border (contiguity) all increase foreign affiliate sales. However, in contrast to standard trade-flow gravity models, distance is also positively related to foreign affiliate sales across the three service sectors. This could reflect firm decisions to establish foreign affiliates in distant locations to facilitate trade across different time zones. Or this could reflect the data composition of our sample. EU membership has no significant effect on foreign affiliate sales. However, since a large share of the observations in this data are for EU-member pairs, this lack of significance may reflect a lack of variation in the data. Based on these estimations, the Commission computed and reported trade effects in chapter 3, Table 3.11.

Table F.19 Effects of reciprocal trade agreement (RTA) with services provisions on foreign affiliate sales in services

Variable estimates and standard errors	Finance and insurance	Professional services	Wholesale and retail
Services RTA agreement estimate	1.504***	1.320***	1.702***
Services RTA agreement standard error	(0.399)	(0.373)	(0.279)
Log(distance) estimate	0.680***	0.561	0.693***
Log(distance) standard error	(0.223)	(0.357)	(0.256)
Common language estimate	0.663***	0.134	-0.0411
Common language standard error	(0.228)	(0.309)	(0.289)
Colonial relationship estimate	1.677***	-0.427	0.0903
Colonial relationship standard error	(0.330)	(0.490)	(0.322)
Contiguity estimate	1.215***	1.026*	1.566***
Contiguity standard error	(0.312)	(0.565)	(0.461)
EU membership estimate	-0.232	-0.588	-0.289

¹⁰⁴³ Currency conversions were made using the “Official exchange rate (LCU per US\$, period average)” found in the [World Development Indicators](#). World Bank, World Development Indicators, accessed October 10, 2020.

¹⁰⁴⁴ Gurevich and Herman, “[The Dynamic Gravity Dataset](#),” 2018.

¹⁰⁴⁵ “[DEEP TRADE AGREEMENTS \(DTAs\)](#),” accessed November 17, 2020 (see Excel file “dataset-on-the-intensive-margin-july-2020” listed under “DTA2. Information by Trade agreements”).

Variable estimates and standard errors	Finance and insurance	Professional services	Wholesale and retail
EU membership standard error	(0.516)	(0.739)	(0.428)
Number of observations	11,387	6,334	7,141

Source: USITC estimates.

Notes: Standard errors are clustered at the country-pair level. *** p<0.01, ** p<0.05, * p<0.1

Tables F.20–F.22 report full regression results of the effects on foreign affiliate sales from the same three categories of services provisions reported for cross-border services trade: (1) liberalization approach, (2) market access approach, and (3) other substantive disciplines. Based on these estimations, for those sectors that saw a significant effect, the Commission computed and reported trade effects in chapter 3, table 3.12.

Table F.20 Effects of reciprocal trade agreements with liberalization approach on foreign affiliate sales in services

Variable estimates and standard errors	Finance and insurance	Professional services	Wholesale and retail
Full liberalization approach estimate	1.490***	1.546***	1.902***
Full liberalization approach standard error	(0.482)	(0.474)	(0.350)
Partial liberalization approach estimate	1.540***	0.460	1.102***
Partial liberalization approach standard error	(0.437)	(0.308)	(0.281)
Log (distance) estimate	0.679***	0.557	0.677***
Log (distance) standard error	(0.233)	(0.344)	(0.245)
Common language estimate	0.665***	0.116	-0.0745
Common language standard error	(0.231)	(0.313)	(0.294)
Colonial relationship estimate	1.675***	-0.404	0.128
Colonial relationship standard error	(0.325)	(0.498)	(0.321)
Contiguity estimate	1.216***	0.919*	1.465***
Contiguity standard error	(0.310)	(0.552)	(0.433)
EU membership estimate	-0.264	0.198	0.242
EU membership standard error	(0.559)	(0.521)	(0.471)
Number of observations	11,387	6,334	7,141

Source: USITC estimates.

Notes: Standard errors are clustered at the country-pair level. *** p<0.01, ** p<0.05, * p<0.1

Table F.21 Effects of reciprocal trade agreements with market access approach on foreign affiliate sales in services

Variable estimates and standard errors	Finance and insurance	Professional services	Wholesale and retail
U.S. market access approach estimate	1.212**	1.492***	1.849***
U.S. market access approach standard error	(0.476)	(0.475)	(0.345)
GATS/other market access approach estimate	0.656	0.110	0.789***
GATS/other market access approach standard error	(0.435)	(0.315)	(0.290)
Log(distance) estimate	0.730***	0.552	0.671***
Log(distance) standard error	(0.213)	(0.341)	(0.243)
Common language estimate	0.547**	0.104	-0.0858
Common language standard error	(0.226)	(0.310)	(0.290)
Colonial relationship estimate	1.554***	-0.432	0.0971
Colonial relationship standard error	(0.326)	(0.490)	(0.323)
Contiguity estimate	1.403***	0.918*	1.453***
Contiguity standard error	(0.285)	(0.547)	(0.424)
EU membership estimate	1.278***	0.639	1.319***
EU membership standard error	(0.335)	(0.628)	(0.351)
Number of observations	11,387	6,334	7,141

Source: USITC estimates.

Notes: Standard errors are clustered at the country-pair level. *** p<0.01, ** p<0.05, * p<0.1

Table F.22 Effects of reciprocal trade agreements with provisions for other substantive disciplines on foreign affiliate sales in services

Variable estimates and standard errors	Finance and insurance	Professional services	Wholesale and retail
Full set of other substantive disciplines estimate	1.425***	1.547***	1.882***
Full set of other substantive disciplines standard error	(0.480)	(0.472)	(0.343)
Partial set of other substantive disciplines estimate	0.878	0.485	0.578**
Partial set of other substantive disciplines standard error	(0.554)	(0.383)	(0.279)
No other substantive disciplines estimate	1.907***	0.447	1.364***
No other substantive disciplines standard error	(0.524)	(0.362)	(0.360)
Log (distance) estimate	0.681***	0.557	0.682***

Variable estimates and standard errors	Finance and insurance	Professional services	Wholesale and retail
Log (distance) standard error	(0.235)	(0.345)	(0.246)
Common language estimate	0.677***	0.116	-0.0669
Common language standard error	(0.230)	(0.313)	(0.294)
Colonial relationship estimate	1.644***	-0.404	0.118
Colonial relationship standard error	(0.327)	(0.498)	(0.321)
Contiguity estimate	1.187***	0.920*	1.445***
Contiguity standard error	(0.313)	(0.551)	(0.434)
EU membership estimate	-0.611	0.211	-0.00722
EU membership standard error	(0.627)	(0.494)	(0.505)
Number of observations	11,387	6,334	7,141

Source: USITC estimates.

Notes: Standard errors are clustered at the country-pair level. *** p<0.01, ** p<0.05, * p<0.1

Effects of Intellectual Property Rights Provisions on Goods and Services Trade

This section describes the details of the econometric model presented in chapter 3, estimating the trade effects of intellectual property rights (IPR) provisions in global RTAs, including U.S. FTAs, on trade in goods and services. RTAs are grouped into one of three categories: (1) those with IPR provisions that exceed the requirements of the WTO's Agreement on Trade-Related Intellectual Property Rights (TRIPS), also known as TRIPS-plus provisions; (2) those with IPR provisions that do not go beyond TRIPS requirements; and (3) those with no IPR provisions. The model uses the same basic gravity approach as in the economy-wide analysis, with exporter and importer-time fixed effects to control for multilateral resistance and country-pair fixed effects to control for unchanging country-pair specific variables that impact trade. The model is given by the following equations, which are estimated separately for three samples (all sectors, IPR-intensive sectors, and non-IPR intensive sectors):

$$X_{ijt}^S = \exp(\beta_1 NoIPR_{ijt} + \beta_2 IPR_{ijt} + \beta_3 TRIPSplus_{ijt} + S_{it} + D_{jt} + \lambda_{ij}) * \epsilon_{ij} \quad (7)$$

$$X_{ijt}^S = \exp(\beta_1 NoIPR_{ijt} + \beta_2 IPR_{ijt} + \beta_3 TRIPSplus_{ijt}^{US} + \beta_4 TRIPSplus_{ijt}^{No\ US} + S_{it} + D_{jt} + \lambda_{ij}) * \epsilon_{ij} \quad (8)$$

In both equations 7 and 8, X_{ijt}^S represents the bilateral trade between exporter i and importer j in sector s in time t . $NoIPRTA_{ijt}$ equals one if the importer-exporter pair is party to an agreement with no IPR provisions in a given year. IPR_{ijt} equals one if the importer-exporter pair is party to an agreement with any IPR provisions that are not TRIPS-plus provisions. In equation 7, $TRIPSplus_{ijt}$ equals one if the importer-exporter pair is party to an agreement with TRIPS-plus provisions in a given year. In equation 8, the TRIPS-plus indicator variable is broken into two parts: $TRIPSplusUS_{ijt}$ equals one if the importer-exporter pair is party to an agreement with TRIPS-plus provisions in a given year and one partner is the

United States, and $TRIPSplusNoUS_{jt}$ equals one if the importer-exporter pair is party to an agreement with TRIPS-plus provisions in a given year but does not include the United States as a partner. S_{it} and D_{jt} are the country-specific terms capturing all exporter-year and importer-year characteristics; λ_{ij} are country-pair fixed effects to capture endogenous linkages between trade policy and other bilateral determinants of trade

The model uses trade data from the USITC's ITPD-E database, which contains bilateral exports and imports in 170 sectors for 243 countries for the years 2000–2016 (including 153 goods sectors and 17 services sectors).¹⁰⁴⁶ Since data in the ITPD-E dataset are only available for this time period, these data do not allow the Commission to identify the effects of RTAs, such as NAFTA, that were signed before 2000. Although these RTAs are coded in the dataset, they do not vary over the sample period and so are captured by the fixed effects used in the model. Another consequence of this sample is that the trade effects of TRIPS are not estimated. TRIPS entered into force in 1995 for most developed countries; only 24 countries included in the sample entered into TRIPS after 2000, and sectoral trade data for many of these countries is limited. As such, the effects of TRIPS are absorbed in the country-pair fixed effects that control for unchanging relationships between trading partners during the sample period.

Data on IPR provisions in RTAs come from Morin and Surbeck (2020), who identify specific types of IPR provisions in RTAs.¹⁰⁴⁷ These data cover 324 agreements: 74 of which have TRIPS-plus provisions; 201 of which have some IPR provisions but no TRIPS-plus provisions; and 49 of which contain no IPR provisions (table F.23). The category of RTAs with TRIPS-plus provisions includes 13 U.S. FTAs and 61 non-U.S. RTAs. To ensure consistency across models in this report and with the dynamic gravity dataset (which contains additional gravity variables including the presence of RTAs) used in conjunction with the ITPD-E database, only WTO-listed RTAs were included.¹⁰⁴⁸ The Commission's indicator variables for TRIPS-plus provisions does not take into account any information about the specific type of provision beyond its TRIPS-plus nature.¹⁰⁴⁹

Table F.23 Summary of reciprocal trade agreements by type of intellectual property rights (IPR) provisions

RTA types	All agreements	U.S. agreements
Total RTAs	324	14
RTAs with TRIPS-plus provisions	74 ^a	13

¹⁰⁴⁶ Borchert, Larch, Shikher, and Yotov, “[The International Trade and Production Database for Estimation \(ITPD-E\)](#),” 2020.

¹⁰⁴⁷ Of RTAs with at least one TRIPS-plus provision in the sample, over 50 percent have between 5 and 15 provisions while about 25 percent have 20 or more provisions. However, 87 percent of all trade flows in the model are between country-pairs with no TRIPS-plus provisions (either they are not in a RTA or in a RTA with no TRIPS-plus provisions). USITC calculations, based on Morin and Surbeck, “[Mapping the New Frontier](#),” January 2020, 109–122.

¹⁰⁴⁸ Morin and Subeck identify 126 RTAs with TRIPS-plus provisions. Some of these RTAs are more narrow agreements that are not listed by WTO, while others fall outside the years used in this sample. For example, a U.S.-Vietnam bilateral trade agreement is identified in the Morin and Surbeck dataset as having TRIPS-plus provisions, but this agreement is considered outside the scope of this report and so was not included in the dataset used for estimation.

¹⁰⁴⁹ This information is included in the Morin and Surbeck database and provides a basis for future research. See Morin and Surbeck, “[Mapping the New Frontier](#),” January 2020, 109–22.

RTA types	All agreements	U.S. agreements
RTAs with any IPR provisions but not TRIPS-plus provisions	201	1 ^b
RTAs with no IPR provisions	49	0

^a Of these agreements, 30 agreements are between the EU or EFTA (European Free Trade Area) and third countries.

^b The U.S.-Israel agreement, which was signed in 1985, is the only U.S. FTA that does not contain TRIPS-plus provisions.

The model further considers whether the traded products are associated with industries that are considered IPR-intensive or not. Based on the literature, trade in IPR-intensive products may be positively associated with greater IPR protections in RTAs as strengthening IPR rules may reduce the threat of infringement and facilitate trade.¹⁰⁵⁰ The identification of IPR-intensive industries relies on the U.S. Department of Commerce's designation of U.S. industries with above-average IPR-intensity based on counts of patents and trademarks relative to employment in the industry sector.¹⁰⁵¹ The U.S. Department of Commerce analysis also identifies copyright-intensive industries.¹⁰⁵² This information at the industry level is then matched to product and services categories as reflected in the ITPD-E dataset using a concordance from the U.S. Census Bureau,¹⁰⁵³ resulting in 69 IPR-intensive sectors and 101 non-IPR-intensive sectors.¹⁰⁵⁴ The final dataset includes all country-pairs in the ITPD-E database, and the data on trade agreements and provisions includes both U.S. FTAs and non-U.S. RTAs.

Table F.24 presents results for the specification described in equation 7 above, estimated separately for three samples. Column 1 presents the specification for the full sample including all 170 sectors present in the ITPD-E dataset. Column 2 presents the same specification, but only for IPR-intensive sectors as defined above. Column 3 presents the same specification again for non-IPR-intensive sectors. Separating results by IPR-intensive and non-IPR-intensive sectors follows the presentation in Campi and Dueñas (2019).¹⁰⁵⁵ To account for potential phase-in periods for IPR provisions, as well as for the time it may

¹⁰⁵⁰ This literature is reviewed in chapter 5.

¹⁰⁵¹ USDOC, "[Intellectual Property and the U.S. Economy](#)," 2016, 7. The report is a joint product of the Commerce Department's United States Patent and Trademark Office (USPTO) and Economics and Statistics Administration (ESA).

¹⁰⁵² USDOC, "[Intellectual Property and the U.S. Economy](#)," 2016, 9; see also WIPO, [Guide on Surveying the Economic Contribution](#), 2015.

¹⁰⁵³ U.S. Census Bureau, "[North American Industry Classification System: Concordances](#)," accessed October 7, 2020. The matches between the sectors classified by USPTO and the ITPD-E dataset were not always exact. For example, the USPTO classifies semiconductors and other electronic components (NAICS 3344) as IPR-intensive but due to sectoral aggregation it falls under the broader category electronic valves and tubes (ISIC 2610) in the ITPD-E database. Thus, industries in this model which have been identified as IPR-intensive may contain subsectors which are less likely to be IPR-intensive along with subsectors which are more likely to be IPR-intensive. Conversely, industries identified as non-IPR-intensive may include IPR-intensive subsectors.

¹⁰⁵⁴ The sector identification was binary, each sector was classified as either IPR-intensive or non-IPR-intensive.

¹⁰⁵⁵ This model was also estimated using trade in all sectors with an interaction between an indicator variable which denotes membership in a RTA with TRIPS-plus provisions and whether a sector is IPR-intensive, following the approach used in Maskus and Ridley, "[Intellectual Property-Related Preferential Trade Agreements](#)," 2019. The coefficient of the interaction variable was negative and significant, so that membership in an RTA with TRIPS-plus provisions was associated with a smaller increase in trade in IPR-intensive sectors than in non-IPR-intensive sectors. These results are generally consistent with those found here based on the approach in Campi and Duenas, "[Intellectual Property Rights, Trade Agreements, and International Trade](#)," 2019, 531–45.

take firms to adjust their patterns of trade, all three models include a three-year lag of all treatment variables.¹⁰⁵⁶ The combined effects are presented in table F.24.

Table F.24 Impact of RTAs with different types of IPR provisions on trade

Variable estimates and standard errors	(1) Trade (all sectors)	(2) Trade (IPR-intensive sectors)	(3) Trade (non-IPR-intensive sectors)
RTA with TRIPS-plus provisions estimate	0.596*** (0.122)	0.223*** (0.066)	0.656*** (0.147)
RTA with TRIPS-plus provisions standard error			
RTA with IPR provisions but not TRIPS-plus provisions estimate	0.257* (0.149)	0.217*** (0.064)	0.172 (0.183)
RTA with IPR provisions but not TRIPS-plus provisions standard error			
RTA with no IPR provisions estimate	-0.247** (0.109)	0.108*** (0.035)	-0.382*** (0.129)
RTA with no IPR provisions standard error			
Number of observations	9,304,399	4,041,749	5,260,641

Source: USITC estimates.

Note: Standard errors are clustered at the country-pair level. *** p<0.01, ** p<0.05, * p<0.1. Importer-sector-year, exporter-sector-year, and country-pair fixed effects are included in all estimations.

As shown in column 1, the econometric estimates suggest that membership in an RTA containing TRIPS-plus provisions has a positive and significant effect on total trade in all sectors. The same is true for RTAs containing IPR provisions that are not TRIPS-plus. Focusing only on IPR-intensive sectors (column 2), membership in RTAs with TRIPS-plus provisions and membership in RTAs with IPR provisions that do not rise to the level of TRIPS-plus, have a positive and significant effect on trade in IPR-intensive sectors. For non-IPR-intensive sectors (column 3), a positive and significant effect was also found for membership in an RTA with TRIPS-plus provisions, and this effect was larger than the effect found for the IPR-intensive sectors.

These results suggest that other commitments in RTAs, in addition to TRIPS-plus provisions, may be driving the positive effects on trade for both IPR-intensive and non-IPR-intensive sectors. In particular, trade agreements with TRIPS-plus provisions are correlated with overall RTA depth, and deeper commitments in goods and services sectors may increase trade in those sectors.¹⁰⁵⁷ This effect may outweigh the effect of TRIPS-plus provisions on trade in IPR-intensive sectors.¹⁰⁵⁸

¹⁰⁵⁶ Since the data only begin in 2000, using this approach restricts the number of observations. To balance this tradeoff, three-year lags were chosen. The model was also estimated using five-year lags, with similar overall results.

¹⁰⁵⁷ Morin and Surbeck document a clear positive correlation between the depth of RTAs and TRIPS-plus provisions. Morin and Surbeck, “[Mapping the New Frontier](#),” January 2020, 109–22.

¹⁰⁵⁸ This model was also estimated at the sector level; trade in some sectors which should not be affected by IPR provisions, such as agricultural commodities, showed a positive and significant relationship with membership in an RTA with TRIPS-plus provisions. This finding reinforces the difficulty of disentangling the effects of TRIPS-plus provisions from other non-IPR provisions in RTAs that may be driving the results.

Two other potential explanations for these results involve the level of sectoral aggregation in the data and the degree of implementation of provisions. While a few studies have found positive and significant effects of TRIPS-plus provisions in IPR-intensive sectors, those sectors have been narrowly defined.¹⁰⁵⁹ The 170 sectors used in this analysis may not be disaggregated enough to differentiate between sectors affected by more general IPR provisions (or TRIPS-plus provisions) and those that are not. These model results also give the average effect of having an RTA with TRIPS-plus commitments but do not control for the degree to which these commitments are enforced and implemented.¹⁰⁶⁰ To the extent that other non-IPR commitments are implemented more quickly (so they are captured by the three-year lag for the treatment variables) or enforced more completely (so they have a greater effect on trade), this may also contribute to the differing effects in IPR-intensive and non-IPR-intensive sectors.

To focus the analysis on the effects of U.S. FTAs with TRIPS-plus provisions, table F.25 presents results for the specification described in equation 8. This specification separates the TRIPS-plus indicator variable into two groups: U.S. FTAs that contain TRIPS-plus provisions and non-U.S. RTAs that contain TRIPS-plus provisions. Based on column 1, the effects on total trade are greater for U.S. FTAs with TRIPS-plus provisions than for non-U.S. RTAs. Across all three samples, the effects of membership in U.S. FTAs with TRIPS-plus provisions are greater than for non-U.S. RTAs with TRIPS-plus provisions. This suggests that U.S. FTAs may have greater trade-enhancing effects, as compared to non-U.S. RTAs, although this model appears to be unable to disentangle the effects of TRIPS-plus provisions from other commitments.

Table F.25 Impact of U.S. and non-U.S. TRIPS-plus provisions on trade

Variable estimates and standard errors	(1) Trade (all sectors)	(2) Trade (IPR-intense sectors)	(3) Trade (non-IPR-intense sectors)
U.S. FTAs with TRIPS-plus provisions estimate	0.881*** (0.334)	0.232*** (0.087)	0.938*** (0.365)
Non-U.S. RTAs with TRIPS-plus provisions estimate	0.531*** (0.132)	0.224*** (0.077)	0.592*** (0.161)
RTAs with IPR provisions but not TRIPS-plus estimate	0.182 (0.149)	0.215*** (0.072)	0.096 (0.185)
RTAs with no IPR provisions estimate	-0.270** (0.109)	0.107*** (0.035)	-0.407*** (0.129)
Number of observations	9,304,399	4,041,749	5,260,641

Source: USITC estimates.

¹⁰⁵⁹ See Maskus and Ridley, “[Intellectual Property-Related Preferential Trade Agreements](#),” December 2019.

¹⁰⁶⁰ An emerging literature is beginning to develop approaches for measuring how IPR commitments are implemented, although the literature is mostly limited to patent protections. Papageorgiadis and McDonald, “[Defining and Measuring the Institutional Context](#),” 2019, 3–18.

Note: Standard errors are clustered at the country-pair level. *** p<0.01, ** p<0.05, * p<0.1. Importer-sector-year, exporter-sector-year, and country-pair fixed effects are included in all estimations.

Effects of Digital Trade Provisions on Services Trade

Data and Methodology

This section describes the details of the econometric model estimating the effect of digital trade provisions in RTAs on services trade.

The model is given by the following equation, which is estimated separately for each of the seven services sectors covered in the report:

$$Trade_in_Services_{ijt}^s = \exp(\beta_1 PTA_{ijt} + \beta_2 DigitalPTA_{ijt} + \beta_4 EU_{ijt} + S_{it} + D_{jt} + \lambda_{ij}) * \epsilon_{ij} \quad (9)$$

PTA equals one if the importer-exporter pair has an RTA.¹⁰⁶¹ *DigitalPTA* equals one if the importer-exporter pair has an RTA with digital trade provisions in a given year.¹⁰⁶² To control for the effect of being part of the European Union, *EU* equals one if the importer-exporter pair are both EU members in a given year. Exporter-year-sector, importer-year-sector, and importer-exporter fixed effects are used to control for multilateral resistances and potential sources of endogeneity in the structural gravity model. Finally, ϵ_{ij} represents the error term, clustered at the country pair level.

One of the challenges of modeling the impact of digital trade provisions in trade agreements on trade flows is that, over time, exogenous development of new technologies and increased global access to the internet likely influence the inclusion of digital trade provisions in trade agreements. This exogenous development of technology is controlled for by exporter-year-sector and importer-year-sector fixed effects.¹⁰⁶³ Relatedly, if there is a period in the sample where services trade via the internet is not feasible, the impact of digital trade provisions would be capturing the effect of the internet itself. However, since services trade models using data before 2000 have found evidence supporting the use of the internet to facilitate services trade (Freund and Weinhold, 2002), it is reasonable to assume that services trade was conducted via the internet throughout the sample period (2000-2016).¹⁰⁶⁴

In the main text, the *DigitalPTA* variable is a broad measure covering any provision related to digital trade. In this appendix, sensitivity analysis of this main result also considers two more specific types of digital provisions. For each variation of the *DigitalPTA* variable, the provisions might appear anywhere in

¹⁰⁶¹ This term does not include membership in the WTO.

¹⁰⁶² This term implicitly is an interaction between PTA and Digital Trade provisions—it is not possible for DigitalPTA to equal 1 if PTA is not also 1.

¹⁰⁶³ However, this specification of the structural gravity model does not include a control that captures the overall level of internet and digital technology development over time.

¹⁰⁶⁴ In particular, Freund and Weinhold find that the number of internet hosts in a country is positively and significantly related to services trade growth from 1995 to 1999. Freund and Weinhold, “[The Internet and International Trade in Services](#),” 2002.

an agreement, not only in a digital-trade specific chapter. The specific provisions considered in this appendix are:

- *Prohibitions on duties on electronic transmissions:* This measure equals one when a PTA includes a provision prohibiting duties on electronic transmissions. Since the data used is available from 2000 to 2016, these agreements represent provisions that provide more certainty than the WTO moratorium on customs duties for electronic transmissions, which must be renewed periodically.¹⁰⁶⁵
- *Data flow provisions:* This measure equals one when a PTA includes a provision facilitating the free movement of data between country pairs, including those that specifically ban data localization.¹⁰⁶⁶

Table F.26 Summarizes the composition of the sample of trade agreements covered. Over the period studied, 2000-2016, there are no cases of U.S. trade agreements without digital trade provisions.

Table F.26 Summary of reciprocal trade agreements (RTAs) by digital trade provisions, 2000–2016

Provision	All agreements	U.S. agreements
RTAs with no digital provisions	197	0
RTAs with any digital provision	83	10
RTAs with electronic transmissions duties prohibition	55	10
RTAs with data flow provisions	50	7
Total	280	10

Sources: Burri and Polanco, “[Digital Trade Provisions in Preferential Trade Agreements: Introducing a New Dataset](#),” 2020; Gurevich and Herman, “[The Dynamic Gravity Dataset](#),” 2018.

Note: These totals represent agreements that entered into force over the sample period. Trade agreements with digital trade-related provisions that entered into force after 2016, such as USMCA, are not included in these totals.

Table F.27 reports full results of the digital trade specification presented in the main text.

Table F.27 Impact of RTAs with digital trade provisions, by services sector

Variable	estimates and standard errors	Construction	Insurance and pension	Financial services	Charges for intellectual property	Telecom, computer, information	Other business services	Trade related services
Any RTA estimate	-0.254	0.0910	0.0212	-0.0794	-0.00271	0.115	0.146	
Any RTA standard error	(0.209)	(0.250)	(0.138)	(0.138)	(0.141)	(0.0949)	(0.247)	
Digital RTA estimate	0.268***	0.554***	0.799***	0.436***	0.769***	0.527***	0.0564	
Digital RTA standard error	(0.102)	(0.0961)	(0.0916)	(0.0986)	(0.0450)	(0.0595)	(0.102)	
EU membership estimate	0.180	0.620***	0.919***	-0.324	0.519***	0.600***	0.545***	

¹⁰⁶⁵ See chapter 4 for an in-depth discussion of the WTO moratorium on customs duties for electronic transmissions.

¹⁰⁶⁶ Due to insufficient observations, the effect of prohibitions on data localization measures cannot be assessed separately from all data flow provisions.

Variable								
estimates and standard errors	Construction	Insurance and pension	Financial services	Charges for intellectual property	Telecom, computer, information	Other business services	Trade related services	
EU membership standard error	(0.281)	(0.224)	(0.201)	(0.237)	(0.164)	(0.135)	(0.196)	
Number of observations	41,472	46,430	49,103	43,894	56,175	61,203	38,823	
Akaike information criterion (AIC)	638,849.5	540,468.9	942,248.1	701,383.9	110,7950.4	306,5029.5	553,330.3	

Source: USITC estimates.

Note: Standard errors are clustered at the country-pair level. *** p<0.01, ** p<0.05, * p<0.1. Exporter-year, importer-year, and importer-exporter fixed effects are included in all estimations.

Robustness and Additional Specifications

As a robustness check for the main specification, table F.28 shows the same regression results, excluding the control for any RTA. As the table shows, the exclusion of this control does not change the magnitude or significance of the digital RTA coefficients in the regressions. However, the Akaike information criterion (AIC) numbers in table F.28 are larger than those in F.27, suggesting that the specification including the any RTA provision is a better fit for the data.¹⁰⁶⁷ Thus, the control for Any RTA is part of the main specification, despite its lack of significance.

Table F.28 Digital trade provisions robustness check, excluding Any RTA variable, by services sector

Variable								
estimates and standard errors	Construction	Insurance and pension	Financial services	Charges for IP	Telecom, computer, information	Other business services	Trade related services	
Digital RTA estimate	0.247**	0.559***	0.800***	0.408***	0.768***	0.535***	0.0582	
Digital RTA standard error	(0.101)	(0.0924)	(0.0885)	(0.0879)	(0.0443)	(0.0565)	(0.101)	
EU membership estimate	0.158	0.627***	0.920***	-0.317	0.519***	0.603***	0.553***	
EU membership standard error	(0.279)	(0.226)	(0.202)	(0.238)	(0.164)	(0.135)	(0.197)	
Number of observations	41,472	46,430	49,103	43,894	56,175	61,203	38,823	
Akaike information criterion (AIC)	639,319.1	540,516.8	942,249.4	701,470.8	1,107,948.5	3,065,658.2	553,356.2	

Source: USITC estimates.

¹⁰⁶⁷ Since the PPML model is non-linear, the more familiar r-squared statistic cannot be used to compare goodness-of-fit for these regressions. Instead, lower values of the AIC indicate better model fits.

Notes: Standard errors are clustered at the country-pair level. *** p<0.01, ** p<0.05, * p<0.1. Exporter-year, importer-year, and importer-exporter fixed effects are included in all estimations.

In addition to this robustness check, tables F.29 and F.30 show the results of alternative specifications of the digital trade regressions, focusing on two specific types of digital provisions in trade agreements. First, the relationship between RTAs including provisions banning duties on electronic transmissions (table F.31) and trade is again positive and significant for six of the seven sectors covered. Second, while the magnitudes of the coefficients are similar across specifications, in this case, insurance and pension, financial services, telecom, computer, information and other business services all have slightly larger coefficients here than in the baseline case, suggesting that provisions banning duties on electronic commerce may be more directly beneficial for these sectors. Additionally, the AIC for these four sectors suggest this model is a better fit than the baseline specification. In contrast, in construction, the coefficient on RTA with electronic transmissions duties prohibition is smaller and less statistically significant than in the baseline case.

Table F.29 Impact of electronic transmissions duties prohibition, by services sector

Variable		Insurance and pension	Financial services	Charges for IP	Telecom, computer, information	Other business services	Trade related services
estimates and standard errors	Construction						
Any RTA estimate	-0.210	0.101	0.0215	-0.0480	0.0166	0.114	0.151
Any RTA standard error	(0.213)	(0.249)	(0.138)	(0.134)	(0.143)	(0.0964)	(0.249)
RTA with electronic transmissions duties prohibition estimate	0.236**	0.571***	0.815***	0.421***	0.785***	0.540***	0.0526
RTA electronic transmissions standard error	(0.103)	(0.0977)	(0.0938)	(0.0989)	(0.0455)	(0.0607)	(0.102)
EU membership estimate	0.205	0.606***	0.907***	-0.320	0.504***	0.589***	0.548***
EU membership standard error	(0.282)	(0.226)	(0.202)	(0.237)	(0.165)	(0.135)	(0.196)
Number of observations	41,472	46,430	49,103	43,894	56,175	61,203	38,823
Akaike information criterion (AIC)	639,497.9	539,401.3	940,354.9	701,768.4	1,104,686.1	3,060,355.4	553,352.0

Source: USITC estimates.

Note: Standard errors are clustered at the country-pair level. *** p<0.01, ** p<0.05, * p<0.1. Exporter-year, importer-year, and importer-exporter fixed effects are included in all estimations.

Table F.30 uses RTAs with provisions on free data flows and data localization prohibition as the main explanatory variable. In this case, the magnitude and significance of the RTA with Free Data Flows variable is similar to the all-digital provisions variable in the baseline case. In this case, it is interesting to

note that the positive effect of free data flows on trade is slightly larger for charges for intellectual property here than either of the two other specifications, and this model is also the best fit for charges for IP.

Table F.30 Impact of free data flow provisions, by services sector

Variable		Insurance and pension	Financial services	Charges for intellectual property	Telecom, computer, information	Other business services	Trade related services
estimates and standard errors	Construction						
Any RTA estimate	-0.215	0.121	0.0953	-0.0418	0.0389	0.132	0.152
Any RTA standard error	(0.212)	(0.248)	(0.120)	(0.127)	(0.144)	(0.0981)	(0.249)
RTA with free data flows estimate	0.228**	0.553***	0.807***	0.477***	0.772***	0.526***	0.0517
RTA free data flows standard error	(0.103)	(0.0961)	(0.0923)	(0.0934)	(0.0452)	(0.0596)	(0.101)
EU membership estimate	0.213	0.620***	0.906***	-0.338	0.514***	0.599***	0.549***
EU membership standard error	(0.281)	(0.225)	(0.202)	(0.237)	(0.164)	(0.135)	(0.196)
Number of observations	41,472	46,430	49,103	43,894	56,175	61,203	38,823
Akaike information criterion (AIC)	639,612.8	540,504.0	940,927.8	700,256.4	1,107,544.9	3,065,549.9	553,357.1

Source: USITC estimates.

Note: Standard errors are clustered at the country-pair level. *** p<0.01, ** p<0.05, * p<0.1. Exporter-year, importer-year, and importer-exporter fixed effects are included in all estimations.

Transition from a U.S. Preference Program to a U.S. FTA

This section provides the modeling details on the analysis presented in chapter 3 examining the reduction in trade policy uncertainty (TPU) due to the U.S.-Colombia Trade Promotion Agreement (U.S.-Colombia agreement) in 2012.

The Commission's analysis closely follows the methodology established in Handley and Limão (2015), who derived the estimating equation from a structural model that describes firms' decisions to export.¹⁰⁶⁸ Each industry V has a continuum of firms with marginal cost c drawn from a distribution $G_V(c)$. Firms can export a differentiated good $v \in V$ to country i by paying ad-valorem tariff $\tau_{iv} \geq 1$ and

¹⁰⁶⁸ Handley and Limão, “[Trade and Investment](#),” 2019.

a fixed investment cost K_{iV} . Only firms with the marginal cost below a certain threshold will actually export. Consumers have constant elasticity of substitution demand with the elasticity parameter $\sigma > 1$.

With TPU, the value of τ_{iV} is uncertain, which gives firms an incentive to wait before making the necessary fixed investments. Therefore, non-exporters become exporters only when the value of exporting, net of the fixed investment cost, is greater than the expected value of waiting to begin exporting.

Each period, there is a probability γ of a policy shock (such as a new agreement, trade war, etc.) that changes the tariff rate in an industry to $\tau' \in \tau^L, \tau^H$, where $\tau^L < \tau' < \tau^H$. With TPU, i.e. $\gamma \in (0, 1)$, there is lower entry into exporting when the current tariff is below the maximum.

Given this framework, Handley and Limão (2015) derive the following equation for the number of firms in industry V that export at time t , n_{tV} :

$$\ln n_{tV} = b_{\gamma T} \tilde{\omega}_{tV} + b_\gamma \ln \tau_{tV} + \tilde{u}_{tV} \quad (10)$$

where

$$\tilde{\omega}_{tV} \equiv \frac{1 - (\tau_{tV}/\tau_{hV})^\sigma}{\sigma - 1} \quad (11)$$

is the uncertainty measure ($T = 0$ or 1 for before and after policy change) with $b_{\gamma T}$ measuring its impact on entry, τ_{tV} is the applied tariff, τ_{hV} is the potential worst-case tariff, and u_{tV} is a random disturbance due to measurement error. Note that the uncertainty measure ω_{tV} is high when the risk (potential loss τ_{tV}/τ_{hV}) is high.

Equation (10) is estimated in differences comparing a period before and a period after the policy change, in this case implementation of the U.S.-Colombia agreement in 2012. The resulting estimating equation is

$$\Delta_t \ln n_{tV} = b_{\gamma 1} \tilde{\omega}_{1V} - b_{\gamma 0} \tilde{\omega}_{0V} + b_\gamma \Delta_t \ln \tau_{tV} + \Delta_t \tilde{u}_{tV}. \quad (12)$$

The model predicts that the U.S.-Colombia agreement would induce more Colombian firms to begin exporting in industries with higher initial potential loss ω_{0V} . Thus, the agreement led to the United States importing more varieties of goods from Colombia.

Data on the participation of Colombian firms in exports to the United States is from the Customs Net Import File (CNIF). The CNIF transaction data contain the Harmonized Tariff Schedule of the United States (HTS) 10-digit code (HTS10), value of the transaction, and the name of the Colombian producer/exporter.¹⁰⁶⁹ Each year, there are approximately 15,000 transactions. Two measures of entry

¹⁰⁶⁹ One issue with the CNIF data is that the name of the same producer can be entered differently in the database for different transactions. To remove duplicate producer entries, the list of producers is run through a fuzzy text matching algorithm, allowing for non-exact matches between firm names.

are used: the number of producers per each HTS code and the number of producer-HTS10 combinations per each HTS code, which measures the number of varieties.

The baseline estimates of equation (12) use data on the number of varieties (producer-HTS10 combinations), ad-valorem applied tariffs, and ad-valorem MFN tariffs for the year before the entry of the agreement into force (2011) and the year after the entry of the agreement into force (2013). Since 99 percent of industrial goods and textile tariff lines and 89 percent of agricultural tariff lines became duty free upon implementation of the agreement, looking at the year after the agreement implementation is appropriate.¹⁰⁷⁰

The estimated value of $-b_{\gamma 0}$ in equation (12) is 4.6 and statistically significant with 99 percent confidence. This means that the agreement generated more entry in the varieties with higher pre-agreement risk. The estimated value of b_γ is -3.4 and statistically significant, which means that, as expected, the agreement generated more entry in the varieties with the greater tariff reductions. These estimates were obtained using heteroskedasticity-robust errors.

Given the estimates above, it is possible to calculate other structural parameters of the model. The estimated probability of reversal to MFN rates before the agreement can be calculated using the following equation:

$$\hat{r}_0 = \frac{\hat{b}_{\gamma 0}}{\hat{b}_\tau} \frac{\sigma}{\sigma - 1} \frac{1 - \beta}{\beta}, \quad (13)$$

where β is the time discount factor of firms. Following Handley and Limão (2015), the values for parameters σ and β are set equal to 3 and 0.85, respectively. With these values, the estimated probability of reversal before the agreement is equal to 36 percent, meaning that before the agreement went into force, Colombian firms believed that there was a 36 percent chance of losing preference program benefits and reverting to U.S. MFN tariffs. Thus, the implementation of the agreement resulted in a significant reduction of the TPU.

Several robustness checks check the sensitivity of the results to the estimation methodology. These include estimating equation (12) with additional HTS Section fixed effects, without using the 2011–13 HTS concordance, using ending years 2014 and 2015 instead of 2013, and using the count of producers instead of the count of producer-HTS10 varieties as the dependent variable. None of these changes has a significant effect on the estimates' values or significance levels presented above.

Effect of the KORUS Modification on the U.S. Truck Industry

This section describes the model used to determine the impact of the KORUS modification on the U.S. truck industry presented in chapter 3.

¹⁰⁷⁰ Since the HTS classification changed between 2011 and 2013, a concordance between the 8-digit HTS codes in 2011 and 2013 was used for all varieties.

Firm Entry Decision

A key step in the Commission's counterfactual analysis of the effect of KORUS tariff extensions was determining the most likely production location for Korean firms entering the U.S. truck market had the tariffs been reduced according to the original schedules. The likely economic impact of the KORUS tariff extensions is largely determined by how these extensions have altered Korean firms' production locations. The Commission relied on analysis from industry experts in the Commission to identify likely entry strategies for Korean firms in the counterfactual scenario where the tariff extensions remained in place. This section details the analysis performed to determine the most likely production location strategies for Korean firms entering the U.S. market in zero-tariff counterfactual simulations.

The Commission's industry experts examined the global passenger vehicle industry and concluded that the location of demand represents the main determinant of firms' optimal production location strategy (also known as "build where you sell"). Vehicle producers are most likely to establish production in the market where demand is highest for the vehicle being produced, reducing transport costs in the process.¹⁰⁷¹ However, vehicle producers face high upfront fixed costs, to build facilities and coordinate supply chains for establishing production, with some recent high profile investments costing more than \$1 billion.¹⁰⁷² These high fixed costs of production can prevent firms from establishing new vehicle production if the firms do not expect to sell the number of vehicles required to cover fixed costs of production. Vehicle producers can also design vehicle models that share parts or production processes with other vehicle models that are made in existing production facilities with excess capacity. Doing so can enable producers to establish new vehicle production at considerably lower fixed costs compared to costs required to build a new production facility.¹⁰⁷³

With the United States as the primary destination market, the Commission determined that Hyundai (firm A) would have been likely to locate production of trucks in the U.S. with or without the elimination of tariffs. Modeling scenarios presented in the body of this report assume Hyundai produces a truck model in the United States in both baseline and counterfactual scenarios. By leveraging excess capacity in the United States production plant, Hyundai can likely reduce its fixed costs of producing the new truck model compared to the costs of establishing a new production facility in Korea. At the same time, locating production in the United States would enable Hyundai to reduce transport costs relative to costs faced by exporting assembled vehicles from Korea. As such, the Commission believes Hyundai would most likely establish truck production in the United States, even in counterfactual scenarios where Korean truck imports receive duty-free treatment.

The Commission determined that SsangYong (firm B) would be likely to only enter the U.S. market as an exporter if tariffs are eliminated, and that it would not benefit from establishing production facilities in the United States. SsangYong already produces small pickup trucks with diesel engines for Korean and European markets. Given the trucks' smaller sizes, diesel engines, and consumers affinity to North American produced trucks, U.S. consumer demand for SsangYong's trucks is likely insufficient to justify relocating production to the United States. At the same time, SsangYong likely cannot profitably export trucks to the United States when the 25 percent import tariff is in place. As such, SsangYong does not

¹⁰⁷¹ Klier and Rubenstein, "[Who Really Made Your Car?](#)" 2008, 206.

¹⁰⁷² Eisenstein, "[GM to Invest \\$2.2B](#)," January 27, 2020; Bond and Chappell, "[There's no Slowdown](#)," May 6, 2019.

¹⁰⁷³ Reuters, "[Hyundai to Make Santa Cruz Pickups at Alabama Plant](#)," November 13, 2019.

produce trucks for the U.S. market in the Commission model's baseline scenario, but produces the U.S. truck market through exports in the counterfactual scenario where tariff reductions take place as originally scheduled.

PE Model Calibration and Simulations

The Commission's industry-specific partial equilibrium (PE) model of the United States market for light trucks was first calibrated using initial market conditions. The model used 2019 truck production and sales data to estimate model parameters including the producers' marginal costs and consumer preference parameters for each truck model. In the baseline scenario in which the tariffs on light trucks remain in place, firm A (Hyundai) enters the market by establishing production in the United States. In the counterfactual scenario, in which the tariffs are eliminated according to the original KORUS commitments, firm B (SsangYong) exports trucks to the U.S. market and firm A's strategy is unchanged. The difference in economic outcomes between baseline and counterfactual scenarios, driven by entry of firm B into the U.S. market through exports, represents the estimate of the Commission's likely economic impact of KORUS truck tariff modifications.

Since no Korean firms supply the U.S. truck market in 2019, the model does not have the data required to calibrate marginal cost and consumer demand parameters for the Korean firms entering if tariff reductions had remained in effect. Therefore, the Commission must make assumptions regarding the unobserved marginal costs and demand parameters in its counterfactual simulations. Given the uncertainty about those assumptions, the Commission's analysis includes a range of scenarios describing likely bounds of marginal costs and consumer demand for trucks produced by firm B (see table F.31).¹⁰⁷⁴

Table F.31 Key parameters for the Korean firm entering the U.S. truck market thorough exports

Model inputs	Lower bound	Upper bound
Expected marginal costs	Highest calibrated cost across all producers in baseline	Lowest calibrated cost across all producers in baseline
Expected U.S. market share	Same as the least popular truck model sold by a non-U.S. firm (0.5 percent)	Same as the most popular truck model sold by a non-U.S. firm (1.0 percent)

The above scenarios allow both marginal costs and consumer demand parameters to vary for firms entering in the counterfactual scenario. In the upper-bound counterfactual, the Korean firm enters with lower than average marginal costs to produce, and captures market shares similar to those of the most popular truck model sold by a non-U.S. brand. The low costs and high market shares assigned to entering firm result in comparatively large economic effects and can represent a plausible upper-bound estimate of the economic effects of truck tariff extensions under the modified KORUS agreement. Conversely, the lower-bound counterfactual represents a plausible estimate of the economic effect of KORUS truck extensions if firm B entered with comparatively high marginal costs to produce their trucks, and low levels of consumer demand for them. Table F.32 summarizes simulations for these two likely counterfactual scenarios.

¹⁰⁷⁴ In these simulations, the Commission also assumes that the expected U.S. market share for firm A, which enters through transplant production, is 1.1 percent in the lower-bound case and 2.2 percent in the upper-bound case.

Table F.32 Changes in prices, consumption, and profits in the U.S. truck market due to KORUS tariff modifications

In percent changes and number of trucks, relative to 2019 baseline

Model estimates	Lower-bound	Upper-bound
Average avoided percent change in North American truck model prices	-0.1	-0.1
Avoided percent change in quantities of North American produced trucks sold	-0.4	-1.0
Avoided change in quantities of North American produced trucks sold (total trucks)	-12,143	-30,360
Avoided percent change in total profits from truck models produced in North America	-0.6	-1.2

Source: USITC estimates.

The Commission also considered a scenario in which firm A enters the U.S. truck market through exports if the tariffs on light trucks are not eliminated. So, in this scenario, the KORUS tariff modifications result in firm A choosing not to establish production in North America and instead export from Korea. Table F.33 reports the estimated economic effects of KORUS truck tariff modifications if both firms A and B chose to supply the U.S. market through exports. In the lower-bound scenario, North American truck producers avoid an annual reduction in nearly 43,000 vehicles sold associated with a loss of 1.4 percent market share due to the continuation of tariffs on truck imports from Korea. In the upper-bound scenario, where Korean firms are assumed to capture a combined 3.5 percent of the U.S. market upon entry, North American truck producers avoided a reduction of more than 100,000 trucks sold annually. In both scenarios, North American firms can charge slightly higher prices to consumers due to the KORUS truck tariff extensions, increasing prices by less than 1 percent. Overall, in these scenarios, KORUS truck tariff extensions are assumed to have prevented Firm A from entering the U.S. market through export production, resulting in larger estimates of the economic impact from KORUS truck tariff extensions.

Table F.33 Changes in prices, consumption, and profits in the U.S. truck market due to KORUS tariff modifications if firm A exports in counterfactual (annual percent changes relative to counterfactual, unless specified otherwise)

Model estimates	Lower-bound	Upper-bound
Avoided average percent change in North American truck model prices	-0.2	-0.4
Avoided percent change in quantities of North American produced trucks sold	-1.4	-3.5
Avoided change in quantities of North American produced trucks sold (total trucks)	-42,504	-106,259
Avoided percent change in total profits from truck models produced in North America	-1.9	-4.9

Source: USITC estimates.

Estimated economic effects of the KORUS truck tariff extensions from the model simulations assuming that firm A enters through exports in the counterfactual yield results that are similar to estimates from the previous Commission analysis in U.S.-Korea FTA: Advice on Modifications to Duty Rates for Certain Motor Vehicles (*U.S.-Korea FTA*).¹⁰⁷⁵ In the most likely scenario from *U.S.-Korea FTA*, the Commission estimated the North American truck producers would avoid a reduction of 45,000 trucks sold per year

¹⁰⁷⁵ USITC, *U.S.-Korea FTA: Advice on Motor Vehicles*, June 2018.

due to the KORUS tariff extensions. This represents a slightly larger effect on quantities sold than the lower bound scenario presented in table F.33. Although the estimated effects are similar across analyses, the underlying assumptions differ. Compared to the analysis presented in this report, the analysis in the most likely scenario presented in *U.S.-Korea FTA* assumes that Korean producers would capture a significantly higher U.S. truck market share upon entry but would also evenly split truck production between the United States and Korea.

Appendix G

Tables for Figures

Table G.1 Uruguay Round and U.S. bilateral and regional agreements and date of entry into forceThis table corresponds to [figure 1.1](#).

FTA partner/region	Date of entry into 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
Chile	1/1/2004
Singapore	1/1/2004
Australia	1/1/2005
Morocco	1/1/2006
Bahrain	1/11/2006
CAFTA-DR/ El Salvador	3/1/2006
CAFTA-DR/ Nicaragua	4/1/2006
CAFTA-DR/ Honduras	4/1/2006
CAFTA-DR/ Guatemala	7/1/2006
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
USMCA	7/1/2020

Sources: For agreements with Australia, Canada, Bahrain, Chile, Colombia, Jordan Korea, Morocco, Oman, Panama, Peru, Singapore, Canada and Mexico (USMCA) dates are from USTR, “Free Trade Agreements,” <https://ustr.gov/trade-agreements/free-trade-agreements>; for agreements with Costa Rica, Dominican Republic, El Salvador, Guatemala, Honduras, and Nicaragua, dates are from USDS, “Benefits of U.S. Trade Agreements,” <http://www.state.gov/e/eb/tpp/bta/fta/c26474.htm>; for agreements with Mexico and Canada (NAFTA), and with Israel, dates are from USITC, *Economic Impact of Trade Agreements, 2016*. 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 January 8, 2021).

Table G.2 Total U.S imports and total U.S. exports value in 2019Imports and exports value in dollars. This table corresponds to [figures 1.2](#) and [1.3](#).

Country/region	Total U.S. imports	Total U.S. domestic exports
Non-FTA	1,628,335,904,021	762,080,833,052
NAFTA/USMCA	677,082,415,269	437,435,552,297
Korea	75,864,850,220	53,417,947,039
CAFTA-DR	25,780,767,827	30,185,188,414
Singapore	26,342,273,311	26,118,172,779
Other FTA partners	68,474,049,062	83,426,343,671

Source: USITC DataWeb/Census (accessed January 8, 2021). Data series are imports for consumption, customs value and domestic exports.

Table G.3 U.S. trade¹⁰⁷⁶ as a percentage of U.S. GDP, 1984–2019In percentage. This table corresponds to [figure 1.4](#).

Year	Share of GDP (percent)
1984	17.5
1985	16.6
1986	16.9
1987	18.0

¹⁰⁷⁶ Trade is the sum of exports and imports of goods and services measured as a share of gross domestic product.

Impact of the Trade Agreements, 2021 Report

Year	Share of GDP (percent)
1988	19.1
1989	19.4
1990	19.8
1991	19.8
1992	20.0
1993	20.0
1994	21.1
1995	22.5
1996	22.7
1997	23.4
1998	22.8
1999	23.3
2000	25.0
2001	22.8
2002	22.2
2003	22.5
2004	24.4
2005	25.6
2006	26.9
2007	28.0
2008	29.9
2009	24.6
2010	28.1
2011	30.8
2012	30.6
2013	30.0
2014	30.0
2015	27.7
2016	26.5
2017	27.1
2018	27.6
2019	26.4

Source: World Bank, World Development Indicators database (accessed January 8, 2021).

Table G.4 Employment shares of broad sectors across U.S. regions

In percentage. This table corresponds to [figure 3.1](#). MNF = most-favored-nation.

	Heavy MNF	Light MNF	Livestock	Mining	Tradable services	Other services	Government	Unallocated
New England	1.6	4.9	0.5	0.2	20.5	61.1	10.6	0.6
Mideast	0.7	2.7	0.6	0.0	21.7	60.0	12.2	2.1
Great Lakes	5.6	5.0	1.3	0.4	17.7	58.6	11.3	0.0
Plains	3.1	5.4	3.1	0.7	17.7	57.0	13.0	0.0
Southeast	2.4	4.3	1.3	0.6	17.4	60.8	13.2	0.0
Southwest	1.8	3.5	1.7	2.7	18.5	59.1	12.7	0.0
Rocky Mountain	1.2	3.1	2.1	1.5	19.5	58.1	13.4	1.0
Far West	1.3	4.7	1.2	1.3	19.8	59.3	12.4	0.0
USA	2.3	4.2	1.3	0.9	18.9	59.5	12.4	0.4

Source: Bureau of Economic Analysis and USITC estimates.

Table G.5 Effects of U.S. bilateral and regional trade agreements on U.S. real wages by gender, occupation, and education levelsIn percentage. This table corresponds to [figure 3.2](#).

Type	Management, business, and science	Services and technicians	Sales and office	Extraction, construction, and maintenance	Production and transportation
Women & high school	0.35	0.32	0.32	0.55	0.29
Women & college	0.29	0.29	0.28	0.56	0.21
Men & high school	0.59	0.32	0.33	0.85	0.40
Men & college	0.33	0.29	0.30	0.70	0.32

Source: USITC estimates.

Table G.6 Effects of U.S. bilateral and regional trade agreements on U.S. employment by gender, occupation, and education levelsIn number of full-time equivalent employees. This table corresponds to [figure 3.3](#).

Type	Women & high school	Women & college	Men & high school	Men & college
Management, business, and science	5,865	64,887	17,064	108,795
Services and technicians	10,851	49,837	8,277	18,386
Sales and office	13,125	30,081	6,936	22,475
Extraction, construction and maintenance	1,048	1,485	51,391	28,162
Production and transportation	4,916	2,814	25,222	13,231

Source: USITC estimates.

Table G.7 Average digital intensity increased by services sector, 2000–2016

In dollars per FTE.

This table corresponds to [figure 3.4](#).

Services Sectors	IT spending per employee (\$/FTE)
Trade-related services	157
Construction	457
Insurance and pension	1,138
Financial services	3,108
Other business services	11,741
Telecom, computer, and information	44,642

Source: USITC calculations using data from USDOC, BEA, "Table 6.5D. Full-Time Equivalent Employees by Industry," July 30, 2019, and USDOC, BEA, "The Use of Commodities by Industries-Summary version," accessed August 7, 2020.

Table G.8 Korean vehicle imports, by top countries, 2012–19In thousands of vehicles. This table corresponds to [figure 4.1](#).

Country	2012	2013	2014	2015	2016	2017	2018	2019
United States	28	32	34	49	60	53	55	55
Germany	79	89	119	152	121	100	118	126
Japan	21	38	49	42	45	56	60	59
France	3	3	4	9	6	6	7	54
Rest of world	38	43	74	95	85	95	96	88

Country	2012	2013	2014	2015	2016	2017	2018	2019
Total	169	205	280	346	317	310	337	382

Source: IHS Markit, Global Trade Atlas database, HS headings 8703 and 8704, accessed October 8, 2020.

Note: Table is total quantity of both 8703 and 8704, so includes medium and heavy trucks as well.

Table G.9 U.S. total exports to Korea, 2004–19

— (em dash) = not applicable (no event). This table corresponds to [figure 4.2](#).

Year	Vehicles exported	Events
2004	3,342	—
2005	6,982	—
2006	7,462	—
2007	14,245	KORUS signed 6/30/2007; vehicle allowance of 6,500 per manufacturer
2008	24,485	24,500 U.S. exports
2009	9,915	—
2010	17,070	Vehicle allowance increased to 25,000
2011	17,888	—
2012	25,188	KORUS EIF 3/15/2012
2013	30,607	—
2014	38,915	—
2015	50,838	—
2016	58,440	—
2017	54,507	—
2018	55,881	Vehicle allowance again increased to 50,000
2019	59,653	59,700 U.S. exports

Source: USITC DataWeb/Census, HS headings 8703 and 8704, accessed October 15, 2020.

Note: Table is total quantity of both 8703 and 8704, so includes medium and heavy trucks as well.

Table G.10 U.S. share of Korea's vehicle imports, 2004–19

In percentage. This table corresponds to [figure 4.3](#).

Year	U.S. share of Korean imports
2004	11.5
2005	10.5
2006	6.0
2007	7.4
2008	8.6
2009	9.1
2010	11.5
2011	9.9
2012	16.8
2013	15.5
2014	12.2
2015	14.2
2016	18.9
2017	17.0
2018	16.4
2019	14.5

Source: IHS Markit, Global Trade Atlas database, HS headings 8703 and 8704, accessed October 8, 2020.

Table G.11 Peru exports of wood and wood products, select destination markets, 2000–19In millions of dollars. This table corresponds to [figure 4.4](#).

Year	EU28	China	Mexico	United States
2000	2.1	0.8	15.5	41.7
2001	1.5	1.5	20.1	42.3
2002	2.3	1.0	24.7	61.0
2003	3.8	2.5	26.8	49.6
2004	4.6	8.0	38.9	53.1
2005	5.2	19.5	55.5	57.0
2006	4.3	44.8	55.9	71.8
2007	9.1	41.4	69.2	55.1
2008	7.1	62.4	78.1	37.6
2009	4.2	70.4	33.8	19.6
2010	5.2	79.3	33.7	21.4
2011	12.1	55.2	41.6	22.5
2012	11.7	52.0	37.0	27.8
2013	10.5	54.7	28.1	31.1
2014	13.8	66.2	31.9	25.4
2015	14.0	56.2	30.7	21.5
2016	12.5	59.6	16.0	19.6
2017	13.0	57.7	17.7	9.8
2018	20.1	51.9	13.0	11.0
2019	23.3	50.6	13.7	9.0

Source: IHS Markit's Global Trade Atlas, HS Chapter 44, accessed July 23, 2020.

Note: EU 28 includes the United Kingdom.

Table G.12 U.S. overall and wood imports from Peru, 2000–19

U.S. imports in billions U.S. dollars, U.S. Ch 44 imports in millions U.S. dollars; — (em dash) = not applicable (no event).

This table corresponds to [figure 4.5](#).

PTPA = United States-Peru Trade Promotion Agreement

Year	U.S. imports	U.S. Ch 44 imports	Events
2000	2.0	40.5	—
2001	1.8	43.6	—
2002	2.0	62.0	—
2003	2.4	50.6	—
2004	3.7	50.1	PTPA negotiation
2005	5.1	59.9	PTPA negotiation
2006	5.9	71.5	PTPA negotiation U.S. housing peak
2007	5.2	55.0	—
2008	5.8	37.5	—
2009	4.2	19.2	PTPA enters into force; Lacey Act's wood product phase in
2010	5.3	21.8	Lacey Act's wood product phase in; Forestry Annex enters into force.
2011	6.5	24.3	Lacey Act's wood product phase in
2012	6.6	26.7	Lacey Act's wood product phase in
2013	8.1	32.7	Lacey Act's wood product phase in
2014	6.0	25.6	Lacey Act's wood product phase in
2015	5.1	24.4	Lacey Act's wood product phase in
2016	6.2	19.6	—
2017	7.2	9.5	—
2018	7.8	11.9	—
2019	6.1	9.0	—

Source: USITC DataWeb/Census, Imports for consumption (accessed July 24, 2020).

Table G.13 Hourly Direct Pay in the Manufacturing Sector, 1996–2016In U.S. dollars per hour. This table corresponds to [figure 4.6](#).

Year	United States	Mexico
1996	17.73	1.52
1997	18.19	1.75
1998	18.62	1.82
1999	19.14	2.07
2000	19.86	2.42
2001	20.67	2.76
2002	21.54	2.89
2003	22.27	2.76
2004	22.77	2.76
2005	23.39	2.97
2006	23.61	3.10
2007	24.37	3.27
2008	25.09	3.39
2009	25.96	2.95
2010	26.26	3.21
2011	26.86	3.39
2012	27.14	3.31
2013	27.66	3.55
2014	28.28	3.55
2015	28.77	3.10
2016	29.65	2.74

Source: The Conference Board, International Labor Comparisons Program, April 2018.

Table G.14 Top 10 country markets for U.S. manufacturing sector FDI stocks, 2019In millions of U.S. dollars. This table corresponds to [figure 4.7](#).

Country	U.S. dollars
Netherlands	113,654
Canada	100,996
United Kingdom	98,965
China	54,192
Switzerland	49,876
Mexico	41,166
Belgium	40,008
Singapore	37,822
France	33,002
Japan	28,854

Source: USDOC, BEA, U.S. Direct Investment Abroad, U.S. Direct Investment Position Abroad on a Historical-Cost Basis, accessed October 6, 2020.

Table G.15 Issuances of H-1B, L-1, and TN Visas to Mexican Nationals, FY1998–2019This table corresponds to [figure 4.8](#).

Year	H-1B	L-1	TN
1998	2,320	1,925	287
1999	2,418	1,949	463
2000	2,404	2,290	878
2001	2,915	2,169	769
2002	2,990	2,020	686
2003	2,664	2,081	415
2004	3,016	2,285	902
2005	2,505	2,166	1,888
2006	2,699	2,361	2,949

Year	H-1B	L-1	TN
2007	2,905	2,535	4,060
2008	2,421	2,582	4,741
2009	2,190	1,770	4,105
2010	2,494	1,976	3,376
2011	2,647	3,126	4,918
2012	3,543	3,890	7,601
2013	3,686	4,079	9,480
2014	3,243	4,314	11,140
2015	2,894	4,678	12,996
2016	2,540	4,856	14,646
2017	2,322	5,036	15,993
2018	2,524	4,951	17,859
2019	2,754	5,082	21,122

Source: US DOS, Bureau of Consular Affairs, "Nonimmigrant Visa Issuances," accessed April 15, 2021.

Note: This table covers the longest span of years for which data on both visa issuances and admissions are available. U.S. visa issuance and admissions data are reported for the fiscal year (FY). The U.S. government fiscal year extends from October 1 to September 30.

Table G.16 U.S. exports of information and communications technology (ICT) services

In millions of U.S. dollars. This table corresponds to [figure 4.9](#).

Country	U.S. FTA partners	India, Indonesia, South Africa	All other
2006	7,357	477	27,661
2007	7,832	1,335	35,840
2008	8,887	1,414	40,301
2009	9,104	1,504	40,139
2010	10,220	1,384	45,348
2011	11,580	1,571	50,101
2012	12,089	1,698	53,792
2013	14,620	1,847	55,776
2014	13,623	2,075	55,515
2015	13,149	2,427	56,022
2016	15,132	2,724	55,982
2017	13,924	3,220	60,320
2018	17,230	3,232	59,284
2019	14,577	3,388	64,641

Source: USDOC, BEA, "Table 3.3. U.S. Trade in ICT and Potentially ICT-Enabled Services" (accessed December 18, 2020).

Note: 2006 is the earliest year available. ICT services as defined by the BEA include charges for the use of intellectual property for licenses to reproduce and/or distribute computer software, telecommunications services, and computer services. The "all other" category includes both WTO members and non-WTO members.

Table G.17 U.S. exports of ICT-enabled services

In millions of U.S. dollars. This table corresponds to [figure 4.10](#).

Country	U.S. FTA partners	India, Indonesia, South Africa	All other
2006	35,583	3,185	185,580
2007	41,558	4,254	227,083
2008	44,407	2,540	251,667
2009	50,700	5,250	238,952
2010	54,137	5,355	266,030
2011	66,464	4,111	294,578
2012	74,412	6,358	304,305
2013	65,360	6,549	328,728
2014	65,821	3,072	358,774
2015	78,344	3,107	347,570

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Country	U.S. FTA partners	India, Indonesia, South Africa	All other
2016	69,726	9,290	365,799
2017	74,980	10,863	399,407
2018	97,831	10,632	391,335
2019	102,429	11,408	403,672

Source: USDOC, BEA, "Table 3.3. U.S. Trade in ICT and Potentially ICT-Enabled Services" (accessed December 18, 2020).

Note: 2006 is the earliest year available. ICT-enabled services contain all ICT services, plus financial services, insurance services, and certain sub-sectors of other business services and personal, cultural, and recreational services. The "all other" category includes both WTO members and non-WTO members.

Table G.18 Share of U.S. total/domestic exports of yellow corn by export market, 2008–19In percentage. This table corresponds to [figure 4.11](#).

Country	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20
Colombia	2.7	1.7	0.9	0.5	0.2	6.7	8.8	8.8	7.4	7.7	7.9	9.5
Peru	0.6	1.7	0.1	0.0	0.0	2.5	5.6	4.9	5.0	5.0	3.6	1.1
NAFTA or USMCA	20.9	19.8	17.4	27.4	26.7	21.9	26.1	29.6	24.8	26.9	34.6	36.4
All other FTA markets	8.6	7.6	9.4	6.5	4.4	7.6	8.9	9.3	10.3	8.7	9.3	11.0
Japan	33.7	30.6	30.1	29.6	37.9	24.9	25.9	22.2	24.3	22.6	27.2	23.1
All other non-FTA markets	33.5	38.6	42.0	36.1	30.9	36.5	24.7	25.2	28.2	29.3	17.4	18.9

Source: USITC DataWeb/Census, Schedule B numbers 1005.90.2020, 1005.90.2030, 1005.90.2035, 1005.90.45, and 1005.90.2070, accessed February 3, 2021.

Table G.19 Andean Price Band System ceiling, floor, and reference prices from April 1, 2018, to March 31, 2019

In U.S. dollars per metric ton. This table corresponds to [figure 4.12](#).

Year	Month	Ceiling price	Floor price	Reference price
2018	April (first half)	278	223	208
2018	April (second half)	278	223	204
2018	May (first half)	278	223	211
2018	May (second half)	278	223	217
2018	June (first half)	278	223	218
2018	June (second half)	278	223	213
2018	July (first half)	278	223	197
2018	July (second half)	278	223	188
2018	August (first half)	278	223	178
2018	August (second half)	278	223	186
2018	September (first half)	278	223	194
2018	September (second half)	278	223	187
2018	October (first half)	278	223	183
2018	October (second half)	278	223	178
2018	November (first half)	278	223	188
2018	November (second half)	278	223	187
2018	December (first half)	278	223	187
2018	December (second half)	278	223	183
2019	January (first half)	278	223	189
2019	January (second half)	278	223	190
2019	February (first half)	278	223	191
2019	February (second half)	278	223	194
2019	March (first half)	278	223	197
2019	March (second half)	278	223	202

Source: Secretaria General, Comunidad Andina (Secretary General, Andean Community) various resolutions.

Note: The ceiling price and the floor price are established every 12 month and the reference price is established every two weeks.

Table G.20 U.S. domestic exports to Peru, aggregate quantity of yellow corn under FTA provisions, tariff-rate quota, and out-of-quota tariff rate, 2007–19

Quantity in 1,000 metric tons, rate in percentage; — (em dash) = not applicable; n.a. (no data available). This table corresponds to [figure 4.13](#).

Marketing year	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20
Export quantity	398	330	885	66	0	0	1,246	2,555	2,379	2,989	3,238	1,949	553
TRQ quantity	n.a.	500	530	562	596	631	669	709	752	797	845	895	n.a.
Out of quota tariff rate	n.a.	22.9	20.8	18.8	16.7	14.6	12.5	10.4	8.3	6.3	4.2	2.1	n.a.
Events	—	—	FTA February 2009	—	—	—	—	—	—	—	—	—	—

Sources: USITC DataWeb/Census (Schedule B numbers 1005.90.2020, 1005.90.2030, and 1005.90.2035; accessed November 04, 2020); tariff schedule of Peru.

Note: U.S. exports of yellow corn in 2011–13 and 2019 were lower as U.S. domestic growing conditions in various regions reduced yields and production resulting in relatively higher U.S. corn prices.

Table G.21 U.S. domestic exports to Colombia, aggregate quantity of yellow corn under FTA provisions and tariff rate quota, 2010–19

Quantity in 1,000 metric tons, rate in percentage; — (em dash) = not applicable; n.a. (no data available). This table corresponds to [figure 4.14](#).

Marketing year		Measure	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20
Export Quantity	MT	417	207	32	3,284	4,107	4,294	4,320	4,915	4,296	4,427	
TRQ Quantity	MT	n.a.	2,100	2,205	2,315	2,431	2,553	2,680	2,814	2,955	3,103	
Out of Quota Tariff Rate	Percent	n.a.	22.9	20.8	18.8	16.7	14.6	12.5	10.4	8.3	6.3	
Event	—	—	FTA	—	—	—	—	—	—	—	—	

Source: USITC DataWeb/Census (Schedule B numbers 1005.90.2020, 1005.90.2030, and 1005.90.2035; accessed November 04, 2020); U.S.-Colombia Trade Promotion Agreement background and issues, February 14, 2014.

Note: U.S. exports of yellow corn in 2011–13 and 2019 were lower as U.S. domestic growing conditions in various regions reduced yields and production resulting in relatively higher U.S. corn prices.

Table G.22 U.S. energy product exports to Korea, 2007–19

In billions of dollars; — (em dash) = not applicable (no event); n.a. (no data available). This table corresponds to [figure 4.15](#).

Year	Crude oil	Liquefied natural gas	Liquefied petroleum gas	Events
2007	n.a.	n.a.	0.026	KORUS agreement signed
2008	n.a.	0.000	0.023	—
2009	n.a.	0.000	0.012	—
2010	n.a.	0.068	0.014	—
2011	0.000	0.087	0.000	—
2012	n.a.	0.000	0.034	KORUS enters into force
2013	n.a.	0.000	0.072	—
2014	0.074	0.000	0.232	—
2015	0.058	0.038	0.455	—
2016	0.149	0.043	0.817	—
2017	1.114	0.596	1.164	—
2018	5.637	1.307	1.621	—
2019	9.060	1.301	1.322	—

Source: USITC DataWeb/Census, HS subheadings 2709.00, 2711.11, 2711.12, 2711.13, accessed July 30, 2020.

Table G.23 U.S. crude oil production in Alaska and lower-48 states before and after KORUS, 1993–2019

In million barrels; — (em dash) = not applicable (no event). This table corresponds to [figure 4.16](#).

Year	Alaska	Lower 48 states	Events
1993	577	1,922	—
1994	569	1,863	—
1995	542	1,853	—
1996	510	1,856	—
1997	473	1,882	—
1998	429	1,853	—
1999	383	1,764	—
2000	355	1,776	—
2001	351	1,766	—
2002	359	1,737	—
2003	356	1,706	—
2004	332	1,659	—

Year	Alaska	Lower 48 states	Events
2005	315	1,577	—
2006	270	1,586	—
2007	264	1,588	KORUS agreement signed
2008	250	1,580	—
2009	236	1,720	—
2010	219	1,783	—
2011	205	1,863	—
2012	192	2,193	KORUS enters into force
2013	188	2,547	—
2014	181	3,026	—
2015	176	3,269	—
2016	179	3,056	—
2017	181	3,233	—
2018	175	3,837	—
2019	170	4,295	—

Source: EIA, "Crude Oil Production," accessed October 9, 2020.

Table G.24 South Korea's imports of energy products, shares from leading sources, 2007–19

Shares in percentage. This table corresponds to [figure 4.17](#).

Product	Year	United States	Middle East	Rest of world
Crude	2007	0.0	81.4	18.6
Crude	2012	0.0	84.4	15.6
Crude	2019	12.4	70.7	16.9
LNG	2007	0.0	54.8	45.2
LNG	2012	0.2	48.6	51.2
LNG	2019	10.6	42.7	46.7
LPG	2007	1.0	83.0	15.9
LPG	2012	1.7	88.7	9.6
LPG	2019	93.2	4.4	2.3

Source: IHS Markit, Global Trade Atlas database, HS subheadings 2709.00, 2711.11, 2711.12, and 2711.13, accessed October 9, 2020.

