United States
International Trade Commission

Trade, Investment, and Industrial Policies in India: Effects on the U.S. Economy

December 2014
Publication Number: 4501
Investigation Number: 332-543

United States International Trade Commission

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Abbreviations and Acronyms

Acronyms	Term
ACD	additional customs duty
ATPDEA	Andean Trade Promotion and Drug Eradication Act
B2B	business-to-business
BASCAP	Business Action to Stop Counterfeiting and Piracy (ICC)
BEA	Bureau of Economic Analysis (USDOC)
BIT	Bilateral Investment Treaty
BRICS	Brazil, Russia, India, China, and South Africa
CEEW	Council on Energy, Environment, and Water
CGE	computable general equilibrium
CIF	cost (standard), insurance, freight
CII	Confederation of Indian Industry
CL	compulsory license
CPV	concentrated photovoltaic
c-Si	crystalline silicon
CSP	concentrated solar power
ECI	Economic Complexity Index
EPC	engineering, procurement, and construction
EPIA	European Photovoltaic Industry Association
ESMAP	Energy Sector Management Assistance Program
EU	European Union
FDI	foreign direct investment
FICCI	Federation of Indian Chambers of Commerce and Industry
FII	foreign institutional investor
FIPB	Foreign Investment Promotion Board
FTA	free trade agreement
FY	fiscal year
G20	Group of Twenty
GCR	Global Competitiveness Report
GDP	gross domestic product
GIC	General Insurance Corporation
GSM	global system for mobile communications
GTAP	Global Trade Analysis Project
GTIS	Global Trade Information Services
GW	gigawatts
HTF	heat transfer fluid
ICAI	Institute of Chartered Accountants of India
ICEGATE	Indian Customs Electronic Commerce/Electronic Data Interchange Gateway
ICT	information and communications technology
IESA	Indian Electronics and Semiconductor Association

Acronyms	Term
IFPI	International Federation of the Phonographic Industry
IIPA	International Intellectual Property Alliance
IMF	International Monetary Fund
IMI	Indian Music Industry
IP	intellectual property
IPA	Indian Pharmaceutical Association
IPAB	Intellectual Property Appellate Board
IPR	intellectual property rights
IRDA	Insurance Regulatory and Development Authority
ISPs	Internet service providers
ISRO	Indian Space Research Organization
IT	information technology
ITA	International Trade Administration (USDOC)
ITIF	Information Technology and Innovation Foundation
JNNSM	Jawaharlal Nehru National Solar Mission
kW	kilowatts
LCR	local-content requirement
LFCs	linear fresnel collectors
LIC	Life Insurance Corporation
LLPs	limited liability partnerships
LPI	Logistics Performance Index (World Bank)
MCIT	Ministry of Communications and Information Technology (India)
MENA	Middle East and North Africa
MFN	most-favored nation
MMRCA	medium multi-role combat aircraft
MNRE	Ministry of New and Renewable Energy
MOCI	Ministry of Commerce and Industry
MOH	Ministry of Health
MPAA	Motion Picture Association of America
MSMEs	micro, small, and medium enterprises
MY	marketing year
MW	megawatts
NAICS	North American Industry Classification System
NASSCOM	National Association of Software and Services Companies
NBFC	non-banking financial company
NDA	National Democratic Alliance
NMP	National Manufacturing Policy
NPS	National Pension Service
NRDC	Natural Resources Defense Council (U.S.)
NRI	nonresident Indian
NSF	National Science Foundation (U.S.)
NTM	nontariff measure
OECD	Organisation for Economic Co-operation and Development

Acronyms	Term
OPPI	Organization of Pharmaceutical Producers of India
PCI	Product Complexity Index
PhRMA	Pharmaceutical Research and Manufacturers of America
PMA	preferential market access
PSL	priority sector lending
PTCs	parabolic trough collectors
PV	photovoltaic
QFIs	qualified foreign investors
R&D	research and development
RBI	Reserve Bank of India
RSE	relative standard error
RUSI	Royal United Services Institute
SAD	special additional duty
SEBI	Securities and Exchange Board of India
SIAM	Society of Indian Automobile Manufacturers
SMEs	small and medium-sized enterprises
SPS	sanitary and phytosanitary (standards)
STU	State Transmission Utility
TBT	technical barriers to trade
TFA	Trade Facilitation Agreement (WTO)
TRIPS	Trade-Related Aspects of Intellectual Property Rights (WTO agreement)
TRQ	tariff-rate quota
UNCTAD	United Nations Conference on Trade and Development
USDA	United States Department of Agriculture
USDOC	United States Department of Commerce
USIBC	United States-India Business Council
USITC	United States International Trade Commission
USTR, the	United States Trade Representative
W	watts
WIPO	World Intellectual Property Organization
WITS	World Integrated Trade Solution
WTO	World Trade Organization

Executive Summary

This report examines trade, investment, and industrial policies in India that restrict U.S. exports and investment, and estimates the effects these policies have on U.S. companies, U.S. workers, and the U.S. economy.

This report was prepared by the U.S. International Trade Commission (USITC or Commission) at the request of the U.S. House Committee on Ways and Means and the U.S. Senate Committee on Finance. The Commission used three complementary approaches to study these issues: a survey of U.S. companies doing business in India; a quantitative analysis of the effects on the U.S. economy; and qualitative research, including a hearing and fieldwork, to produce case studies and examples that help illustrate effects of the policies on particular companies or industries.

Main Findings

Effects of Indian Policies on U.S. Companies: Survey Findings

The Commission finds that a wide range of restrictive Indian policies—which are the requested focus of this report—have adversely affected U.S. companies doing business in India. The main policy barriers include tariffs and customs procedures, foreign direct investment (FDI) restrictions, local-content restrictions, treatment of intellectual property (IP), taxes and financial regulations, regulatory uncertainty, and other nontariff measures.

The effects of these policies vary widely by sector. Companies providing agricultural products and food, financial services, and certain manufacturing products, including pharmaceuticals, were the most affected, with Indian policies having a substantial (i.e., prohibitive, severe,

Survey Findings

The share of U.S. companies substantially adversely affected by restrictive Indian policies rose from 18.8 to 26.1 percent between 2007 and 2013. Shares for individual sectors in 2013 ranged from 7.7 to 44.1 percent.[1]

Over 60 percent of those companies have made strategic changes in response to these barriers, most often directing fewer resources to the Indian market.

Policies in two areas—tariffs, and taxes and financial regulations—have the heaviest effects on U.S. companies. Other issues, including FDI and IP policies, have large negative effects on specific industries.

Model Results

If tariff and investment restrictions were fully eliminated and standards of IP protection were made comparable to U.S. and Western European levels, U.S. exports to India would rise by two-thirds, and U.S. investment in India would roughly double.

[1] Throughout the report, the Commission's analysis is based on weighted survey results unless otherwise noted. Statistical sampling techniques allowed the responses of individual companies to be weighted and aggregated, so estimates in this report accurately represent the activity of all U.S. companies engaged in India.

or moderate) effect on the operations of between 34 and 44 percent of U.S. companies in these sectors.

On the other hand, in some sectors, the share of companies affected was lower; for example, 7.7 percent of U.S. retail companies doing business in India experienced such effects. Overall, the policies had substantial effects on the operations of about one-quarter of U.S. companies that have affiliates in, or export to, India.

A majority (61.3 percent) of U.S. companies engaged in India[2] and facing at least one barrier made strategic changes in response to these barriers, as did a very similar 62.4 percent of companies substantially adversely affected by these barriers. These changes chiefly consisted of directing fewer resources to the Indian market. Hence, bilateral U.S.-Indian economic engagement, which is up considerably since 2007, could have risen even faster in the absence of Indian policy barriers.

Overall, Indian policies became more burdensome between 2007 and 2013, with the average effect on U.S. trade and investment rising from “minor” to “moderate.” The change affected all policy areas.

Measures in two policy areas—tariffs and customs procedures, and taxes and financial regulations—have the heaviest effect on U.S. companies. Tariffs and customs procedures had the greatest adverse effect on agriculture and food producers, substantially affecting nearly 40 percent of such companies. Tariffs and customs procedures also negatively affected U.S. manufacturers. Taxes and financial regulations had a broad negative effect on many sectors, especially the chemicals and textiles sector. IP-related impediments rated lower than tariffs and taxes as barriers to doing business in India, even by U.S. companies that considered IP protection very important to their operations.

Other policies had smaller overall effects but sharply affected specific sectors. FDI restrictions affected financial services companies most severely, with 23.4 percent of U.S. companies in this sector substantially affected. The IP environment and local-content requirements (LCRs) were most problematic for pharmaceutical companies, with 27.9 percent substantially affected. These findings were supported by qualitative research, including interviews with U.S. companies, that provides evidence of substantial challenges with particular Indian policies in certain industries.

[2] The Commission defines “companies that are engaged in India” as those that export goods or services from the United States to India or had an equity stake of 10 percent or more in an affiliated organization in India at any time between 2007 and 2013.

The types of companies most affected by Indian policies are those that engage in a broad array of activities in India. Specifically, large U.S. companies were more likely to be affected by Indian policies than small and medium-sized companies, and U.S. companies with affiliates in India were more likely to be affected than those that exported to India. Indian policies substantially affected 38.5 percent of U.S. companies with Indian affiliates. U.S. companies that provide goods via Indian affiliates faced particular burdens—about 61 percent were substantially affected by at least one policy, compared with about 23 percent of those providing services via an affiliate.

Effects of Indian Policies on U.S. Workers and the U.S. Economy: Model Results

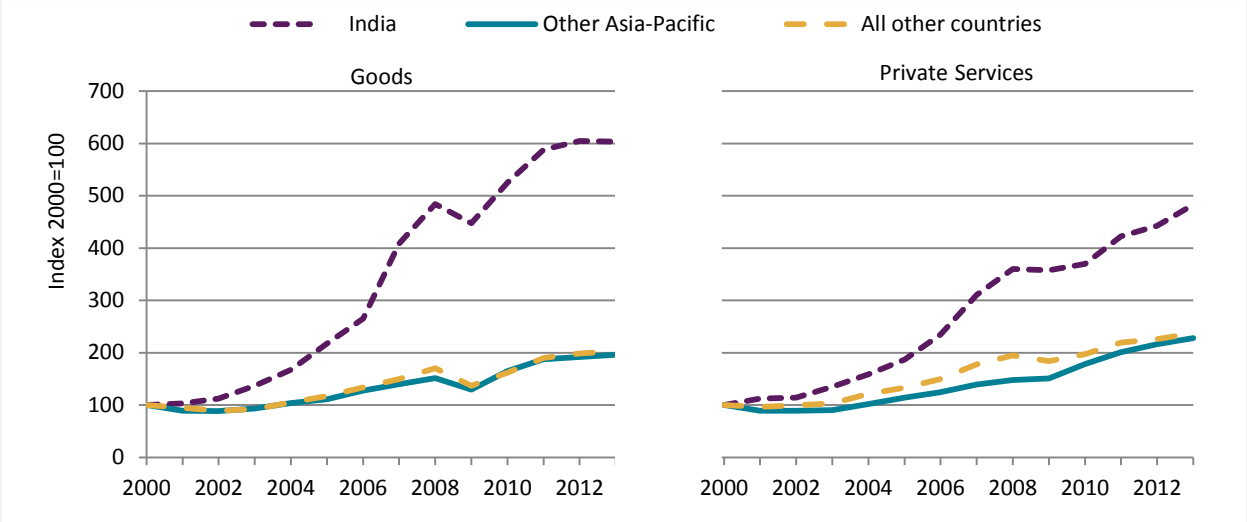
Based on quantitative analysis using economic modeling, the Commission estimates that fully eliminating tariff- and investment-related barriers and strengthening IP protection to levels comparable to those in the United States and Western Europe could substantially increase U.S.-Indian economic engagement. U.S. exports to India would rise by two-thirds, U.S. investment in India would roughly double, and sales by Indian affiliates of U.S. companies would more than double. Because India accounts for a rather small share of U.S. global trade, however, the effect of completely removing barriers on the broader U.S. economy and U.S. jobs would be quite limited; most of the economic gains would accrue to U.S. companies with affiliates in India in the form of increased profits abroad.

Overview of Trends and Policies in India Affecting Trade and FDI, 2007–13

India is rising in importance as a U.S. trading partner, though it accounts for only a small share of overall U.S. overseas activity.

U.S. engagement with India has grown substantially since 2000, though from a small base. The value of U.S. exports of goods and services to India in 2013 was 5.5 times larger than in 2000, U.S. FDI in India was 10.2 times larger, and sales by affiliates of U.S. companies in India were 13.5 times larger. The growth of U.S. engagement with India has outpaced the rise in U.S. engagement both with the rest of the world and with the other countries in the Asia-Pacific region (figure ES.1). Despite this rapid growth, however, India accounts for 2 percent or less of total U.S. exports, foreign affiliate sales, and investment. Similarly, despite being the world's 10th-largest economy and 10th-largest importer, India was only the 18th-largest export market for the United States in 2013.

Figure ES.1: Growth in total U.S. exports of goods and services to various partners, 2000–2013



Source: USDOC, BEA, Table 2.3, U.S. International Trade in Goods, by Area and Country, Not Seasonally Adjusted Detail, released September 17, 2014; and USDOC, BEA, Table 3.3, U.S. International Trade in Services, by Type of Service and by Country or Affiliation, released October 24, 2014.
Note: See appendix Table I.1 and Table I.2 for underlying data for this figure

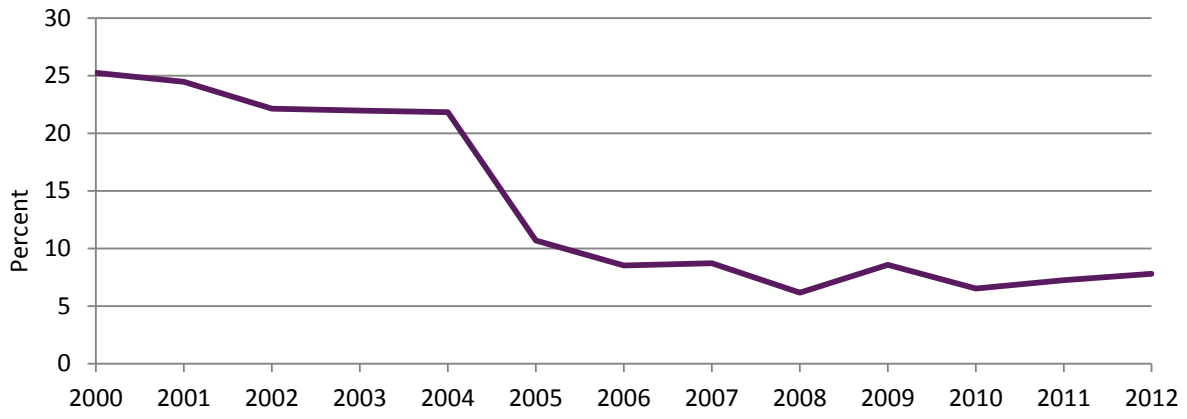
India has generally become more open to trade and investment since the early 2000s, continuing the reforms begun in the 1990s, although some substantial barriers remain.

The Indian economy has grown rapidly in recent years, with the average annual growth in gross domestic product (GDP) rising from 5.3 percent during 1983–92 to 5.8 percent during 1993–02 and to 7.6 percent during 2003–13.[3] Meanwhile, Indian economic policy has undergone major reforms over the last two decades, resulting in a significant opening to foreign trade and investment and increasing reliance on private markets. Government policies, including those that act as barriers to trade, have become less restrictive, and infrastructure has improved. Despite several changes in the political leadership of India since 1991, the reform agenda has continued to gradually advance.

Trade-weighted average applied tariff rates declined steadily during 2000–2005, dropping from roughly 25 percent to 10 percent, and have fluctuated at between 6 and 8 percent since 2006 (figure ES.2). The Indian government relies more heavily on import duties to fund the state than do other developing economies. In 2011, customs and other import duties made up 17.1 percent of Indian total tax revenues.

[3] World Bank, *World Development Indicators* database (accessed September 5, 2014).

Figure ES.2: Average tariff rate applied to Indian imports of U.S. goods, 2000–2012, percent



Source: WTO Integrated Database (tariff and trade data for 2000–2001, 2006, 2008–2011; tariff data for 2002 and 2012) via the World Integrated Trade Solution (WITS); United Nations Conference on Trade and Development (UNCTAD) Trade Analysis and Information System (TRAINS) database, via WITS (tariff and trade data for 2004–2005 and 2007); and United Nations Commodity Trade (COMTRADE) Database, via WITS (trade data for 2002 and 2013). Accessed July 20, 2014.
Note: Not all data are available for all years. The 2003 average tariff is the simple average of the 2002 and 2004 values. The 2012 average is based on tariff data for 2012 and trade data for 2013.
Note: See appendix Table I.3 for underlying data for this figure

India has also liberalized its investment policies, with its score on the OECD FDI Restrictiveness Index falling by nearly half between 1997 and 2013. Recently, FDI restrictions have been loosened in the aviation, courier services, broadcasting, and oil and gas industries, among others.

The pace of change slowed in the final years of the Singh government, which was in power from 2004 to 2014, and many policies remain that distort Indian trade and investment flows. Such policies include high tariff rates in sectors such as agriculture and motor vehicles; price controls; restrictive standards, such as onerous testing and labeling requirements; and numerous restrictions on foreign equity and cross-border trade flows in the services sectors. There have also been some recent movements away from free and open markets, such as the imposition of LCRs in both the solar power sector and the information and communications technology (ICT) sector. In addition, some U.S. companies are concerned about what they perceive as a trend toward reduced protection of patents in India, and about substantial copyright piracy and trademark counterfeiting.

The election of the Bharatiya Janata Party government of Prime Minister Narendra Modi in May 2014 brought widespread expectations for further liberalization and renewed emphasis on policies supporting growth, including elimination of red tape and liberalization of measures affecting trade and foreign investment. The policies of the Modi government through the end of September 2014 are described in this report, and the Commission will also provide an update on Indian policy changes in a separate report to the Committees in September 2015.

Methods Used to Examine Effects of Indian Policies

Survey, Hearing, and Interviews

The Commission surveyed U.S. companies that export to, or have foreign affiliates in, India about recent changes in India's industrial policies and business climate (between 2007 and 2013). Companies rated the effects of 28 policies and 10 other items, such as infrastructure and judicial efficiency, which affect their ability to do business in India. This report classifies U.S. companies as "substantially affected" by a particular measure if they indicated that it had a moderate, severe, or prohibitive effect on their organization's activities. For ease of presentation, Indian policies are often grouped throughout the report into five main areas:

- Tariffs and customs procedures
- Restrictions on foreign direct investment (FDI)
- Protection for intellectual property (IP)
- Local-content requirements (LCRs)
- A number of other nontariff measures that limit U.S. exports and investment

The industries from which companies were selected for the survey were those considered most likely to be affected by Indian policies in these areas, as determined by an initial Commission screening of the policies. The targeted industries account for just over one-third of all U.S. industries. Unless noted otherwise, references to "U.S. companies" below should be interpreted as including only companies in surveyed industries. These industries were grouped into nine broad sectors for ease of presentation in the report, although data for smaller industry groups are sometimes reported:

- Agriculture and food
- Natural resources
- Chemicals and textiles (including pharmaceuticals)
- Other manufacturing (examples include heavy equipment manufacturing and green technology)
- Content and media
- Information and communications technology (ICT)
- Retail trade
- Financial services
- Other services

The survey was sent to 8,000 U.S. companies, and 47.0 percent responded. The Commission used statistical sampling techniques that allow the responses of individual companies to be

weighted and aggregated to accurately represent U.S. activity in India in the surveyed industries.

The Commission also conducted qualitative research. This research consisted primarily of interviews with U.S. and Indian companies, industry associations, academics, and other interested parties. Interviews were conducted in the United States and on fieldwork visits to India, which included the cities of Bangalore, Chennai, Mumbai, and New Delhi; testimony provided at the Commission's public hearing and associated submissions; and reviews of relevant existing literature.

Economic Modeling

To capture the effects of identified Indian policies on U.S. exports to and investment in India, and on the broader U.S. economy, the Commission employed a computable general equilibrium (CGE) model. An innovation introduced in this report is the incorporation of FDI into the model. This permitted the Commission to model policies that apply only to companies with foreign ownership, and also allows it to analyze the effect of more general policy changes on foreign affiliates. The Commission also extended the model by incorporating a flexible labor force, rather than assuming that the number of workers remains fixed. This assumption allowed the model to estimate the impact on aggregate employment in each country in response to important changes, so that, for example, workers may enter the labor force or work longer hours in response to improved wages.

Three simulations were conducted to calculate the effects on the U.S. economy of eliminating tariff and investment restrictions and raising standards of IP protection to levels comparable to those of the United States and Western Europe. These simulations correspond to three of the subsequent policy chapters. Due to a lack of necessary data, the policies covered in the other two policy chapters—LCRs and other nontariff measures—were not quantified. For each simulation, the Commission calculated the effect on the United States of removal of Indian policy barriers or the improvement of the IP environment. The combined effects of all three types of policies are also estimated.

Survey and Modeling Findings

Results from the Commission Survey

More than one-quarter of all U.S. companies engaged in India are substantially affected by at least one Indian policy.

Among U.S. companies engaged in India, 29.8 percent faced at least one policy barrier, and 26.1 percent were substantially affected by these policies. Goods producers are most affected

by tariffs, which also affect services companies that import goods, in sectors such as information and communications technology (ICT) and content and media. Overall, services providers are most affected by taxes and financial regulations (table ES.1).

Table ES.1: Share of U.S. companies engaged in India that are substantially affected by policy barriers, 2013, percent

	Tariffs and customs procedures	FDI	IP and LCR	SPS and TBT[a]	Taxes and financial regulations	Other	At least one policy
Goods producers	24.0	3.7	9.0	8.2	17.3	16.0	29.3
Services providers	9.4	5.7	7.2	1.7	14.9	9.9	21.7
All companies	17.9	4.5	8.2	5.5	16.3	13.4	26.1

Source: USITC calculations of weighted responses to the Commission questionnaire.
Note: Colors correspond to the share of companies substantially affected. Shares of less than 10 percent are assigned green; between 10 percent and 20 percent, yellow; greater than or equal to 20 percent, red. See appendix Table I.4 for underlying data for this table.

[a] Sanitary and phytosanitary (SPS) measures are regulations on agricultural goods that a country generally puts in place to promote human, animal, or plant life or health. Technical barriers to trade (TBT) are technical regulations and standards that may be applied to a wide range of goods.

U.S. investors are more affected by Indian policies than U.S. exporters.

Among companies with foreign affiliates in India, 38.5 percent are substantially affected by one or more policies, while the comparable figure for exporters is 28.1 percent.[4] Taxes and financial regulations impose the highest burden on companies with affiliates, followed closely by tariffs. Goods producers are more affected than services providers (table ES.2).

Table ES.2: Share of U.S. companies with foreign affiliates in India that are substantially affected by policy barriers, 2013, percent

	Tariffs and customs procedures	FDI	IP and LCR	SPS and TBT	Taxes and financial regulations	Other	At least one policy
Goods producers	47.0	11.8	14.8	13.6	39.3	35.9	61.0
Services providers	7.5	8.8	9.1	2.9	17.8	13.7	22.8
All companies with foreign affiliates	23.8	10.0	11.4	7.3	26.6	22.9	38.5

Source: USITC calculations of weighted responses to the Commission questionnaire.
Note: Colors correspond to the share of companies substantially affected. Shares of less than 10 percent are assigned green; between 10 percent and 20 percent, yellow; greater than or equal to 20 percent, red. See appendix Table I.5 for underlying data for this table.

[4] The population of companies that are exporters, owners of affiliates, and, as discussed below, IP intensive, are not mutually exclusive. That is, any one company could be an exporter or an investor or an IP-intensive company, or any combination of those three categories.

Large U.S. companies are more affected by Indian policies than small and medium-sized ones.

Indian policies affect large firms more than they do small and medium-sized companies in the Indian marketplace. Almost one-half of large companies are substantially affected by at least one policy in India, while about one-fifth of small and medium-sized companies are substantially affected (table ES.3).

Table ES.3: Share of U.S. companies engaged in India that are substantially affected by policy barriers, by size, percent

	Tariffs and customs procedures	FDI	IP and LCR	SPS and TBT	Taxes and financial regulations	Other	At least one policy
Large	27.5	10.5	14.7	10.2	25.4	24.3	46.0
SME	14.8	2.6	6.2	4.0	13.4	10.0	19.8
All companies	17.9	4.5	8.2	5.5	16.3	13.4	26.1

Source: USITC calculations of weighted responses to the Commission questionnaire.
Note: Colors correspond to the share of companies substantially affected. Shares of less than 10 percent are assigned green; between 10 percent and 20 percent, yellow; greater than or equal to 20 percent, red. See appendix Table I.6 for underlying data for this table.

Tariffs, taxes, and financial regulations are top concerns, even among IP-intensive companies.

IP-intensive companies are slightly more affected by Indian policies than the average U.S. company doing business in India. Even for these firms, tariffs and taxes and financial regulations remain the top concerns, affecting a higher share of firms than IP measures and LCRs (table ES.4).

Table ES.4: Share of IP-intensive U.S. companies that are substantially affected by policy barriers, 2013, percent

	Tariffs and customs procedures	FDI	IP and LCR	SPS and TBT	Taxes and financial regulations	Other	At least one policy
Goods producers	29.8	5.1	12.9	9.2	21.2	20.0	37.2
Service providers	11.6	7.0	9.9	2.3	20.2	12.9	27.7
All IP-intensive companies	22.2	5.9	11.7	6.3	20.8	17.1	33.3

Source: USITC calculations of weighted responses to the Commission questionnaire.
Note: Colors correspond to the share of companies substantially affected. Shares of less than 10 percent are assigned green; between 10 percent and 20 percent, yellow; greater than or equal to 20 percent, red. See appendix Table I.7 for underlying data for this table.

Non-policy measures and state-level policies have less effect than central government policies.

Policies put in place by the Indian central government have a more substantial effect on U.S. companies than do state-level policies. Only 22.6 percent of U.S. companies engaged in India perceived that at least one policy had a greater negative effect at the state level than at the national level. State-level policies are particularly burdensome in the areas of FDI and tax and financial regulations. Some state-level policies, such as subsidies and tax incentives, are beneficial to U.S. companies.

Policy measures were more problematic than non-policy issues such as poor infrastructure and corruption. In 2013, 65.8 percent of all companies engaged in India were more affected by policy issues than non-policy issues.

More than half of U.S. companies believe that Indian policies are discriminatory.

More than half of U.S. companies engaged in India perceive that Indian policies adversely affect their own firm more than Indian companies. Most notably, 59.6 percent of U.S. companies perceive that they are more affected than Indian companies by regulations surrounding investment in India; for example, they believe that they are more likely to have problems getting required permits or licenses. Also notable is the 55.2 percent of U.S. companies that believe that nontariff measures—specifically, sanitary and phytosanitary (SPS) measures and technical barriers to trade (TBT)—are discriminatory.

Indian policies became more burdensome between 2007 and 2013, with a small negative effect on U.S. trade and investment.

Overall, Indian policies became more burdensome between 2007 and 2013, with the average effect on trade and investment rising from “minor” to “moderate.” The change affected all policy areas. The largest increase in the share of U.S. firms that a policy affected was in the area of SPS measures and TBTs, which include items such as restrictions on genetically modified organisms.

Overall, companies estimated that the changes in policies between 2007 and 2013 had a small negative effect on their exports and foreign affiliate sales in India (with an overall effect less than 5 percent in both cases).

Only a small share of companies find Indian measures to be prohibitive, but the ones that do would readily increase their engagement in India if prohibitive measures were removed.

Only 7.3 percent of U.S. companies engaged in India were completely unable to sell one or more products in the Indian market because of Indian policies. The most common prohibitive barriers were tariffs, taxes and financial regulations, and SPS measures and TBTs. These companies would be likely to increase their engagement in India if the specific prohibitive policies were eliminated. If prohibitive barriers were removed, but the business environment and other policies remained the same, 76.5 percent of firms already engaged in India are "likely" or "highly likely" to begin doing business in new product lines in India in the next 12 months.

The majority of U.S. companies report that they have made strategic changes in response to Indian policy barriers.

Most U.S. companies engaged in India that face regulatory impediments have made one or more changes in their business strategy since 2007 (table ES.5). Reducing resources devoted to the Indian market was the most common change made by all U.S. companies engaging in the Indian marketplace. Notably, while U.S. investors in Indian affiliates are the group most substantially affected by Indian policies out of all U.S. companies engaged in India, the majority of them have not made strategic changes in response to regulatory impediments they faced.

Table ES.5: Strategic changes by U.S. companies in response to regulatory impediments in India since 2007, percent

				All companies engaged in India		
Strategy	**Exporters to India**	**Investors in Indian affiliates**	**IP-Intensive companies**	**Large**	**SMEs**	**All companies**
Made no changes	36.6	52.0	39.0	31.5	43.3	38.7
Made changes	63.4	48.0	61.0	68.5	56.7	61.3

Source: USITC calculations of weighted responses to the Commission questionnaire.

Modeling Results: Effects of Indian Measures on the U.S. Economy, Trade, and Investment

The elimination of Indian tariffs and FDI restrictions, and the improvement of IP protection in India, would substantially increase U.S. economic engagement with India. Effects on the broader U.S. macroeconomy would be quite small, however.

Based on the results of a computable general equilibrium model, the Commission estimates that if restrictive Indian measures related to tariffs and FDI were completely eliminated and standards of IP protection were made comparable to those in the U.S. and Western Europe,

U.S. exports to India would rise by two-thirds. U.S. investment and foreign affiliate sales in India would roughly double (table ES.6). On a sector basis, simulated increases in exports vary widely, from about 12 percent in the content and media sector to over 100 percent in agriculture and food sector, which is particularly affected by high tariffs. Most sectors' affiliate sales would increase by at least 100 percent, and some by more than 200 percent. These are very large changes in affiliate sales, and reflect the strong policy transformation implied in assuming a complete liberalization of FDI barriers and strengthening of IP protection in India to levels comparable to those in the United States and Western Europe. To the extent that partial liberalizations occurred, the Commission would expect positive but smaller benefits to accrue to U.S. companies.

Because India represents less than 2 percent of U.S. commercial engagement abroad, however, large increases in bilateral economic engagement translate into very small effects on the U.S. economy (a less than 0.05 percent increase in U.S. GDP and U.S. employment). Most of the economic gains would be captured by U.S. companies with foreign affiliates in India; the profits earned by affiliates of these firms would increase by over $20 billion, which is substantially higher than the estimated increase in U.S. GDP (about $1 billion). Available evidence shows that only about one-quarter of foreign profits are repatriated to the United States each year.

Table ES.6: Simulated effects of policy changes on U.S. economic engagement with India, 2014, percent change

Sector	Change in U.S. exports to India	Change in sales by U.S. affiliates in India
Agriculture and food	103.0	133.9
Natural resources	57.4	108.4
Chemicals and textiles	83.2	178.9
Other manufacturing	80.6	141.0
Content and media	11.9	240.3
ICT	58.3	171.1
Retail trade	63.9	285.8
Financial services	52.0	254.6
Other services	46.8	80.9
Total	66.4	123.5

Source: USITC calculations.

Significant Policies Restricting Trade and Investment

Tariffs and Customs Procedures

Tariff rates have decreased over time, but they remain high in certain areas and have been flat in recent years.

India has reduced its average trade-weighted applied tariffs on goods imported into India to 8 percent in recent years, which is substantially lower than the 23 percent average rate in 2003. Most reductions occurred before 2008, and tariff levels have largely been constant since then (as they have in many countries). While India's applied tariff levels for manufactured goods are on par with international norms, those for agricultural goods continue to be quite high, averaging 48 percent on a trade-weighted average basis. Unsurprisingly, the Commission's survey results indicate that high Indian duties particularly affect U.S. agricultural exports to India.

The complexity of the Indian tariff system and the frequency with which it changes create challenges for U.S. exporters.

The Indian tariff system is complex. India's bound tariff rates—the official rates it is committed by multilateral trade agreement not to exceed—are generally much higher than the applied rates it actually imposes at the border. However, the applied rates tend to fluctuate, and several other duties designed to collect the equivalent of certain domestic taxes are often compounded on top of them. In some cases, U.S. exporters have asserted that the additional duties put them at a distinct disadvantage vis-à-vis Indian producers or that they push India's total import duty rate above its bound rate commitments to the World Trade Organization (WTO). Some industries with particularly high or variable duty rates are areas in which the United States competes heavily, such as the automotive, distilled spirits, and soybean oil industries.

By sector, economic modeling demonstrates mixed results for U.S. exports to India from tariff liberalization, but overall, U.S. exports would grow.

There would be an overall 7.6 percent increase in U.S. exports of goods and services to India if Indian tariffs were fully liberalized. The tariff removal would lead to a reduction in the price paid by Indian consumers and companies for imported agricultural and manufactured goods. As a result, U.S. exports of goods to India in liberalizing sectors would increase. U.S. exports of services to India, however, would decline slightly. Tariffs are not applied to services; as a result, services exports to India would become relatively more expensive.

India's progress in improving its customs procedures has been uneven, and customs administration problems remain an irritant for some U.S. exporters.

Although India's customs procedures have improved recently, with simplified documentation processes and modified valuation procedures, U.S. exporters to India report that they continue to face challenges. These include inconsistent customs valuation rules in certain instances; delays in customs clearance processes; and frequent issues with India's online customs documentation system. The Commission's survey shows that customs administration problems significantly affect the operations of one-quarter of U.S. goods exporters to India, and that these problems have not improved in recent years, despite India's efforts.

Intellectual Property Rights

IP protection is particularly important to U.S. companies engaged in India, and the IP environment has a "moderate" negative effect on their operations.

Based on the Commission's survey, IP is "very important" to the operations of more than two-thirds of U.S. companies engaged in India. IP-intensive companies account for an outsized share of total U.S. exports and investment into India. These companies generally rate the effect of IP barriers in India as "moderate." As noted above, companies in most sectors rate IP-related impediments lower than tariffs and taxes as barriers to doing business in India. The IP environment and LCRs were most problematic for pharmaceutical companies, substantially adversely affecting 27.9 percent of these companies.

Some aspects of the Indian IP system are characterized by uncertainty, which presents challenges for U.S. companies in India.

U.S. industry representatives state that legal frameworks to protect trade secrets and regulatory test data are missing in India. As a result, it is uncertain how much protection exists against the unauthorized use or disclosure of trade secrets and test data. For instance, legislation and governmental recommendations to protect pharmaceutical and agricultural chemicals test data have been pending for years without action.

Limits on patents for incremental innovation, compulsory license provisions, and onerous patent processes are a deterrent to U.S. companies, especially in IP-intensive industries.

According to U.S. companies, patent-related concerns center on limits on patents for incremental innovations, particularly in the pharmaceutical and biotechnology fields, and expansive compulsory license provisions in the India patent law, which they fear may require a foreign firm with a patented technology to license that technology to an Indian competitor.

Industry representatives also identify substantial problems with lengthy administrative and legal proceedings, both before and after a patent is granted.

Copyright and trademark infringement in India present barriers to some U.S. companies.

The U.S. government, and U.S. and Indian trade associations, report substantial copyright and trademark infringement in India. U.S. industry representatives in the content and media sector in particular identify piracy and counterfeiting as a key impediment to doing business in India, particularly as rapidly increasing internet penetration facilitates unauthorized access to software, music, movies, games, and other creative works.

Some IP-intensive companies are employing new business models in India to protect their IP while encouraging a robust environment for innovation.

IP-intensive U.S. companies generally agree on two points: first, they emphasize that careful planning and innovative approaches are needed for U.S. companies to successfully operate in India while still preserving their valuable IP. And second, they believe more Indian government support for better IP laws and enforcement would improve the business environment for both foreign and domestic companies, thereby strengthening technology transfer and economic growth.

Economic modeling suggests that U.S. exports to and investment in India would grow if the IP environment improved.

Improved IP protection in India would lead to an increase in the technology embedded in exports to India and an improvement in Indian companies' ability to use these imports. U.S. exports to India would increase in all sectors, with pharmaceuticals exports increasing the most, by 170.7 percent. Similarly, foreign affiliates in India would be expected to sell more, as improved IP protection of their high-technology products would lead to productivity growth that is not experienced by domestic Indian companies. The effects would generally be greater on foreign affiliate sales than on exports.

Local-Content Requirements

Local-content requirements (LCRs) in the manufacturing of information and communications technology (ICT) and solar energy require that a certain percentage of goods be sourced locally.

Since 2009, India has implemented three LCRs in the ICT and solar energy sectors, which include the solar photovoltaic (PV) and concentrated solar power industries. These policies require that

between 25 and 50 percent of affected goods be sourced locally, depending on the policy. In the solar industry, the policy imposing LCRs is the Jawaharlal Nehru National Solar Mission (JNNSM). The Preferential Market Access policy of 2012 has been the most notable LCR in the ICT sector. The policy introduced LCRs that were to increase in phases based on the domestic availability of the good, although this policy has since been amended to state that LCRs apply only to government procurement.

In the solar energy industry, the JNNSM has been the principal instrument that the national government has used to encourage PV and concentrated solar power installations and the use of local content in these projects.

The JNNSM, which provides funding for installations of privately developed solar projects, accounted for only 20 percent of PV installations in India, but represented more than half of the concentrated solar power[5] installations to date. The JNNSM's LCRs for PV installations have become more problematic for U.S. companies recently, as the requirements have expanded into a segment of the PV market in which the United States competes more heavily.

India's telecommunications license amendment recently introduced LCRs for telecommunication equipment.

Since 2009, the Ministry of Communications and Information Technology has introduced three amendments to the rules governing India's telecommunications licenses. The first two amendments would have introduced LCRs as a condition for granting telecommunications licenses and would have forced foreign companies to disclose sensitive software code to Indian companies. These amendments were repealed before they went into effect, after pressure from multinational companies. The third amendment, which took effect in July 2014, requires that certain telecommunication equipment receive testing and certification by Indian labs; certification by internationally recognized labs is not accepted. The Commission's survey revealed that, despite the various challenges associated with complying with these LCRs, their effect on the ICT industry has been limited.

Foreign Direct Investment

India maintains equity caps, which heavily affect FDI in a number of industries, including retail, defense, and insurance.

Equity caps—limits on the share of a company's value that may be foreign owned—are set by the Indian government at specific levels for particular industries, and may change over time. For

[5] Concentrated solar power uses mirrors to concentrate the energy from the sun and drive turbines or engines that create electricity. The industry is described in more detail in chapter 6.

most industries in India, caps on foreign investment have remained the same over the past six years. Although there are few barriers to investment in India's manufacturing sector, agriculture and certain services industries remain much more restricted.

Where equity limits have changed recently, the changes have been in the direction of liberalization. In September 2012, the Indian government raised FDI equity caps in multibrand and single-brand retail, aviation, broadcasting, and power exchanges. In September 2013, India further eased investment and procurement requirements in the defense, oil and natural gas, courier, and tea plantation industries. Most recently, in July and August 2014, under the Modi government, India relaxed restrictions in rail and defense. Some of these industries remain among the most restricted, however.

Investment-related measures other than equity caps inhibit FDI.

In addition to equity caps, other types of measures that apply to particular industries may also make FDI more difficult for U.S. investors. Examples of such measures include restrictions on the types of business that foreign-owned firms may conduct, difficulties related to taxation, and licensing or land use regulations. Variability and uncertainty of these measures make it challenging for foreign investors to evaluate opportunities in the Indian market. Some measures vary by state, as do some of the incentives geared to attracting FDI in particular industries.

Difficulty obtaining permits and licenses was the most significant barrier to U.S. FDI, followed by equity caps.

For U.S. companies that reported affiliate sales of goods or services in India, the FDI-related barrier they most frequently faced was difficulty in obtaining required permits, approvals, or licenses for investment. According to the survey, the effect of this barrier has increased over time. Equity caps or joint venture requirements were the second most often faced FDI barrier. For equity caps, the negative effect of the barrier increased in 2010, then declined in 2013, consistent with the Indian government's move to liberalize investment regulations in a number of industries since 2010.

Economic modeling suggests that U.S. investment in India would grow if the FDI barriers were eliminated.

Removal of Indian equity limits and other FDI restrictions would likely lead to an increase in the establishment of new U.S.-owned affiliates—so much so that liberalization may lead to increases of close to 100 percent in sales by all U.S.-owned affiliates in India. Many services industries are highly restricted in India, and their foreign affiliate sales would increase substantially with the liberalization. Foreign affiliates of U.S. insurance service providers would

expand the most, followed by retail services. U.S. exports to India would experience much smaller effects, with some sectors seeing small positive changes and others seeing declines.

Other Policies

Uncertainty or inconsistency in regulations, high taxes, and inconsistent taxes and duties were the most significant barriers that affected both goods and services providers.

Among the major areas of concern for U.S. exporters and investors are retroactive taxation; transfer pricing problems pertaining to the prices set for products sold between related entities within a company; judicial and administrative bias and delays in the tax dispute resolution system; and uncertainty about the application of India's new General Anti-Avoidance Rule (GAAR), which aims to minimize tax avoidance. Uncertain or inconsistent regulations substantially affected over 10 percent of U.S. companies doing business in India, according to the Commission survey. The survey also found that the negative effect of this barrier increased between 2007 and 2013.

Measures affecting the foreign provision of professional services are among the most prohibitive non-FDI barriers affecting U.S. services providers in India.

India bars the majority of foreign providers in the legal, medical, accounting, and architecture fields from practice, and it tightly restricts the recognition of foreign academic degrees acquired by Indian nationals.

India maintains price controls that affect a number of industries.

The Essential Commodities Act of 1955 (ECA) gives India's central government the authority to control the domestic production, supply, and distribution of a wide variety of commodities and to restrict foreign provision of these goods. The ECA, as amended, covers many products, such as staple foods, coal, textiles, iron and steel products, paper products, petroleum, drugs, and automobile parts. Orders issued under ECA authority may control the production, distribution, price, and use of any essential commodity, including requiring sale to a government entity.

Indian Competitiveness in Sectors Subject to Restrictions

Low labor costs, a skilled workforce, and consumer preferences for local products are key factors of India's competitiveness for both goods and services. Domestic policies also affect competitiveness in many industries.

Commission research identified the factors affecting the competitiveness of the major industries subject to Indian policies. In the goods sectors, the major competitive factors include low labor costs, a skilled workforce, consumer preferences for local products, and domestic policies that include tariffs, foreign equity caps, and government subsidies. The services sectors are affected by some of the same key factors of competitiveness as the goods sectors—namely low labor costs, a skilled workforce, and consumer preferences for local products, particularly in the media industries. Other issues, such as facility with local languages, affect competitiveness in services more than in goods. Domestic policies also affect Indian competitiveness in goods and services sectors. Such policies include subsidies; tariffs; limitations and caps on FDI; and, particularly in professional services, restrictions on the provision of services by noncitizens.

U.S. goods and services often compete in the Indian market with lower-priced Indian goods and services of equivalent quality.

Nearly 40 percent of U.S. companies face competition from Indian goods and services of equivalent quality in the Indian marketplace, and U.S.-produced goods and services were priced nearly 30 percent higher than those of their Indian competitors on average. Factors of competitiveness, such as low-cost labor, affect pricing. In certain cases, domestic policies may contribute to these price differences: for example, in the case of alcoholic beverages, high excise taxes on the movement of inputs and varying price controls between states benefit domestic firms with market knowledge and economies of scale. In other cases, U.S. goods and services are priced higher because they may include additional value-added services. For example, in architectural services, U.S. prices may reflect additional services on large, high-profile contracts.

Case Studies of the Effects of Restrictive Measures on U.S. Companies

U.S. exporters of wine and spirits face high duties, customs administration problems, and variable and unpredictable state taxes in India.

As a result of a 2007 WTO dispute settlement case, India changed its duty structure for imported wines and spirits, leaving certain excise taxes to the discretion of the states. However,

U.S. exporters report that they are still facing discrimination. For example, one Indian state reportedly exempts local wine producers from excise taxes entirely, while charging a 200 percent excise tax on imported wine. Due to this discrimination and other problems related to tariffs and customs administration for wine and spirits, U.S. producers state that India is the most difficult of emerging markets to enter and that their sales are much lower there than they would expect, based on the size of the Indian market for their products.

Price controls and other nontariff measures have had a major effect on the sales of some U.S. medical device companies to India.

India's local medical device industry consists of mostly low-value-added goods, leaving the country heavily reliant on high-value-added imports from the United States, the world's leading producer of medical devices. However, U.S. companies have been unable to more fully penetrate the Indian market, in large part due to a number of nontariff measures, including price controls, inadequate regulations, and onerous labeling requirements.

The Preferential Market Access policy has forced some U.S. ICT companies to alter the way they do business in India.

Some U.S. companies are very active in India's government procurement market for IT products. The government procurement market accounts for about 30 to 40 percent of the total Indian IT-goods market and is covered by the LCRs contained in the Preferential Market Access policy. In an effort to comply with this policy, U.S. ICT companies have considered manufacturing within the country. However, many have been deterred from doing so due to the country's infrastructure barriers and the lack of local production of necessary inputs. Instead, some companies have relied on performing only the final assembly of their products in India, which ensures compliance but can add to total costs.

The Nexavar compulsory license case has raised concerns about the loss of valuable IP in the pharmaceutical and biotechnology industries.

The 2012 and 2013 Indian patent office decisions requiring Bayer to license the patented technology for its cancer drug, Nexavar, to an Indian firm have raised concerns in the pharmaceutical and biotechnology industries. Some industry representatives assert that industrial policy goals motivated the decision; in contrast, nongovernmental organizations point to high prices and substantial public health needs in India.

With annual sales of approximately $1 billion worldwide, Nexavar is an important part of Bayer's business. Bayer reportedly conducted research and development on the drug in the United States and obtained patent protection for its underlying compound in India and other countries. The Indian generic firm, Natco, obtained a compulsory license on the grounds that

the reasonable requirements of the Indian public with respect to the drug had not been satisfied, it was not available at a reasonable price, and the drug had not been "worked" (i.e., sufficiently used) in India. Bayer has contested each of these grounds, and is appealing the case to the Supreme Court of India.

Indian FDI policies complicate the landscape for foreign-owned e-commerce companies like Amazon.com.

India currently does not allow foreign investment in business-to-consumer (B2C) e-commerce. Foreign investment is also capped at 51 percent in multibrand retailing. These investment restrictions have required Amazon to structure its activities in a complex way. First, to operate in the B2C e-commerce market, Amazon's website serves as an online marketplace for other retailers to sell their wares. These retailers pay Amazon a fee for the storage and distribution of their products and for access to Amazon's India website as a selling platform. Second, Amazon also sells Amazon-branded products in India, such as the Kindle. Amazon has chosen to sell these products through several Indian brick-and-mortar retailers and online (but with the actual sale of products online conducted through Indian firms).

Clinical research activity in India declined substantially in recent years due to lack of clear regulations, uncertain legal liabilities, and a hostile operating environment.

India is an attractive place to conduct clinical trials due to its large, English-speaking population, high disease burden, and good medical infrastructure. In recent years, however, scandals involving alleged malpractice and patient deaths in clinical trials in India have led to widespread public protest and proposals for new regulations for medical research. Clinical trial operators claim that the draft regulations that have been issued in response are vague and open to conflicting interpretations, causing many U.S.-based academic and commercial research organizations to suspend clinical trials in India. Both academic and industrial clinical trial operators have recently left India for other countries.

Chapter 1
Introduction

Overview

Since implementing major market reforms in the early 1990s, India's economy has experienced dramatic economic growth. India's gross domestic product (GDP) increased at an average annual rate of growth of 5.3 percent during 1983–92, 5.8 percent during 1993–2002, and 7.6 percent during 2003–13.[6] Moreover, India was Asia's fourth fastest growing economy during 2003–13, trailing only Burma, China, and Laos.[7] India is a burgeoning market for goods and services, with a rapidly growing middle class, skilled English-speaking workforce, and sizable youth population. Despite this potential, bilateral economic engagement between the United States and India remains limited. For instance, despite being Asia's third-largest economy, India was only the 18th-largest export market for the United States in 2013.[8]

This report describes Indian policies and estimates their effects on U.S. companies that have sold goods and services in India, either through exporting or through foreign affiliates. Notably, there are no publicly available sources that quantify the effects of these measures on U.S. companies or on the broader U.S. economy. U.S. statistical agencies do provide information on trends in U.S. trade with and investment in India,[9] and other public sources offer information on the nature and extent of India's domestic policies. This report also relies heavily on the findings from a survey conducted by the U.S. International Trade Commission (Commission or USITC) in the spring of 2014, which polled U.S. companies about their experiences in India and how they have been affected by Indian policies. The information gathered in this survey was not available from any other source.

The U.S. House Committee on Ways and Means and the U.S. Senate Committee on Finance (the Committees) requested this report.[10] In their request letter, the Committees asked that the Commission conduct an investigation on (1) Indian industrial policies that discriminate against U.S. exports and investment for the sake of supporting Indian domestic industries, and (2) the effect that these barriers have on the U.S. economy and U.S. jobs. More specifically, the Committees asked that the Commission provide the following:

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[6] World Bank, *World Development Indicators* database (accessed September 5, 2014).
[7] Aridas and Pasquali, "Countries with Highest GDP," March 7, 2013.
[8] USITC DataWeb/USDOC (accessed December 1, 2014).
[9] For more information, see this discussion in Chapter 2 of this report.
[10] See appendices A and B, respectively, for the request letter from the Committees and the *Federal Register* notice associated with this report.

- An overview of trends and policies in India affecting trade and foreign direct investment in that country's agriculture, manufacturing and service sectors, as well as the overall business environment. The overview should take a historic view, but focus on the period since 2003. It should include examples of changes in tariff and nontariff measures, including measures related to the protection of intellectual property (IP) rights, and other actions taken by India's government to facilitate or restrict the inflow of trade and FDI.
- A description of (1) any significant restrictive trade and FDI policies currently maintained or recently adopted by India as identified by USITC research; (2) the sectors in the U.S. economy most affected by these restrictive policies; and (3) the general competitiveness of sectors in India's economy that are subject to the identified restrictions.
- Several case studies that examine the effects of particular restrictive measures on U.S. firms that export to or invest in India, or that have not done so because of the measures. To the extent feasible, the case studies should address the impact of the restrictive measures on both large and small and medium-sized enterprises.
- To the extent feasible, a quantitative analysis of the economic effects of India's identified restrictive measures on the U.S. economy as a whole, on U.S. trade and investment, and on selected sectors of the U.S. economy.
- Based on the survey and analysis of results, and to the extent feasible, a summary of U.S. firms' perception of (1) recent changes in India's trade and investment policies in selected sectors and (2) the effects of these changes on U.S. firms' strategies towards India (e.g., reducing investment or altering product mix), and analysis of whether the effects of these policy changes differ by firms' characteristics, such as size, IP-intensiveness, or export status.

The items requested by the Committees are presented in chapters 2–9. The report provides an overview of India's trade policies and trends since 2003 in chapter 2. Chapter 3 presents the quantitative analysis of the economic effects on the U.S. economy of India's identified restrictive measures. Chapter 3 also describes overarching trends in the way U.S. companies perceive changes in Indian policies in selected sectors and the effects these changes have had on U.S. companies' strategies. The report describes current and recently adopted Indian industrial policies affecting U.S. trade and investment in detail in chapters 4–8, with a focus on policies related to tariffs; intellectual property rights (IPR); local-content requirements (LCRs); FDI; and other relevant areas, such as taxation, regulatory uncertainty, and nontariff measures. In these chapters, the sectors in the U.S. economy most affected by restrictive policies are addressed using the results of the Commission survey and summaries of industry views. Where applicable, survey results are used to bolster analysis throughout chapters 4–8. The case studies that examine the effects of particular restrictive measures on U.S. companies are included in these five chapters. The general competitiveness of affected sectors in India's economy is addressed in chapter 9.

Scope

Industries Affected by Indian Industrial Policies

The Committees' request focuses on Indian industrial policies that affect trade and FDI in India's agriculture, manufacturing, and services sectors, as well as any Indian government measures that support these policies. The Commission identified the specific constraining measures, and the sectors that they may affect, through a screening process conducted in the fall of 2013. As far as possible, the Commission researched and cataloged all policies regulating international trade and investment in India. The Commission examined primary sources, such as regulations posted to Indian government websites, and secondary sources, such as reviews of global barriers to trade and investment by national and international organizations. As indicated in the section on data sources below, these organizations included the U.S. Trade Representative (USTR), the Organisation for Economic Co-operation and Development (OECD), the World Trade Organization (WTO), and the Group of Twenty (G20).[11]

The Commission identified 28 individual Indian policies affecting U.S. trade and investment.[12] The Commission then grouped the measures under five policy areas:

- Tariffs and customs procedures
- FDI regulations
- IPR protection
- LCRs
- Other measures, such as taxation, regulatory uncertainty, and nontariff measures

Commission research pinpointed the nine industrial sectors most likely to be affected by these measures. The sectors were defined using the North American Industry Classification System (NAICS). Overall, the sectors covered in the report include 403 (34.3 percent) of the 1,175 6-digit NAICS codes.[13] These sectors are:

- Agricultural and food products
- Natural resources and metals
- Chemicals and textiles

[11] The G20 includes 19 major economies and the European Union.
[12] The Commission also identified 10 additional measures that affect infrastructure and the business environment in India, and compared the effect of these "doing business" issues with the policy issues. See appendix F for a list of these measures.
[13] Appendix F lists the NAICS codes that make up each sector.

- Other manufactured goods and equipment
- Retail and wholesale services
- Financial services
- Content and media providers
- Information and communications technology (ICT)[14]
- Other services, such as transportation, legal and accounting services

Within the nine broad industrial sectors, the Commission did not include smaller industries on which Indian industrial policies had little or no effect.

The Committees' request asked the Commission to analyze the effect of restrictive policies on affected sectors. The report has therefore been constructed so that chapters 4 through 8 correspond to each of the five policy areas defined above, while each chapter details the effects on relevant industries. However, a policy may affect multiple sectors, and the same industry may appear in multiple chapters. Table 1.1 provides a map from the sectors that are described in this report to the policies that affect them.

Table 1.1: Industries studied, with their associated chapters and policy areas

Sector	Ch. 4 Tariffs	Ch. 5 IPR	Ch. 6 LCR	Ch. 7 FDI	Ch. 8 Other
Agriculture and food products					
Almonds	X				X
Fruits and vegetables	X				
Milk	X				X
Pulses	X				X
Wheat	X				X
Wine	X				X
Natural resources and metals					
Mining and quarrying				X	
Precious metals and stones	X				
Chemicals and textiles					
Biotechnology		X			X
Cotton	X				X
Pharmaceuticals		X			X
Other manufacturing					
Luxury goods		X			
Medical devices	X	X			X
Passenger vehicles	X				

[14] ICT companies encompass both services providers and hardware manufacturers.

Sector	Ch. 4 Tariffs	Ch. 5 IPR	Ch. 6 LCR	Ch. 7 FDI	Ch. 8 Other
Solar energy			X		
Retail and wholesale					
Cash and carry				X	
E-commerce				X	
Single-brand and multibrand retailing				X	
Financial services					
Accounting and auditing				X	X
Banking and insurance				X	X
Nonbank financial companies				X	
Content and media		X	X		
ICT					
Computers		X	X		
Mobile phones		X			
Telecommunications		X	X	X	X
Other services					
Aerospace and defense		X		X	
Air transport				X	X
Architectural		X		X	X
Construction				X	
Education, engineering, and legal				X	X

Source: Compiled by the USITC.

Data Sources

As requested by the Committees, this report is based on publicly available literature, economic data, and statistical estimates derived from the Commission's survey of U.S. companies active in India. Other qualitative information was developed through public hearings, written submissions, and fieldwork conducted in both India and the United States. The Commission held a public hearing on February 12 and 14, 2014. Witnesses included 22 representatives of academic institutions, nongovernmental organizations, industry, and trade associations.[15] Written submissions were provided as well by a diverse group of organizations, such as trade associations and industry representatives.[16] In addition, the Commission conducted nearly 100 interviews with industry and academic representatives in Washington, DC, and in four cities in India (Bangalore, Chennai, New Delhi, and Mumbai).

As noted above, to catalog industrial trade policies, the Commission looked at primary sources, such as laws and regulations posted to Indian government websites, and documents from the

[15] See appendix C for a list of hearing participants.
[16] See appendix D for the positions of interested parties.

government of India, such as its 2013 Consolidated FDI Policy.[17] The Commission also referenced secondary sources, such as reviews of international barriers to trade and investment carried out by national and international organizations such as the USTR,[18] the G20,[19] the OECD,[20] and the WTO.[21] Data on U.S. trade and investment in India were taken from the U.S. Census Bureau, the U.S. Department of Commerce, and the U.S. Bureau of Economic Analysis.

The Commission used two methods to provide the requested information on the effects of India's trade and industrial policies on the U.S. economy: a survey of U.S. businesses, focusing primarily on industry effects of specific policies; and economic modeling, focusing primarily on the economy-wide effects of major policy types (such as all FDI restrictions). Data sources for the survey and model are detailed below.

Approach

Survey Method

As noted above, there is substantial information available on U.S. trade and investment with India, and on the nature and extent of India's domestic policies. But there are no public data measuring U.S. companies' perceptions of Indian policies and how U.S. companies have responded to Indian policy changes. To collect primary data, the Commission developed a questionnaire that was sent to a stratified random sample of 8,000 companies that were identified as likely to be doing business in India.[22]

The Commission used a mixture of public and proprietary databases to generate a list of companies in the nine identified sectors. The Commission then selected firms to be surveyed from this list, using statistical sampling techniques allowing the Commission to weight and aggregate the responses of individual companies so as to accurately represent U.S. activity in India in those sectors. All information from the survey is aggregated so as not to disclose information about the operations of individual companies and the estimates have passed USITC data disclosure guidelines.

The survey estimates do not represent total U.S. activity in India, however. As noted above, the Commission did not survey companies in all U.S. industries. The Commission also exempted

[17] India Department of Industrial Policy and Promotion, "2013 Consolidated FDI Policy," 2013.
[18] USTR, "2014 National Trade Estimate Report on Foreign Trade Barriers," 2014.
[19] OECD and UN, "Eighth Report on G20 Investment Measures,"2012.
[20] OECD, FDI Regulatory Restrictiveness Index (accessed December 5, 2013).
[21] WTO, "Trade Policy Review: India," 2011.
[22] See appendix E for the full questionnaire.

small companies, generally those with less than 50 employees.[23] Although such companies make up the majority of U.S. companies, they account for a small share (less than 20 percent in 2012) of U.S. trade.[24] In addition, only about 1 in 950 small companies export to India, making it extremely costly to gather information from them through a stratified random survey.[25] Excluding these companies allowed the Commission to focus on companies that were more likely to engage with India, which tend to be larger, and substantially improved the statistical properties of the survey without introducing much bias into the survey estimates. Thus, the shares of surveyed companies engaged in India, while far from 100 percent, are much higher than would be observed in a straight random sampling of U.S. companies, since the U.S. Census reports that only 0.3 percent of all U.S. companies export to India, and an even smaller share have foreign affiliates there.[26] Appendix F provides more information on the selection of companies for the Commission's survey and the weighting of their responses.

The Commission mailed the questionnaire to 8,000 U.S. companies, of which 3,491 (47.0 percent) responded.[27] This response rate is towards the high end of the range seen in the Commission's other broad-based surveys.[28] As in all Commission surveys, the response level and the quality of the responses reflect significant Commission efforts to collect as much information as possible. The Commission staff's outreach efforts included meeting with trade associations and field-testing the questionnaire, as well as making over 1,600 phone calls to surveyed companies.

The remainder of this section presents an overview of the characteristics of U.S. companies in policy-sensitive sectors that do business in India, to provide a background for later chapters that use survey data to describe U.S. companies' perceptions of Indian policies and their responses to policy changes. Unless noted otherwise, references to "U.S. companies" below should be interpreted as including only companies in surveyed industries.

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[23] The Commission included companies with less than 50 employees in some industries, when their inclusion was necessary to get an accurate picture of U.S. engagement in that industry. The thresholds for inclusion can be found in appendix F. This cutoff is applied to companies selected from data sources that contain information on employees by firm, such as the ORBIS database.

[24] U.S. Census, "A Profile of U.S. Importing and Exporting Companies 2011–2012," 2014, exhibit 1a.

[25] U.S. Census, "A Profile of U.S. Importing and Exporting Companies 2011–2012," 2014, exhibit 5a, and "2011 Statistics of U.S. Businesses: U.S. and States, totals," 2013. Small companies are even less likely to have overseas affiliates than to export.

[26] U.S. Census, "A Profile of U.S. Importing and Exporting Companies 2011–2012," 2014, exhibit 5a, and "2011 Statistics of U.S. Businesses: U.S. and States, totals," 2013.

[27] After adjustments to the sample and respondents to account for undeliverable surveys, duplicates, and exemptions. For further details, see appendix F.

[28] For example, the surveys for *Digital Trade in the U.S. and Global Economies, Part 2* and *Small and Medium-Sized Enterprises: Characteristics and Performance* had response rates of 40.9 percent and 35.6 percent, respectively.

Characteristics of U.S. Companies Engaged in India

Of all the companies in the Commission's survey, 43.6 percent were engaged in at least one locale abroad by exporting or by holding equity in a foreign affiliate, and 16.8 percent were specifically engaged in India (table 1.2). The percentage of these firms engaged in India varied widely by industry. Some sectors, such as agriculture and retail and wholesale services, had very low shares of companies engaged in India, despite having moderate engagement globally.

Table 1.2: Foreign engagement by sector, 2013, percent

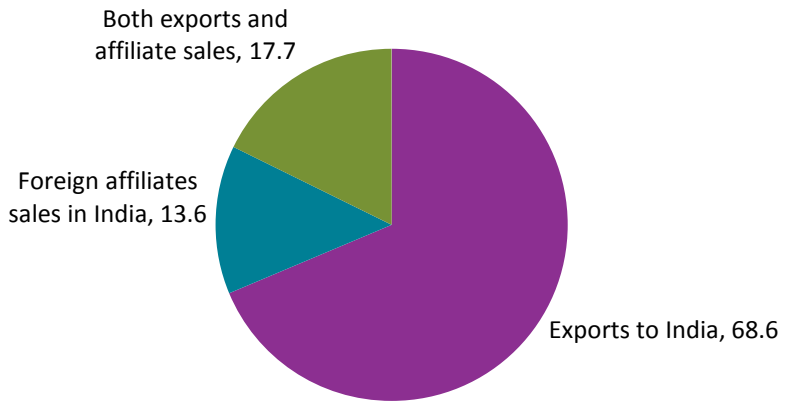
Sector	Share of sector engaged globally	Share of sector engaged in India
Agriculture and food	37.2	6.5
Natural resources	54.6	15.4
Chemicals and textiles	85.1	48.4
Other manufacturing	83.0	36.1
Retail and wholesale	32.5	8.9
Financial services	18.6	4.4
Content and media	33.6	20.6
ICT	44.5	16.9
Other services	30.5	11.2
All sectors	43.6	16.8

Source: USITC calculations of weighted responses to the Commission questionnaire.

Based on the Commission's survey, the large majority of U.S. exporters engage with India through exports only, while most U.S. companies with foreign affiliate sales in India also engage in exporting to the Indian market (figure 1.1). Hence, investors and exporters in the Indian market often have similar perceptions of Indian policies, and similar responses to them, as noted in chapters 3 and 7.

In the Commission survey, the population of companies engaged globally is primarily made up of small and medium-sized companies (less than 500 employees), with 82.3 percent of companies falling in this category. As noted above, companies with less than 50 employees were generally excluded from the survey, both to reduce the burden on small firms and because they rarely engage in business in India. Companies classified as large (500 employees or more) account for 17.7 percent of companies engaged globally and about one-quarter of companies engaged in India (table 1.3). Although there are fewer large companies engaged in India than small and medium-sized ones, the amount of business they do is far greater than their smaller counterparts. By value, their exports account for 85 percent of exports to India,

Figure 1.1: Distribution of U.S. companies engaged in India by activity, percent



Source: USITC calculations of weighted responses to the Commission questionnaire.

Table 1.3: Engagement of U.S. companies globally and in India, by size, 2013, share of total

Type of company	Share of companies engaged globally	Share of companies engaged in India	Share of exports to India	Share of foreign affiliate sales in India
Small and medium-sized	82.3	75.9	15.0	2.5
Large	17.7	24.1	85.0	97.5
Total	100.0	100.0	100.0	100.0

Source: USITC calculations of weighted responses to the Commission questionnaire.

while their foreign affiliate sales account for over 97 percent of total foreign affiliate sales in India.

Intellectual property (patents, trademarks, copyrights, and trade secrets) is critical to the competitiveness of many U.S. companies. Within the survey, IP-intensive companies are those that regard any type of IP as "very important" to their business. More than half of companies engaged in India in all sectors, with the exception of agriculture, are IP-intensive (table 1.4). Nearly all content providers are IP-intensive. The prevalence of IP-intensive firms among U.S. companies engaged in India means that companies in many industries are affected by Indian IP policies, as discussed in chapter 5.

As noted above, U.S. companies that engage in India primarily do so through exports rather than foreign affiliates. Within exporters, goods exporters predominate. About three-quarters of the exporters ship only goods to India, while about 10 percent send both goods and services (table 1.5). Sales by companies with foreign affiliates are more evenly divided between goods and services.

Table 1.4: IP-intensive companies engaged in India, by industry, 2013, percent

Sector	Share of IP-intensive companies	Share of non-IP-intensive companies	Total
Agriculture and food	45.6	54.4	100.0
Natural resources	69.9	30.1	100.0
Chemicals and textiles	61.5	38.5	100.0
Other manufacturing	76.4	23.6	100.0
Retail and wholesale	56.4	43.6	100.0
Financial services	74.9	25.1	100.0
Content and media	96.8	3.2	100.0
ICT	80.0	20.0	100.0
Other services	59.9	40.1	100.0
All sectors	68.4	31.6	100.0

Source: USITC calculations of weighted responses to the Commission questionnaire.

Table 1.5: Share of U.S. companies engaged in India that are goods and services providers, 2013, percent

Product type	Share of exporters	Share of foreign affiliates
Goods	75.2	44.8
Services	14.8	32.4
Bundled (undifferentiated)	9.9	22.9
Total[a]	100.0	100.0

Source: USITC calculations of weighted responses to the Commission questionnaire.
[a] Due to rounding, totals may not add to 100.

Economic Modeling Method

India's industrial policies can affect U.S. trade and investment with India and the broader U.S. macroeconomy. For example, a reduction in Indian tariffs on a U.S. agricultural commodity is expected to increase U.S. exports of the commodity to India. It may also, less obviously, lead to an increase in U.S. imports of Indian processed food products, because such downstream goods would benefit from reduced tariffs on their imported intermediate inputs, and U.S. imports of these goods could become less expensive and more competitive with U.S. products. The net effects on the wider U.S. economy, including GDP, employment, and wages, are therefore best captured in a broad economic model of the global economy.

To capture these wider effects the Commission employs such a model, called a computable general equilibrium (CGE) model. The model used is based on the CGE model developed by the Global Trade Analysis Project (GTAP). The GTAP model is a global trade model that takes into account the linkages between all industries in each country and the pattern of trade flows

across countries.[29] This model has been extensively used by the Commission to examine the effects on the U.S. economy of a range of issues, including trade policies and IP protection.[30]

An innovation introduced in this report is the incorporation of FDI into the standard model. This extension, developed by the Commission, breaks down capital stocks and sales by country of origin so that effects of policy changes on U.S. foreign affiliates located in India can be calculated. This permits the Commission to model policies that apply only to companies with foreign ownership, and also allows it to analyze the effect of more general policy changes on foreign affiliates.[31] The model baseline has been updated to reflect the U.S. and Indian economies in 2014. The Commission has also extended the model by incorporating a flexible labor force, rather than assuming that the number of workers remains fixed.[32] This assumption allows the model to estimate the impact on aggregate employment in each country in response to important changes, so that, for example, workers may enter the labor force or work longer hours in response to improved wages.[33]

To simulate the effects of India's policy changes, the model requires inputs that reflect the size of existing policy barriers. Depending on the type of policy, the inputs may be available in existing databases or may require independent estimates, as discussed below. The CGE model uses these inputs to simulate the overall economic effects of policy liberalization on the U.S. economy, including employment, wages, and trade.

Three simulations were conducted to calculate the effects on the U.S. economy of eliminating tariff and investment restrictions and raising standards of IP protection to levels comparable to those of the United States and Western Europe. These simulations correspond to three of the subsequent policy chapters. Due to a lack of necessary data, the policies covered in the other two policy chapters—LCRs and other nontariff measures—were not quantified.[34]

For each simulation, the Commission calculated the effect on the United States of removing Indian policy barriers. In order to satisfy the Committees' request to measure "to the extent

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[29] The GTAP model is described more fully in appendix G.
[30] USITC investigations that have used the GTAP model include *Digital Trade in the U.S. and Global Economies, Part 2*, 2014 and *China: Effects of Intellectual Property Infringement and Indigenous Innovation Policies on the U.S. Economy*, 2011.
[31] Lakatos and Fukui, "The Liberalization of Retail Services in India," 2014. See appendix G for a detailed explanation.
[32] With a fixed labor force assumption, aggregate employment remains fixed while allowing shifts of employment across sectors. A flexible labor force assumption allows sectoral shifts in employment as well as a change in aggregate employment.
[33] This extension has previously been used in *Digital Trade in the U.S. and Global Economies, Part 2*, 2014. See appendix G for a detailed explanation.
[34] In addition to the lack of data, there is less consensus in the economic literature on the appropriate way to model these barriers.

feasible . . . effects of India's identified restrictive measures on the U.S. economy," the Commission simulated the effect of a full liberalization. For the tariffs simulation, full liberalization was achieved by eliminating tariffs, reducing them to zero. For IPR, the model simulated the effect of making standards of IP protection comparable to U.S. and Western European levels.[35] For the FDI simulation, barriers to investment were eliminated by reducing all barriers to zero.

The model results present a counterfactual picture of what the current U.S. economy would look like if Indian policies were no longer restrictive. The policy simulations show the difference between U.S. activity in 2014 under the current Indian policy regime and U.S. activity in 2014 under a simulated liberalized policy regime, assuming other conditions in the 2014 economy remained the same. Hence, these simulations should not be interpreted as a projection of future economic activity in the United States or India.

Removal of Tariffs

The tariff simulation assumes a unilateral and full removal of all Indian tariffs on imports from all of its trading partners, including the United States.[36] The elimination of Indian tariffs would directly affect U.S. exports, which would rise as U.S. goods become cheaper for Indian consumers. Because tariffs vary across industries, the effects of liberalization are expected to vary across industries as well. The removal of tariffs would also affect activities by U.S. affiliates in India, though less directly; some sectors may see greater competition from cheaper imports, while others may gain from access to cheaper intermediate inputs from all sources. Finally, exports from India to the United States would also be expected to rise. As the elimination of tariffs would give India access to cheaper imported intermediate inputs, the price of Indian goods and services would decline. India would then become more competitive and would export more to all of its trading partners, including the United States.

Improved Intellectual Property Protection

The IP simulation calculates the effects of raising India's IP protection to the level of the top-ranked countries, such as the United States and Western Europe. The IP simulation assumes that companies that use IP intensively will benefit from improved IP protection in India because the infringement of valuable IP will be reduced and because criminal and administrative authorities will more effectively enforce IP rights by applying timely and deterrent remedies. An

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[35] The measure used to rate countries' policies is the one developed by the Economist Intelligence Unit (EIU). This measure evaluates countries based on a five-point scale, with 5 being the highest rating. The United States and most Western European countries merit a rating of 5. India is rated at level 3, and the simulation assumes that India achieves an IPR protection level of 5. See appendix G for further details on this index.

[36] Liberalization for all partners was chosen to parallel the liberalization of FDI. FDI is liberalized for all partners, since governments generally remove investment barriers for all foreign countries as a group rather than for specific countries.

improvement in India's IP regime is assumed to have two separate effects, both of which would boost foreign affiliate sales and exports from the United States and other countries that produce IP-intensive products. First, affiliates owned by companies in these countries are expected to increase sales; an improved IP environment would allow their parent companies to produce more advanced products in India, bolstering the competitiveness of the affiliates' products in the Indian marketplace. Second, increased IP protection in India would increase the export of more advanced high-technology products to India from the United States and other countries with IP-intensive goods, both because of increased consumer demand for such goods and because more advanced high-technology products would improve the ability of firms located in India to produce goods more efficiently.

Unlike the tariffs in the tariff simulation, the IP model inputs are not available in existing databases. The Commission calculated the model inputs for the IPR simulation by estimating the effects of IP protection on countries' imports and on sales by their foreign affiliates, while controlling for other factors that affect international activity.[37]

Removal of Barriers to FDI

The FDI simulation calculates the effects of a full removal of FDI restrictions on foreign affiliates in the Indian economy, including those owned by U.S. parent companies. Restrictions imposed on foreign affiliates limit the ability of foreign firms to maintain and control the operations of foreign affiliates. These restrictions include regulations that may be difficult or impossible for a company to meet, constraining the amount of investment foreign firms are willing to make. For example, in the aviation and insurance industries, India caps the equity held by foreign investors at 49 percent. Model results show that the liberalization of such policies would stimulate an increase in foreign affiliate sales. The standard GTAP model cannot differentiate between domestic companies and foreign affiliates, so this analysis employs an extension to the standard GTAP model that incorporates information on foreign affiliates' activity in the Indian economy.[38] This enhanced capability enables the Commission to estimate the impact of the removal of FDI restrictions on U.S. affiliates in India.

As with the IPR simulation, there is no ready source of estimated barriers for FDI policies on affiliate activity that can serve as model inputs. Instead, the Commission calculates these model inputs based on the relationship between FDI policies and foreign affiliate sales after accounting for trade flow determinants such as country income and distance.[39]

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[37] The procedure for calculating these estimated inputs is detailed in appendix G.
[38] Lakatos and Fukui, "The Liberalization of Retail Services in India," 2014.
[39] The procedure for calculating these estimated inputs is detailed in appendix G.

Combined Simulation

The combined simulation incorporates all three policy changes. The combined simulation estimates the impact on the U.S. economy of the simultaneous removal of barriers associated with tariffs and FDI and the improvement of Indian IP protection to a level comparable to that in the United States. These effects are presented in chapter 3.

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Chapter 2
Policy Overview and Trade and Investment Trends

Introduction

This chapter offers an overview of trends and policies in India affecting trade and foreign direct investment in India's agricultural, manufacturing, and services sectors, with a focus on the period since 2003, the year before the Singh government took office. The overview highlights the policy areas that are addressed at length in subsequent chapters, including tariffs and customs procedures, intellectual property (IP), local-content requirements (LCRs), foreign direct investment (FDI), and other policies, including those involving nontariff measures (NTMs). The chapter concludes with a summary of recent trends in U.S. trade and investment in India, as requested by the Committees, which provides context for the description of India's policies and the analysis of the effects of these policies in later chapters.

Overview of the History of Indian Policies

Indian economic policy has undergone major reform over the last two decades, resulting in a significant opening to foreign trade and investment and increasing reliance on private markets. India's historical adherence to import substitution as a strategy for economic development was shown to be unsustainable by the early 1990s, as neighboring countries in Asia were succeeding with more trade-oriented economic policies. India undertook a number of small economic reforms in the late 1980s, but the catalyst for significant reforms was the balance-of-payments crisis in 1991.[40] India reduced barriers to international trade and foreign direct investment, ended industrial policies that relied heavily on licensing restrictions and subsidies, and increased public investment to improve the country's infrastructure.[41]

Since the 1990s, India has had a succession of governments with different policy priorities. The 1991 economic reforms were initiated by the Congress Parliamentary Party under the leadership of Prime Minister P.V. Narasimha Rao. The Rao government was succeeded by the National Democratic Alliance government of Prime Minister Atal Bihari Vajpayee, then by the

[40] Ahluwalia, "Economic Reforms in India Since 1991, 2002, 67.
[41] One element in securing these trade reforms involved the WTO dispute settlement case brought in 1997 by the United States. The WTO found that India's monetary reserves were adequate and that India's import restrictions taken to safeguard its balance-of-payments were not justified. WTO, Dispute Settlement: Dispute DS90 (accessed December 6, 2014).

United Progressive Alliance government of Prime Minister Manmohan Singh starting in 2004, and in 2014 by the Bharatiya Janata Party government of Prime Minister Narendra Modi. These governments have varied in the priority that they have placed on reducing inequality, privatizing publicly owned entities, and implementing policies to increase the flexibility of labor markets, but all of the governments have advanced the general reform agenda.[42] Their different policy priorities reflect differing views about whether the benefits of growth have been widespread enough to alleviate the country's problems with extreme poverty.[43]

Vajpayee Government (1998–2004)

The National Democratic Alliance, headed by Atal Bihari Vajpayee, formed a government in 1998. The government believed that in order to maintain a high level of growth, India needed to embrace globalization and adopt a more outward-looking foreign policy.[44] Tariffs were reduced in several rounds while the Vajpayee government was in place, and many quantitative restrictions on imports were removed in 2001.[45] The Vajpayee government also promoted investment in education, telecommunications, electricity, and transportation in an effort to improve the productivity of the economy.[46] However, external debt grew substantially during this period, rising to 61.5 percent of India's gross domestic product (GDP) in 2002; the debt partly crowded out the government's attempts at infrastructure development.[47] The government tried to overcome its fiscal constraints by liberalizing FDI in several sectors, including telecommunications and energy. The government's support for privatizing the telecommunications industry is often credited as a key factor in India's international competitiveness in information technologies.[48] These policies helped Indian companies upgrade their technologies and make their production processes more efficient.[49]

Singh Government (2004–14)

The Singh government, which took office in 2004, discontinued many of the Vajpayee government's privatization policies.[50] Concerns about income inequality in India led the Singh government to focus on an economic strategy called inclusive growth. The policies emphasized creating employment opportunities for disadvantaged classes and improving irrigation, roads,

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[42] Panagariya, *India: The Emerging Giant, 2008*, 95, 97; Bhagwati, "Indian Reforms: Yesterday and Today," 2011, 5.
[43] Trade economist and India expert Jagdish Bhagwati argues that there is not really a tradeoff between growth and inclusiveness: India's aggregate economic growth is not incompatible with, and is even essential to, poverty reduction. See Bhagwati, "Indian Reforms: Yesterday and Today," 2011, 8.
[44] Government of India, *Tenth Five Year Plan*, 2002, vol. 1, chap. 13, para. 1.51.
[45] Ibid., chap. 16, para. 1.67.
[46] Panagariya, *India: The Emerging Giant*, 2008, 97.
[47] Ahluwalia, "Economic Reforms in India Since 1991: Has Gradualism Worked?" 2002, 76.
[48] Ibid., 80.
[49] Ibid., 75.
[50] Panagariya, *India: The Emerging Giant*, 2008, 97.

water, housing, and telecommunications in rural villages.[51] One of the government's signature initiatives in the social services sector was a rural health initiative that sought to bring health services to even the poorest people in India.[52] However, despite its efforts, government spending on healthcare actually declined from 4.5 percent of total GDP in 2001 to 3.9 percent in 2009, rising slightly to 4.0 in 2013.[53]

The Singh government estimated that it would have to increase infrastructure spending on electricity, roads, bridges, railways, ports, telecommunications, irrigation, water supply, and sanitation from 5.3 percent of GDP in 2007 to 9.3 percent of GDP by 2012 to meet its goals while maintaining the country's high rate of economic growth. However, fiscal conditions in the country reportedly made these goals infeasible.[54]

Overview of Developments in Key Policy Areas

The Singh government was responsible for implementing many of the policies in the five key policy areas that are the focus of this report. These include tariffs and customs procedures, IP, LCRs, FDI, and others, such as NTMs. Reforms in these areas benefited domestic and foreign companies in India. The effects of these policies on the Indian economy are described in box 2.1, and an overview of change in each policy area under the Singh government is presented below.

Tariffs and Customs Procedures

The growth of U.S. exports of goods to India between 2000 and 2013 coincided with a significant decline in barriers to imports into India. In the early 1990s, according to Commission hearing testimony, the trade-weighted average tariff rates[55] applied to Indian imports of U.S. goods were 80 percent ad valorem or above, making them "stratospherically high (in absolute terms and relative to the rest of the world)."[56] The steep decline in the trade-weighted average tariff rate that began in the early 1990s continued until 2005, when that rate reached about 10 percent ad valorem. After 2006, however, it dropped by only a few additional percentage points (figure 2.1), fluctuating in a narrow range between 6 and 8 percent in recent years.

[51] Government of India, *Eleventh Five Year Plan*, 2002, vol. 1, chap. 21, para. 1.13.
[52] Ibid.
[53] World Bank, World Development Indicators, "Health Expenditure, Public" (percent of total health expenditures).
[54] Ahluwalia, "Economic Reforms in India Since 1991," 2002, 76.
[55] The trade-weighted average tariff is weighted by the import value of commodities in each tariff line, and is not the simple average of all tariff rates.
[56] Subramanian, written testimony to the USITC, February 13, 2014.

Box 2.1: The effects of the reforms on India's economy

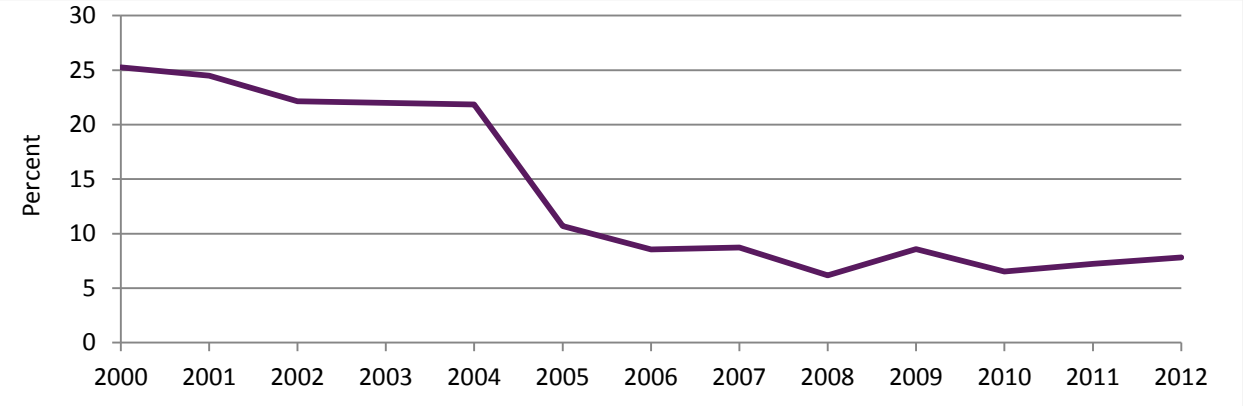
The most common way to measure the effects of the economic reforms is to examine trends in India's GDP, trade, and income inequality in the years following specific rounds of reforms.[a] The significant growth of India's GDP and its international trade provide evidence of the efficacy of the reforms of the last two decades. The average annual growth of GDP increased from 5.3 percent during 1983–1991 (before the Rao Congress Parliamentary Party government) to 6.1 percent in the period from 1992–2004 (under the Rao and Vajpayee governments), and then to 7.5 percent in 2005–2013 (under the Singh government).[b] Over the same periods, the ratio of India's total merchandise trade to its GDP rose from 11.2 percent to 17.3 percent to 33.9 percent.[c]

Indian trade policies have raised the productivity of companies in India. One study found that small companies in the informal sector gained most from the reductions in tariffs on final goods, while larger firms gained most from the reductions in tariffs on imported intermediate goods.[d] A second study found that tariff reductions raised productivity the most in manufacturing industries that were less heavily regulated.[e] A third study found that reforms in India's services sectors had positive spillover effects in other sectors.[f]

The reforms in Indian policy have improved market access and helped the Indian economy to grow.[g] India's central government debt as a share of GDP rose from approximately 50 percent in 1991 to a little over 60 percent in 2002, and declined back to 50 percent in 2012.[h] Concerns over the 60 percent debt-to-GDP ratio were reportedly an impediment to the economic reform effort.[i]

[a] Bhagwati, "Indian Reforms: Yesterday and Today," 2011, is an example of this type of analysis.
[b] World Bank, *World Development Indicators* database (accessed September 29, 2014).
[c] World Bank, *World Development Indicators* database (accessed September 5, 2014).
[d] Nataraj, "The Impact of Trade Liberalization on Productivity," 2011.
[e] Topalova and Khandelwal, "Trade Liberalization and Firm Productivity," 2011.
[f] Dehejia and Panagariya,"Trade Liberalization in Manufacturing," 2014.
[g] Bhagwati, "Indian Reforms: Yesterday and Today," 2011, pp 5-6.
[h] World Bank, *World Development Indicators* database (accessed September 5, 2014).
[i] Ahluwalia, "Economic Reforms in India since 1991," 2002.

Figure 2.1: Average tariff rate applied to Indian imports of U.S. goods, 2000–2012, percent



Source: WTO Integrated Database (tariff and trade data for 2000–2001, 2006, 2008–2011; tariff data for 2002 and 2012) via the World Integrated Trade Solution (WITS); United Nations Conference on Trade and Development (UNCTAD) Trade Analysis and Information System (TRAINS) database, via WITS (tariff and trade data for 2004–2005 and 2007); and United Nations Commodity Trade (COMTRADE) Database, via WITS (trade data for 2002 and 2013). Accessed July 20, 2014.
Note: Not all data are available for all years. The 2003 average tariff is the simple average of the 2002 and 2004 values. The 2012 average is based on tariff data for 2012 and trade data for 2013. See appendix Table I.3 for underlying data for this figure

Besides reducing its tariff rates, India has made efforts to simplify its tariff schedule and improve its transparency. India has a high share of unbound rates, allowing authorities to change tariff rates frequently.[57] In addition, a number of India's tariffs have wide gaps between bound (or ceiling) rates and most-favored-nation (MFN) applied rates, so the applied rates can fluctuate in response to market conditions or domestic concerns.[58] Some of India's customs procedures have improved in recent years, with simplified documentation, examination, and assessment requirements.[59] Certain customs-related issues continue to present barriers to U.S. exports, however, including disputes over customs valuation procedures for intra-firm transfers of goods (related party shipments), incomplete implementation of electronic documentation systems, customs clearance delays, and infrastructure challenges.[60]

Intellectual Property Protection

In some areas, the laws and infrastructure to support IP protection are not sufficient to meet the needs of some U.S. companies doing business in India, and some legal rules, particularly for patents, differ from norms in other countries. This section describes IP protection in India, focusing on trade secrets, patents, trademarks, and copyrights.[61]

Trade Secrets

The legal framework for trade secret protection in India is underdeveloped. Statutes that specifically govern the protection of trade secrets do not exist in India, and case law reportedly establishes few precedents.[62] As a result, the extent to which trade secrets are protected and damages will be available in Indian courts is uncertain.

The protection of regulatory test data is similarly lacking. Makers of pharmaceuticals and some agricultural products must submit regulatory test data to obtain marketing approval for their

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[57] The term "bound" rate of duty in the WTO context generally refers to the rate of duty that a WTO member has committed to impose on a product imported from other WTO members under the WTO agreements. As a general matter, a WTO member may impose (apply) a lower rate than its bound (or ceiling) rate, but it cannot apply a higher rate unless it meets an exception under the WTO agreements. The term "unbound" rate of duty in the WTO context refers to a rate of duty that is not subject to a commitment under WTO agreements. Theoretically, in the case of a product not subject to a bound rate of duty, a WTO member may impose whatever rate it chooses. The term "applied" rate of duty in the WTO context refers to the rate of duty actually applied by a WTO member to imports of the subject good, which would normally be a rate that is equal to or lower than the bound rate. As a general matter, a member applying a rate that is lower than the bound rate is free to raise its rate as high as the bound rate at any time.

[58] MFN applied rates are the tariff rates applied on a non-discriminatory basis on India's imports. The MFN applied rates must be less than or equal to bound rates, but they can be significantly less.

[59] Dominic, Priya, and Agrawal, "Trade Facilitation Gap Analysis," 2012.

[60] Chapter 4 discusses these issues in depth.

[61] Chapter 5 discusses these issues in depth.

[62] Although some case law has developed in recent years, many key issues remain unresolved. Schultz and Lippoldt, "Approaches to Protection," 2014, 251–52; Nishith Desai Associates, "Intellectual Property Law in India," 2013, 42; Grover and Khetarpal, "Legislation Needed on Confidentiality in India," 2013, 18.

products. The WTO Agreement on Trade-related Intellectual Property Rights (TRIPS) requires that member countries protect these data, but does not specify how it must be protected. The United States and other countries interpret TRIPS to require a period of "data exclusivity"—a set amount of time, often five years or more, during which generics-producing companies cannot use test data submitted by an innovating company to a marketing authority as a basis for getting their products approved.[63] India offers no data exclusivity. Legislation and recommendations to provide such protections have been pending since 2007.

Patents

Indian law allows multiple challenges to patents, both before they are granted and afterwards; places limitations on the patentability of products; and contains broad compulsory licensing provisions. Although this report does not make findings regarding the legal merits of any Indian laws or policies, chapter 5 presents arguments on this subject noted in the Commission's public hearing and elsewhere.

After a long period in which the Indian government provided no patent protection for pharmaceutical products, India reintroduced patent protection in 2005, as required by its commitments as a signatory of the WTO and the TRIPS agreement. India's 2005 patent law includes limits on patent protection, including section 3(d), and detailed compulsory licensing provisions, which are a major focus of U.S. government and industry concern.[64]

Under section 3(d) of the patent law, new forms of existing medicines are not patentable unless they improve a drug's therapeutic efficacy.[65] This standard potentially bars patents for improved medicines that routinely receive patent protection in other countries, including drugs with fewer side effects, improved delivery systems, and temperature or storage stability.[66]

Compulsory licensing is one of the most contentious Indian IP issues. A compulsory license is used by a government to allow a company to produce a patented product or process without the consent of the patent owner. Compulsory licenses have been used to improve access to patented medicines in other countries, most notably to increase developing countries' access to HIV/AIDS medication in the early 2000s (see box 5.3). Section 84 of the India Patents Act allows

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[63] Schultz and Lippoldt, "Approaches to Protection," 2014, 81–199.
[64] See box 5.2 for a discussion of the evolution of India's patent law.
[65] 2005 Act, section 3(d).
[66] Hunter, prehearing statement to the USITC, February 13, 2014, 2; USITC, hearing transcript, February 12, 2014, 9 (testimony of Brian Pomper, Alliance for Fair Trade with India); USITC, hearing transcript, February 12, 2014, 21 (testimony of Mark Elliot, U.S. Chamber of Commerce); USITC, hearing transcript, February 12, 2014, 74 (testimony of Stephen Ezell, ITIF); USITC, hearing transcript, February 14, 2014, 255 (testimony of Roy Zwahlen, BIO); USITC, hearing transcript, February 14, 2014, 235 (testimony of Linda Dempsey, National Association of Manufacturers); U.S.-India Business Council, written submission to the USITC, January 30, 2014, 12; industry representatives, interviews by USITC staff, New Delhi, June 24, 2014; industry representatives, telephone interview by USITC staff, September 25, 2013; industry representatives, interviews by USITC staff, Washington, DC, September 19, 2013.

the Indian government to compulsorily license a patent three years after it is granted on the grounds that (a) the reasonable requirements of the public with respect to the patented invention have not been satisfied, (b) the invention is not available at a reasonably affordable price, or (c) the invention is not "worked" in India.[67] To date, India has issued one compulsory license, for Bayer's oncology drug Nexavar. Beyond pharmaceuticals, India has indicated that compulsory licensing could promote technology transfer in the clean energy sector.[68]

Copyrights and Trademarks

The U.S. government, as well as U.S. and Indian trade associations, has found substantial copyright infringement ("piracy") and trademark infringement ("counterfeiting") in India, particularly in the content, luxury goods, and pharmaceutical industries. Persistently high levels of piracy and counterfeiting (among other IP concerns) have led USTR to place India on its Priority Watch List in its annual review of the state of IP protection in U.S. trading partners every year since 1994.[69]

Industry representatives in the content industries in particular (including movies, music, games, books, journals, and software) described piracy and counterfeiting as key impediments to doing business in India. Concerns of Indian and international industry representatives include the lack of both sufficient government resources and central coordination for IPR enforcement at the state and national levels.

Local-Content Requirements

Since 2009, India has applied several policies requiring the use of specified threshold levels of Indian content in manufactured goods.[70] These policies apply chiefly to the information and communications technology (ICT) and solar energy sectors.[71] The policies have reflected India's desire to develop domestic manufacturing in economically significant industries. In the ICT sector, policies also reflect Indian concerns about cybersecurity.

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[67] The term "working" is not defined in the statute but generally can be understood as meaning using or exploiting the patented invention in India. 2005 Act §§ 84 (2005).

[68] India has discussed compulsory licensing of clean energy in its National Manufacturing Policy of 2011 and in negotiations under the United Nations Framework Convention on Climate Change. USTR, "2014 Special 301 Report," April 2014, 40–41.

[69] In its annual review, USTR designates countries that "(a) deny adequate and effective protection of intellectual property rights, or (b) deny fair and equitable market access to United States persons that rely upon intellectual property protection." (19 U.S.C. § 2242) India was designated as a Priority Foreign Country from 1991 to 1993. IIPA, "2014 Special 301", 2014, Appendix C.

[70] Before 2009, the Indian government made general references to bolstering local manufacturing in sensitive industries, but the Commission has not found evidence of specific LCR policies.

[71] These policies are summarized below and presented in greater detail in chapter 6.

Local-Content Requirements in the Solar Energy Sector

India introduced LCRs in the solar energy market in several phases starting in 2010 under the Jawaharlal Nehru National Solar Mission (JNNSM).[72] The JNNSM includes the goal of increasing domestic manufacturing in the solar energy industry. Under the JNNSM, the government auctions the right to construct solar power installations in India. In order to qualify for the JNNSM, project developers must use locally sourced products, with the specific requirements varying by auction and the type of technology employed in the installation. For example, beginning in January 2012, agreements signed for power projects using a particular type of photovoltaic technology known as crystalline silicon were required to use only domestically produced solar cells and modules.[73] For concentrated solar projects,[74] the JNNSM has required 30 percent local content in Indian installations.

LCRs in the ICT Sector

As in the clean energy sector, LCRs that affect India's ICT sector are relatively recent. These include the Preferential Market Access policy and Telecom License Amendments, introduced by India's Ministry of Communications and Information Technology (MCIT) between 2009 and 2013. These policies reflect both India's desire to prioritize domestic manufacturing in economically important sectors and India's security concerns regarding ICT hardware manufactured outside of India.[75]

India introduced the Preferential Market Access policy in February 2012. It stipulated that between 25 and 30 percent of ICT goods would need to be sourced from domestic manufacturers; depending on the product, the share would gradually rise to 50 percent in subsequent years.[76] In response to opposition from international industry groups, the policy was narrowed in December 2013 to apply only to the central government's procurement of ICT goods.[77]

Since 2009, India has amended its telecommunications law three times, either to introduce or to modify LCRs.[78] The most recent amendment in 2011 introduced mandatory local-testing

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[72] Government of India, MNRE, "Jawaharlal Nehru National Solar Mission," n.d. (accessed August 19, 2014), 3, 7.
[73] Photovoltaic technology is the familiar type of solar equipment installed, for example, on residential roofs. Modules, also called panels, contain the cells that convert sunlight into electricity.
[74] Concentrated solar power installations consist of reflectors that concentrate sunlight on photosensitive materials.
[75] The Indian government has become increasingly concerned about the country's vulnerability to cyberattacks. Kedia, *Deconstructing*, February 2014.
[76] Domestic manufacturers includes all registered manufacturers in India, whether they are domestically owned or foreign-owned. Kedia, *Deconstructing*, February 2014.
[77] Ezell and Atkinson, "The Indian Economy at a Crossroads," 2014.
[78] European Commission, "Trade," November 26, 2013.

requirements;[79] as of July 2014, all imported ICT equipment that is deemed to have security implications must be tested in an Indian laboratory. This requirement differs from internationally accepted procedures, which accept ICT goods that have been tested in internationally accredited labs, regardless of the location.[80] In addition, under Indian law, private and government purchasers are permitted to inspect foreign ICT manufacturers' production facilities, and these producers may be subject to penalty if security precautions are found to be inadequate.[81]

Foreign Direct Investment

India has reduced barriers to FDI substantially since the late 1990s (box 2.2). Nonetheless, U.S. investors still point to barriers or restrictions on FDI that continue to prevent or inhibit investment in India. These include both horizontal restrictions, which apply to investors in all industries, and restrictions that apply to investment in particular industries.[82]

Box 2.2: The Organisation for Economic Co-operation and Development (OECD) FDI Regulatory Restrictiveness Index

The OECD has tracked changes in FDI restrictiveness since 1997 and finds that restrictions on FDI in India have lessened in all broad sectors except fisheries (table 2.1). Within the broad sectors, however, there are varying degrees of FDI restrictiveness. Based on the OECD calculations, some services sectors such as accounting and auditing services and legal services are considered to be completely closed, while broadcasting, insurance, retail, and banking are not closed but are among the more restricted sectors (see figure 7.1). Services such as telecommunications, engineering, and non-banking financial services are less restricted. According to the OECD, wholesaling, electricity distribution, surface and maritime transport, and hotels and restaurants are also completely open.

Table 2.1: OECD FDI Regulatory Restrictiveness Index by Sector in India[a]

	1997[b]	2003	2006	2010	2011	2012	2013
Goods and services	0.48	0.42	0.30	0.30	0.30	0.28	0.26
Goods	0.36	0.26	0.21	0.21	0.21	0.21	0.21
Agriculture and forestry	0.60	0.54	0.46	0.46	0.43	0.43	0.43
Fisheries	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Manufacturing	0.24	0.08	0.03	0.05	0.05	0.05	0.05
Mining and quarrying (incl. oil extraction)	0.15	0.18	0.06	0.06	0.06	0.06	0.06
Services	0.58	0.54	0.38	0.37	0.37	0.34	0.32

Source: OECD, FDI Regulatory Restrictiveness Index (accessed November 3, 2014).
[a] The index measures are on a scale of 0-1, with 0 representing completely open to FDI and 1 representing closed to FDI.
[b] The index was not initially reported annually. Data are not available for 1998–2002, 2004, 2005, or 2007–09.

[79] European Commission, "Security," November 26, 2014; Industry representative, telephone interview with USITC staff, September 30, 2014.
[80] Industry representative, telephone interview with USITC staff, September 30, 2014.
[81] USTR, *2014 Section 1377 Review*, April 2014, 16–17.
[82] These policies are presented in greater detail in chapter 7.

A number of Indian government FDI policies act as barriers to U.S. investment and other foreign investment. Most prominent among these are equity limits on the share of foreign investment in a domestic firm.[83] Although there are few barriers to investment in India's manufacturing sector, agriculture and certain services industries remain much more restricted. For most industries, caps on foreign investment have remained the same since 2010.[84]

Where equity limits have changed recently, the changes have been in the direction of additional liberalization. In 2012, the Indian government raised FDI equity caps in multibrand and single-brand retail, aviation, broadcasting, and power exchanges to attract additional investment.[85] In 2013, India eased investment requirements in telecommunications, defense, oil and natural gas, and courier services.[86] In July and August 2014, under the Modi government, India relaxed restrictions in rail, insurance, and defense.[87]

According to the OECD, there have been few barriers to investment in India's manufacturing sector since 2003. The Indian government currently allows 100 percent foreign equity ownership in most manufacturing industries.[88]

Other Policies

India maintains many other industrial policies that affect U.S. exports and investment in India. Several of these have been in effect for decades.[89] One prominent example that affects a broad swath of the economy and may indirectly affect foreign trade and investment is the Essential Commodities Act of 1955. This act grants the central government the authority to control the price of essential commodities and regulate the production, distribution, and use of these products.[90] Essential commodities include staple foods, cotton, iron, and petroleum, as well as products not generally considered commodities, such as auto parts, pharmaceuticals, textiles, and steel products.[91]

The Essential Commodities Act provides the authority for extensive regulation of food and agricultural markets, including minimum support prices for agricultural products (primarily rice and wheat). It also underpins the public distribution system that provides staple foods at

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[83] See RBI, "Foreign Direct Investment Flows to India" (accessed November 5, 2014).
[84] See table H.3 for equity caps in specific industries since 2010.
[85] Government of India, "Review of the Policy on Foreign Direct Investment Allowing FDI," 2012.
[86] Government of India, MOCI, Department of Industrial Policy and Promotion, "Press Note No. 6, 2013," August 22, 2013; World Bank, "India Development Update," October 2013, 11.
[87] Government of India, MOCI, DIPP, "Press Note No.7, 2014," August 26, 2014; Government of India, MOCI, DIPP, "Press Note No. 8, 2014," August 27, 2014; see Finance Minister Arun Jaitley, budget speech, July 10, 2014.
[88] USDOS, "2013 Investment Climate Statement—India," February 2013.
[89] These policies are summarized below and addressed in greater detail in chapter 8.
[90] Government of India, Essential Commodities Act of 1955.
[91] Government of India, Essential Commodities Act of 1955, Annexure I.

subsidized prices to the majority of India's population.[92] India maintains a variety of other barriers specific to agricultural products. For example, imports must comply with sanitary and phytosanitary standards that may differ from international norms.[93]

Other measures affecting trade that have been in place for decades include quotas and import licenses. Quotas still exist on a few products, including milk powders, corn, and certain oils, and import licenses are required for hundreds more.[94] Moreover, India imposes export controls, such as taxes, quotas, and bans, on some products.[95]

In services sectors, India forbids foreign firms to supply some services and allows them to provide others only if these firms have a commercial presence in India. For example, foreign banks cannot serve Indian customers in India without establishing a commercial presence,[96] and cross-border borrowing and lending are allowed only with the approval of the Reserve Bank of India.[97] Similarly, foreign providers cannot offer broadcast services across borders, and must establish an affiliate in India to broadcast signals within the country.[98] There are also barriers to foreign provision of telecommunications services in India. Foreign entities may provide satellite capacity only by selling to an Indian competitor, and only when the Indian competitor's own satellites lack adequate capacity[99]

Most professional services are regulated by an industry body that controls foreign access to the Indian market. The majority of foreign providers in the legal, accounting, and architecture industries cannot practice. In the health field, foreign medical professionals may not provide for-profit services in India.[100]

Modi Government (2014–present)

In May 2014, India's Bharatiya Janata Party won a majority in India's lower house, the Lok Sabha, and Narendra Modi became the prime minister of India. He previously served for 15 years as the chief minister of India's Gujarat state. During that period, Gujarat experienced significant economic development that is often attributed to Modi's pro-market, pro-

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[92] Government of India, Ministry of Consumer Affairs, Food and Public Distribution, Department of Food and Public Distribution, Annual Report 2013-14, 26, 51.
[93] USTR, *2014 Report on Sanitary and Phytosanitary Measures*, 2014, 9-10 and 57-58.
[94] WTO, *Trade Policy Review: India*, October 2011, 57–8.
[95] Ibid., 77–78.
[96] RBI, "Mobile Banking Transactions in India—Operative Guidelines for Banks," n.d. (accessed October 29, 2014); OECD, Services Trade Restrictions Database (accessed June 9, 2014); RBI, "Report on Internet Banking," June 22, 2001.
[97] World Bank, Services Trade Restrictions Database (accessed May 23, 2014).
[98] MPAA, "Letter to Ambassador Michael Froman," October 22, 2013.
[99] USTR, *2014 Section 1377 Review*, 14; USTR, "India," 2014, 151.
[100] Prasad and Sathish, "Policy for India's Services Sector," March 2010.

investment policies.[101] U.S. industry representatives interviewed in India generally expressed optimism that this new government will adopt a position of greater openness, addressing some of those policies that significantly burden foreign business and investment. The policies of the Modi government through the end of September 2014 are described in this report, and some new policies had been implemented by this date.[102] Most notably, these include the relaxation of limits on FDI in the defense, insurance, and rail transportation sectors in July and August 2014.[103]

Trends in Trade and Foreign Direct Investment

U.S. Engagement in India Is Rapidly Growing from a Small Base

U.S. engagement in India has grown substantially in the past decade. This growth, however, was from a small base, so India still accounts for a relatively minor share of total U.S. exports and foreign affiliate sales. In 2013, India accounted for about 2 percent of total U.S. exports of goods and services, less than 1 percent of sales by U.S. overseas affiliates, and less than 1 percent of the stock of U.S. overseas investment. On the other hand, in 2000 India was the 31st-largest market for U.S. exports of goods; by 2013, India had become the 18th-largest market.[104] The value of U.S. exports of goods and services to India in 2013 was 5.5 times larger than in 2000, U.S. FDI in India was 10.2 times larger, and sales by affiliates of U.S. companies in India were 13.5 times larger.[105]

The United States is an important source of goods, services, and capital in the Indian market. It is India's fifth-largest source of FDI, following Mauritius, Singapore, the United Kingdom, and Japan. It is the fifth-largest exporter of goods to the Indian market, following China, the United Arab Emirates, Saudi Arabia, and Switzerland. Overall, India accounted for an estimated

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[101] Kronstadt, "India's New Government and Implications," 2014.
[102] A second study was requested by the U.S. House Committee on Ways and Means and the Senate Committee on Finance in September 2014, with the inclusion of information on any significant changes made by the new Indian government to the trade and investment policies identified in this report. The report will be delivered to the Committees in September 2015.
[103] Government of India, MOCI, DIPP, "Press Note No.7, 2014," August 26, 2014; Government of India, MOCI, DIPP, "Press Note No. 8, 2014," August 27, 2014; see Finance Minister Arun Jaitley, budget speech, July 10, 2014.
[104] India's rank in 2013 was similar to United Arab Emirates (17th), Saudi Arabia (19th), and Colombia (20th). India's rank remains unchanged at 18th in 2014; however, U.S. exports to India have fallen 7.7 percent (year to date through September). USITC DataWeb/USDOC (accessed December 1, 2014).
[105] BEA, International Data, Direct Investment Abroad, All Foreign Affiliates (accessed October 24, 2014). The growth of foreign affiliate sales compares sales in 2000 to sales in 2012, the most recent year for which data are available.

$35.7 billion of U.S. exports of goods and services in 2013, $84.1 billion of U.S. affiliate sales in 2012, and $24.3 billion of U.S. outbound FDI in 2013 (table 2.2).

Table 2.2: U.S. engagement in India 2001–13, billion $

	2001	2003	2005	2007	2009	2011	2013
Exports	6.9	8.8	13.2	23.7	26.5	33.4	35.7
Goods	3.8	5.0	8.0	15.0	16.5	21.7	22.2
Services	3.1	3.8	5.2	8.7	10.0	11.8	13.5
Foreign affiliate sales[a]	9.7	11.4	20.0	33.2	55.6	79.2	84.1[b]
Stock of overseas investment	2.5	4.9	7.2	14.6	21.8	19.0	24.3
Goods[c]	0.8	1.3	1.8	3.6	4.9	4.6	5.3
Services[d]	1.7	3.6	5.4	11.0	16.9[e]	14.4[e]	19.0[e]

Source: USDOC, BEA, U.S. Trade in Goods and Services by Selected Countries and Areas, tables 1, 4, and 7 (accessed October 24, 2014); USDOC, BEA, International Data, Direct Investment Abroad, All Foreign Affiliates (accessed October 24, 2014); USDOC, BEA, U.S. Direct Investment Abroad, Annual Data: U.S. Direct Investment Position on a Historical Cost Basis (accessed October 24, 2014)

[a] Data break in 2008-09. The BEA collected information on banks separately prior to 2008. After 2008, banks were included with other foreign affiliates. This table does not disaggregate foreign affiliate sales into goods and services because BEA does not report a number of Indian industries due to confidentiality restrictions.

[b] 2012.

[c] Including mining and manufacturing; excluding agriculture, which is not reported by the BEA.

[d] Services includes: utilities, wholesale trade, information, depository institutions, finance (except depository institutions), insurance, professional, scientific, technical services, and "other industries" in addition to holding companies (non-bank) after 2001

[e] USITC estimate. Data for 2009, 2011, and 2013 are suppressed in some Indian industries due to confidentiality restrictions.

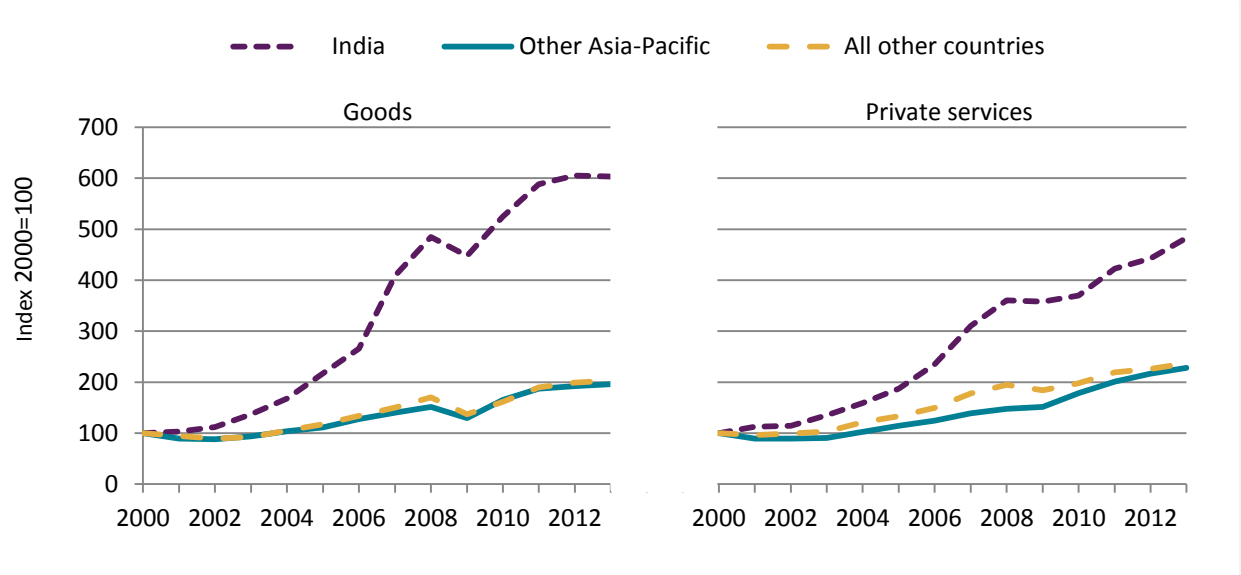
The Growth of U.S. Exports of Goods and Services to India Slowed after 2007

Between 2000 and 2013, U.S. exports of goods to India grew at an average annual rate of 15.8 percent and U.S. exports of services grew at an average annual rate of 13.2 percent. Growth slowed significantly after 2007, when the average annual growth rate of U.S. exports of services dropped to 7.8 percent and the average annual growth rate of U.S. exports of goods dropped to 7.1 percent (figure 2.2). However, throughout the period, U.S. export growth to India exceeded U.S. export growth to the Asia-Pacific region and the growth of aggregate exports (to all other countries).[106]

Although total U.S. services exports to India have grown dramatically since 2000, and have exceeded the growth rate of U.S. goods exports since 2007, not all services sector exports have increased at the same pace. U.S. exports of travel services—dollars spent by Indians traveling in the United States—account for over half of the total increase in U.S. services exports between 2000 and 2013. U.S. education-related services exports—dollars spent by Indians studying in

[106] Other major Asia-Pacific economies with substantial growth in the period include China (16.7 percent average annual growth), Hong Kong (8.5 percent), and Australia (7.2 percent). USDOC, BEA, Table 2.3, U.S. International Trade in Goods; and USDOC, BEA, Table 3.3, U.S. International Trade in Services (accessed December 5, 2014).

Figure 2.2: Growth in U.S. exports of goods and services to various partners, 2000–2013



Source: USDOC, BEA, Table 2.3, U.S. International Trade in Goods, by Area and Country, Not Seasonally Adjusted Detail, released September 17, 2014; and USDOC, BEA, Table 3.3, U.S. International Trade in Services, by Type of Service and by Country or Affiliation, released October 24, 2014.
Note: See appendix Table I.1 and Table I.2 for underlying data for this figure

the United States—alone account for nearly one-quarter of the total increase. U.S. exports of ICT services, professional services, and charges for the use of U.S. IP also rose substantially; collectively, they likely account for about one-quarter of the total increase.[107]

The accelerating growth and modernization of urban areas in India has contributed to the growth in U.S. exports of ICT services. In particular, urban areas have switched telecommunications from landlines and slower connections to mobile phones and higher-speed networks. Mobile cellular subscribers in India rose from 0.6 per 100 in 2000 to 70.8 per 100 in 2013, and Internet users rose from 0.5 per 100 to 15.1 per 100.[108] The modernization has also increased India's demand for business, professional, and technical services.

U.S. education services exports have also expanded in recent years. Increasing numbers of Indians have been going overseas to study and nearly 100,000 Indian students are currently studying in the United States.[109] When Indians study in the United States, their expenses are

[107] BEA, International Data, International Services, table 2.2. The exact increase in ICT and professional services is not known, as BEA does not report U.S. exports to India in these sectors in 2000.
[108] World Bank, *World Development Indicators* database (accessed September 4, 2014).
[109] IIE, "Open Doors Fact Sheet: India," 2013.

recorded as U.S. services exports. U.S. education exports to India have grown at an 8.4 percent annual rate since 2006.[110]

U.S. goods exports to India also expanded between 2000 and 2013, but were affected by the global trade slowdown and global recession in 2008 and 2009.[111] Since 2011, U.S. exports of goods to India have experienced very little growth across numerous sectors and decreased by 1.2 percent in 2013 and by 7.7 percent in 2014 (year to date through September).[112] For example, U.S. exports of machinery and mechanical appliances rose from $1.0 billion in exports in 2000 to $2.4 billion in 2008—an 11.9 percent average annual growth rate. Since 2008, these exports have fluctuated; most recently, they have fallen, dropping to $2.2 billion in 2013.[113] The increase through 2008 reflects growth in Indian manufacturing and processing industries and rising demand for infrastructure-intensive power and water services.[114]

Several large export sectors had low or negative recent growth in percentage terms. These include aircraft and parts (up 2.2 percent between 2008 and 2013), machinery and manufacturing (up 1.5 percent), chemicals (up 1.2 percent), and fertilizers (down 35.0 percent).[115]

The U.S. Share of the Indian Import Market for Goods Is Steady

Despite periods of uneven growth for U.S. goods exports since 2000, the U.S. share of Indian imports has held constant at 5 percent.[116] Although the increase in the value of U.S. exports of goods to India, particularly before 2006, is likely attributable in part to reductions in India's MFN tariffs, these lower tariffs benefited all foreign sources and thus did not significantly increase the U.S. share of Indian imports.

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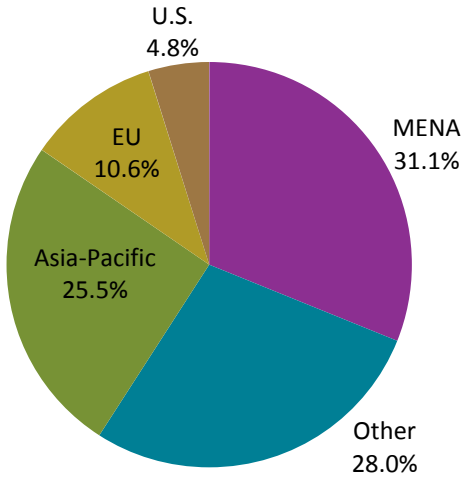
[110] USDOC, BEA, U.S. International Services: Detailed Statistics for Cross-border Trade. Tables 4–7 (accessed July 12, 2014).
[111] Indian GDP growth also slowed in this period, falling to less than 5 percent in 2008, though the Indian economy did not enter a recession.
[112] USITC DataWeb/USDOC (accessed December 5, 2014).
[113] Including all products in HS chapter 84. USITC DataWeb/USDOC (accessed July 29, 2014).
[114] According to the World Bank, India's investment in energy with private participation tripled, from $4.3 billion in 2004 to $12.9 billion in 2008. World Bank, *World Development Indicators* database (accessed September 4, 2014).
[115] USITC DataWeb/USDOC (accessed July 29, 2014).
[116] The highest U.S. market share during 2000–12 was 7.8 percent in 2008.

Currently, the Middle East and North Africa (MENA) region is the largest source of goods exports to India. It is followed by the Asia-Pacific region, the European Union (EU), and the United States (figure 2.3).[117]

Figure 2.3: Sources of Indian Imports, share of total, 2013



Total imports: $466.0 billion

Source: UN Comtrade, via WITS (accessed April 9, 2014).

In contrast to the United States, the EU's share of India's imports sharply declined, falling nearly by half from a peak of 20.8 percent in 2000 to 10.6 percent in 2013. The decline in the EU share has been offset by increases in the shares of the Asia-Pacific and MENA regions. Indian imports from the Asia-Pacific region grew from a 20.8 percent share in 2000 to a 25.5 percent share in 2013. The share of Indian imports from MENA jumped from 11.9 percent in 2000 to 31.1 percent in 2013, reflecting the rise in the price of oil.[118]

Foreign Affiliate Sales of Services Grew Faster than Sales of Goods

The increase in U.S. foreign affiliate sales in India over the past decade is due mostly to large increases in several services sectors between 2000 and 2012.[119] BEA does not break out its figures for all goods and services sectors in India, due to confidentiality restrictions, but some of

[117] As noted above, the top five country sources of goods exports to India are China, the United Arab Emirates, Saudi Arabia, Switzerland, and the United States.
[118] UN COMTRADE, via WITS (accessed August, 13 2014).
[119] For U.S. services firms, foreign affiliate sales are an important way of supplying the Indian market. By investing in India and establishing a local affiliate, U.S. firms gain knowledge of the local market for their products, as well as access to the local labor market. By definition, a foreign affiliate is a foreign business enterprise of which at least 10 percent is owned or controlled by a U.S. person or entity. USDOC, BEA, "Glossary: F" http://www.bea.gov/glossary/glossary.cfm?letter=F (accessed July 14, 2014).

the available data show notable increases. Foreign affiliate sales of financial services rose from $259 million to $9.4 billion in this period, and foreign affiliate sales of professional scientific and technical services rose from $327 million to $13.2 billion.[120]

Among goods, food has been a key driver of growth. Foreign affiliate sales in the food sector have grown more than 16-fold, from $157 million in 2000 to $4.0 billion in 2012.[121] There are several incentives for U.S. firms to invest in the food processing industry in India. These include an income tax rebate and financial assistance for establishing or modernizing food processing facilities and for conducting research and development.[122] The population of India continues to grow rapidly, and this has expanded the demand for more diversified food products.

U.S. Investment in Services Sectors Grew Faster than Investment in Goods Sectors

U.S. FDI in India has grown significantly since 2000, especially in private services. The growth of FDI in the services sector has surpassed the growth of FDI in the goods-producing sectors. From a roughly equal base below $2 billion in 2000, the stock of FDI in services-producing sectors rose to $19.0 billion by 2013, while FDI in goods sectors rose to $5.3 billion. Moreover, U.S. FDI in India's services sectors has grown more than twice as fast as that in the Asia-Pacific region and in all other countries (figure 2.4).

More recent FDI data are not available, but according to an industry representative in India, FDI slowed in early 2014 due to concern over the Indian elections. However, it picked up again following the May elections.[123]

The Indian services sector, which includes financial services, business process outsourcing, and research and development, receives the largest share of inbound FDI (18.4 percent), followed by construction development (10.9 percent) and telecommunications (6.1 percent).[124]

Over the past 15 years, Mauritius has been the largest source of FDI into India, followed by the EU, the Asia-Pacific region, and the United States (figure 2.5).[125] Although Mauritius is the

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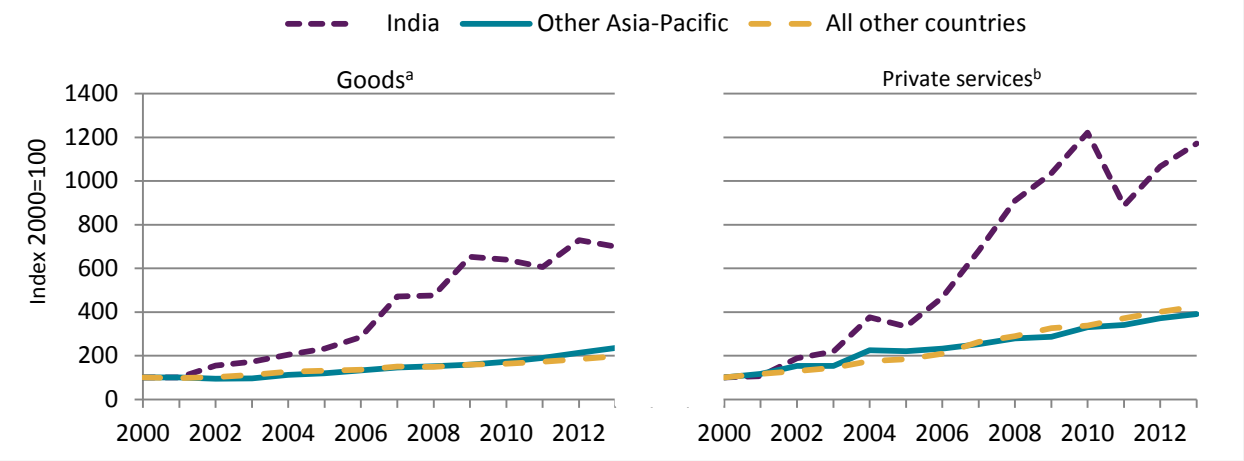
[120] USDOC, BEA, Interactive Data Application (accessed December 4, 2014).
[121] USDOC, BEA, Interactive Data Application (accessed November 4, 2014). Figures are for majority-owned nonbank foreign affiliates, since recent values for the more comprehensive measure of all nonbank foreign affiliates in the sector have not been reported by BEA to prevent disclosure of confidential data.
[122] USITC, *India*, 2009, 8-10.
[123] Industry representative, interview with USITC staff, Mumbai, June 26, 2014.
[124] Based on total inflows from all countries from April 2000 to January 2014. Government of India, Department of Industrial Policy and Promotion, "Fact Sheet on Foreign Direct Investment," January 2014 (accessed August 1, 2014).
[125] As noted above, the top five country sources of FDI into India are Mauritius, Singapore, the United Kingdom, Japan, and the United States.

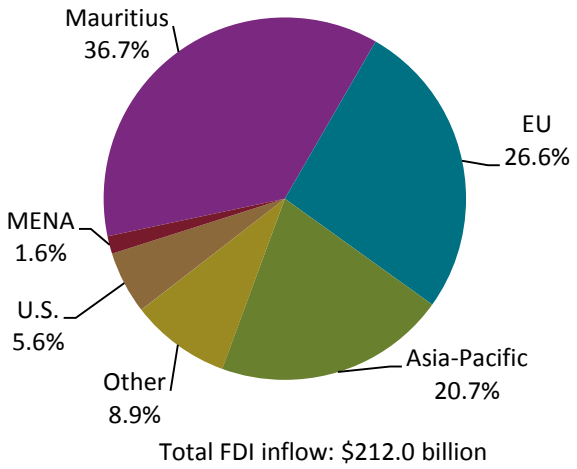
largest source of FDI, it supplies very little of India's imported goods (less than 0.1 percent of the total in 2012). Most of the investment from Mauritius originates in other countries, though there are no available breakouts of the country sources of this indirect investment in India.

Figure 2.4: Growth in the stock of U.S. outbound FDI to various partners, 2000–2012



Source: USDOC, BEA, U.S. Direct Investment Abroad, Annual data: U.S. Direct Investment Position on a Historical Cost Basis 2000–2013.
Note: See appendix Table I.8 and Table I.9 for underlying data for this figure.
[a] Excluding agriculture, which is not listed separately.
[b] "Services" includes wholesale trade; information; depository institutions; finance (except depository institutions); insurance, professional, scientific, and technical services; and holding companies (non-bank) after 2002.

Figure 2.5: Sources of Indian inbound FDI, share of total inflows, 2000–2014



Source: Department of Industrial Policy and Promotion, Government of India, Fact Sheet on Foreign Direct Investment, January 2014 (accessed August 1, 2014).
Note: See appendix Table I.8 for underlying data for this figure.

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Chapter 3
Quantifying the Effects of Indian Policies on U.S. Businesses and Economy

Introduction

To quantify the effects of Indian policies on U.S. companies engaged in India, U.S. industries, and the broader U.S. economy per the request letter, this report used two complementary approaches. The first approach analyzes the results of the Commission's survey and is covered in the first portion of this chapter. In accordance with the Committees' request, the survey examines U.S. companies' perceptions of the effects that India's trade and investment policies and business environment have had on selected U.S. sectors and business activities. The second approach, covered in the latter portion of this chapter, uses a computable general equilibrium model to analyze the impacts of Indian policies affecting trade and FDI on U.S. GDP, employment, wages, and trade.[126]

Results from the Commission survey show that 26.1 percent of all U.S. companies engaged in surveyed industries in India are substantially affected by at least one policy, with between 7.7 and 44.1 percent affected in individual sectors.[127] (See box 3.1 for definition of "substantially affected" and other survey terms used throughout this chapter.) As noted in chapter 1, the surveyed industries account for just over one-third of all U.S. industries. The Commission included industries in the nine industrial sectors most likely to be affected by Indian policies. Unless noted otherwise, references to "U.S. companies" below should be interpreted as including only companies in surveyed industries.

Results also show that a smaller share (15.1 percent) of U.S. companies engaged in India are substantially affected by at least one non-policy issue, such as India's physical, electrical, and telecommunications infrastructure.

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[126] See chapter 1 for details on the model and its underlying assumptions.

[127] Throughout the report, the Commission's analysis is based on weighted survey results unless otherwise noted. Statistical sampling techniques allowed the responses of individual companies to be weighted and aggregated, so estimates in this report accurately represent the activity of all U.S. companies engaged in India. See chapter 1 and appendix F for details.

Box 3.1: Guide to understanding Commission survey results

Measuring the effect of Indian policies on U.S. companies:

The Commission survey asked U.S. companies to rate the effects that Indian policies and other issues had on their business activities on a scale from 0 to 5, where a rating of:

- 0 means "did not face it."
- 1 means "existed but had no effect."
- 2 means "existed but had minimal effect."
- 3 means "had a moderate effect."
- 4 means "had a severe effect."
- 5 means "had a prohibitive effect."

Definition of "substantially affected" companies:

Throughout the report, companies are categorized as "substantially affected" if they rate the effect of an Indian issue, whether policy or non-policy, as moderate, severe, or prohibitive. These effects correspond to a rating of 3, 4 or 5, respectively, in the Commission questionnaire.

Definition of "mean effect":

Throughout the report, tables and figures include the mean effect of policies and issues faced by U.S. companies doing business in India. These means are calculated using the 0–5 scale noted above among relevant companies that faced the issue. A company is considered to have "faced the issue" if it gave a non-zero answer in any of the three years (2007, 2010, or 2013).The same set of companies is included in all three years. For any year in which such a company did not face the issue, a zero would be included in the calculation for the mean effect. For example, table 4.2 reports that 23.0 percent of U.S. exporters to India faced issues with high duties from 2007–13 and that the mean effect of high duties among them in 2013 was 3.5.

Color-coded survey results in chapter 3:

To facilitate understanding of results in chapter 3, the Commission presents color-coded estimates for the survey results. Color coding is used only in tables focusing on the share of companies in surveyed industries that are substantially affected by Indian policies or by non-policy-related issues. The colors are visual aids designed to identify problem areas for companies engaging in the Indian market.

- When the share of substantially affected companies is less than 10 percent, it is shown in green;
- When the share of substantially affected companies is 10–20 percent, it is shown in yellow;
- When the share of substantially affected companies is greater than or equal to 20 percent, it is shown in red.

The Commission chose these cutoffs roughly based on the distribution of estimates for substantially affected companies throughout this section, so that about one-quarter of these estimates appear as red.[a]

[a] These cutoffs do not correspond to particular levels of statistical significance.

The restrictive effect of Indian policies on U.S. companies in India increased moderately—but pervasively across all policy and non-policy types—between 2007 and 2013. Though many companies did not alter their strategies in India in response to these developments,

Commission survey results indicate that the policy changes did have a small effect on U.S. business activity in India. Absent these changes, the survey indicates that 2013 U.S. exports to India would be between 2.4 and 4.4 percent higher, and 2013 affiliate sales in India would be between 2.9 to 5.1 percent higher. Further, Indian policies prevented 7.3 percent of U.S. companies engaged in India from investing or bringing certain products or services into the market between 2007 and 2013. If these prohibitive barriers are dismantled, most companies are likely or highly likely to expand their engagement in India within 12 months of the lifting of the obstacles.

This chapter also uses computable general equilibrium (CGE) analysis to quantify the economy-wide effects of India's tariff, intellectual property (IP), and FDI policies. The analysis presents a counterfactual picture of what the current global economy would look like under policy liberalization by India.[128] If tariff and investment restrictions were fully eliminated and standards of IP protection were made comparable to U.S. and Western European levels, U.S. economic engagement with India would expand dramatically. Exports to India would increase 66.4 percent, and U.S. affiliate sales would be 123.5 percent higher, corresponding to increases of $25.6 billion and $130.5 billion, respectively. The biggest export increase would be in the agriculture and food sector (including agricultural commodities and food processing), whose exports would be 103.0 percent higher. The chemicals and textiles and other manufacturing sectors would also be strongly affected; exports in both of these sectors would be approximately 80 percent higher. Among U.S. affiliates in India, those in the retail trade, financial services, and content and media sectors would be the most affected, with sales increasing more than 200 percent with full liberalization.

The effects on the overall U.S. economy would be less pronounced. In 2013, U.S. exports to India represented only 1.6 percent of total U.S. exports, and U.S. investment in India represented only 0.5 percent of total U.S. foreign investment. As a result, even large changes in U.S. activity in India would have a negligible effect on the U.S. economy. U.S. welfare would increase by $4.9 billion; U.S. GDP, by $809.9 million; and U.S. employment, by about 10,000 jobs.

The benefits from increased U.S. affiliates' activity abroad may be understated in these results. Most of the gains from Indian liberalization are captured by U.S. companies with affiliates in India. According to official U.S. government statistics, about one-quarter of total earnings from U.S. direct investment abroad returned to the United States in 2013. The balance, 74.7 percent,

[128] As discussed in chapter 1, the simulation results present the difference in U.S. activity under the current Indian policy regime and a simulated liberalized policy regime in which specified Indian policies change but other Indian and global economic conditions remain the same.

was reinvested in U.S. affiliates abroad.[129] Repatriated earnings are not captured in the Commission's model, but even if repatriated earnings from India were substantial, the changes to welfare, GDP, and employment would represent extremely small shares of current levels.

Survey Results

The analysis in this chapter and the rest of the report focuses on the impact of Indian policies on U.S. companies that are engaged in India. The analysis is structured based on the companies' characteristics (e.g., size, industry, and IP intensiveness) or how they are engaged in India (e.g., by exporting or investing).

The analysis of survey results in this chapter is divided into five parts. The first part focuses on companies substantially impacted by Indian trade and investment policies, broken down by company characteristics and manner of engagement in India. The second part focuses on recent changes in the severity of those policies. The third examines the effect that recent changes in policies have had on U.S. business activity in India. The fourth part, per the Committees' request, summarizes the strategies that U.S. companies employ when responding to changes in Indian policies. The final section concludes with an examination of the effects of Indian policies that prohibit U.S. companies from engaging in the Indian market.

Throughout this chapter and the rest of the report, the Commission's analysis is based on weighted survey results unless otherwise noted. Statistical sampling techniques allowed the responses of individual companies to be weighted and aggregated, so estimates in this report accurately represent[130] the activity of all U.S. companies engaged in India.

Policies Substantially Affecting U.S. Companies Engaged in India

The Commission questionnaire covered 28 policy-related issues that were specific in their scope. To simplify the presentation in this chapter, the questionnaire items are aggregated into six policy areas: tariffs and customs procedures; foreign direct investment (FDI); intellectual

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[129] USDOC, BEA, Table 4.1, U.S. International Transactions in Primary Income, Dividends and Withdrawals and Reinvested Earnings from Direct Investment Income (accessed December 1, 2014).

[130] The Commission uses relative standard error (RSE) as the measure of the precision of weighted estimates from survey responses throughout the report. RSEs describe how widely the estimates are distributed around a mean. More specifically, an RSE is the standard error of a particular estimate divided by the estimate itself, expressed as a percentage. A smaller RSE indicates a more precise estimate. Unless otherwise noted, the estimates presented in this report have RSEs below 50 percent, which indicates that the standard error of an estimate is less than half of its size, and this corresponds approximately to the estimate being within the 95 percent confidence interval of the true population value. In cases where the survey produced an estimate that is particularly relevant to the reader but has less precision (i.e., a higher RSE), a note to that effect is given for that estimate. Appendix F offers more information about the Commission's survey methods.

property (IP) and local-content requirements (LCRs); [131] taxes and financial regulations; sanitary and phytosanitary (SPS) measures and technical barriers to trade (TBTs); and other barriers not otherwise categorized (other).[132] Effects of the underlying, more specific measures are reported in chapters 4–8 of this report.

All Companies Engaged in India

Results by Industry and Business Activity

Over one-quarter (26.1 percent) of all U.S. companies engaged in India are substantially affected by at least one policy (table 3.1).[133] Indian policies substantially affect 44.1 percent of all companies with exports or foreign affiliate sales of agricultural goods in India in 2013. Other highly affected sectors include the pharmaceuticals, other manufacturing, and financial services sectors. The retail and wholesale sector has the smallest share of companies that are substantially affected by Indian policies.

Tariffs and customs procedures are the most problematic policy issues for companies engaged in India, followed by taxes and financial regulations. More than one-quarter of companies in the agriculture and food, chemicals and textiles, and other manufacturing sectors are substantially affected by tariff or customs issues.[134] Taxes and financial regulations are the second most widespread issue affecting companies. In nearly every sector, about 10 percent or more of companies are substantially affected by such regulations.[135] "Other" policy measures also substantially affect companies. The most burdensome individual barriers in this category are uncertain or inconsistent implementation of Indian regulations, and unclear legal liability.

The remaining policy types—investment; intellectual property; and technical barriers and requirements—are less burdensome. However, some exceptions are seen at the sector level. For example, SPS and TBT measures substantially affect 27.9 percent of agricultural companies. FDI barriers impose a burden on financial services companies. When looking at the broad sectors, IP and LCR measures have the greatest effect on financial services and content and

[131] Intellectual property (IP) and local-content requirement (LCR) barriers include requirements that products contain a certain amount of domestic content; involuntary technology transfer; and inadequate protection of IP, including regulatory test data. These barriers are grouped together because they are overlapping: for example, companies concerned about the compulsory licensing of a pharmaceutical technology may consider this an LCR, an involuntary technology transfer, inadequate protection of IP, or all of these.
[132] A detailed mapping of questionnaire items into broader groups can be found in appendix F.
[133] The Commission defines "companies that are engaged in India" as those that export goods or services from the United States to India or had an equity stake of 10 percent or more in an affiliated organization in India at any point in time between 2007 and 2013.
[134] A more detailed examination these issues can be found in chapter 4.
[135] Chapter 8 of this report presents more information on taxation and financial regulations.

Table 3.1: Share of companies engaged in India that are substantially affected by policy barriers, by sector, percent[a]

Sector	Tariffs and customs procedures	FDI	IP and LCR	SPS and TBT	Taxes and financial regulations	Other	At least one policy
Agriculture and food	39.8	2.1	11.2[b]	27.9	14.7	24.1	44.1
Natural resources	12.1[b]	9.1[b]	7.7[b]	8.3[b]	9.8[b]	13.5[b]	17.5
Chemicals and textiles	26.3	2.0	7.5[b]	6.6[b]	21.6	19.3	28.7
Pharmaceuticals	18.2	11.8[b]	27.9	21.4	11.8[b]	24.7	37.5
Other manufacturing	25.8	4.2	11.7	5.8	17.8	13.8	34.1
Retail and wholesale	2.6	1.3	2.3[b]	2.6	4.9	2.7	7.7
Financial services	1.7[b]	23.4	16.0	0.0	19.5	22.4	37.8
Content and media	11.9[b]	3.4	17.0	2.9	16.7	7.5	29.8
ICT	11.0	4.6	4.5	5.7	14.9	7.3	20.4
Other services	10.5	5.8	5.7	0.8	15.3	11.7	21.6
Goods producers	24.0	3.7	9.0	8.2	17.3	16.0	29.3
Services providers	9.4	5.7	7.2	1.7	14.9	9.9	21.7
All companies	17.9	4.5	8.2	5.5	16.3	13.4	26.1

Source: USITC calculations of weighted responses to the Commission questionnaire (questions 2.1, 3.3, 4.2, and 5.2).
Note: See appendix Table I.11 for underlying data for this table.
[a] Reporting an effect of 3–5, indicating the policy had a moderate, severe, or prohibitive effect on activities in 2013. Colors correspond to the share of companies that are "substantially affected." Shares of less than 10 percent are assigned green; between 10 percent and 20 percent, yellow; greater than or equal to 20 percent, red. See box 3.1 for a more details on color coding of survey results.
[b] Low-precision estimate, with an RSE above 50 percent.

media providers.[136] Although the chemicals and textiles sector as a whole is not particularly affected by IP and LCR issues, a greater share of pharmaceutical companies (27.9 percent) in this sector are substantially affected by IP and LCR issues.[137] More detailed discussions of IP regulation and enforcement, LCRs, FDI restrictions, and SPS and TBT measures can be found in chapters 5–8.

U.S. goods-producing and services-providing companies have different experiences engaging in the Indian market.[138] As shown in table 3.1, more than one-quarter of goods-producing companies are substantially affected by at least one policy in India, while one-fifth of services companies are affected substantially. Tariff and customs-related issues are the most burdensome for goods-producing companies. Both groups are similarly affected by taxes and financial regulations.

[136] Companies in the financial services sector represent a diversity of business lines including banks, insurance companies, investment and insurance brokers, and publishers of financial information. Some of these companies categorized limits on investment or on the scope of their operations in India, as well as preferences for domestic companies, as LCR measures.
[137] Pharmaceutical companies account for 2.3 percent of companies in the chemicals and textiles sector that engage in India.
[138] Goods producers include companies in the agriculture, natural resources, chemicals/textiles, and manufacturing sectors. Services companies include providers of retailing and wholesaling, financial services, digital content, and other services. Companies in the ICT sector are classed as goods producers or services providers, depending on their main business activity.

Retail and wholesale is the sector with the lowest share of substantially affected firms. However, there are significant barriers affecting some portions of the retail industry, as detailed in chapters 7 and 8. The effects of these barriers were not reflected in the Commission's survey results, in part because these barriers preclude some U.S. companies—generally, multibrand retailers—from establishing retail affiliates in India.[139] The FDI equity limit of 51 percent and some other FDI barriers apply particularly to multibrand retail companies; they do not apply to single-brand retailers. Multibrand retailers are only a small segment of the overall retail industry.

Survey respondents that self-identified as retail companies generally are not multibrand retail companies. Instead, they are mostly single-brand retailers and catalog companies that export directly from the United States to India. Several companies that are multibrand retail companies in the United States, while present in India, engage in non-retail activities, including franchise ownership, business process outsourcing, or wholesale distribution, and did not report that they were substantially affected by FDI barriers.

Results by Size

Indian policies adversely affect large firms differently than they do small and medium-sized companies in the Indian marketplace.[140] Almost one-half (46.0 percent) of large companies are substantially affected by at least one policy in India, while about one-fifth (19.8 percent) of small and medium-sized companies are substantially affected. Tariffs and customs issues, as well as taxes and financial regulations, are more burdensome issues for large companies than for small and medium-sized ones (table 3.2).

Table 3.2: Share of companies engaged in India that are substantially affected by policy barriers, by size, percent[a]

Type of company	Tariffs and customs procedures	FDI	IP and LCR	SPS and TBT	Taxes and financial regulations	Other	At least one policy
Large	27.5	10.5	14.7	10.2	25.4	24.3	46.0
SME	14.8	2.6	6.2	4.0	13.4	10.0	19.8
All companies	17.9	4.5	8.2	5.5	16.3	13.4	26.1

Source: USITC calculations of weighted responses to the Commission questionnaire (questions 2.1, 3.3, 4.2, and 5.2).
Note: See appendix Table I.6 for underlying data for this table.
[a] Reporting an effect of 3–5, indicating the policy had a moderate, severe, or prohibitive effect on activities in 2013. Colors correspond to the share of companies substantially affected. Shares that are less than 10 percent are assigned green; between 10 percent and 20 percent, yellow; greater than or equal to 20 percent, red. See box 3.1 for a more details on color coding of survey results.

[139] Single brand retail stores sell merchandise from only one brand, such as a single shoe manufacturer. Multibrand stores, like department stores or grocery stores in the United States, sell merchandise from many different brands.
[140] Of U.S. companies engaged in India, 75.9 percent are small or medium-sized (less than 500 employees), and 24.1 percent are large (500 or more employees).

Exporters

Policies that substantially affect U.S. exporters of goods and services largely mirror those that affect all companies engaged in India (table 3.3), which reflects the overlap between both groups Of the U.S. companies engaged in India between 2007 and 2013, 86.4 percent exported goods or services from the United States to India.[141]

Tariffs and customs procedures was the most burdensome policy barrier for goods exporters. These issues also affected services companies that import goods, in sectors such as information and communications technology (ICT) and content and media. The share of exporters substantially affected by high import duties was highest in 2013, and among companies that faced one or more prohibitive barriers, more than half were kept out or curtailed by high import duties.[142]

Table 3.3: Share of U.S. exporters to India that are substantially affected by policy barriers, percent[a]

Type of company	Tariffs and customs procedures	FDI	IP and LCR	SPS and TBT	Taxes and financial regulations	Other	At least one policy
Goods producers	24.5	3.4	9.0	8.5	17.4	16.0	29.2
Services providers	12.3	5.0	7.7	2.1	17.4	10.8	26.0
All exporters	20.2	3.9	8.5	6.3	17.4	14.2	28.1

Source: USITC calculations of weighted responses to the Commission questionnaire (questions 2.1, 3.3, 4.2, and 5.2).
Note: See appendix Table I.12 for underlying data for this table.

[a] Reporting an effect of 3–5, indicating the policy had a moderate, severe, or prohibitive effect on activities in 2013. Colors correspond to the share of companies substantially affected. Shares that are less than 10 percent are assigned green; between 10 percent and 20 percent, yellow; greater than or equal to 20 percent, red. See box 3.1 for a more details on color coding of survey results.

Investors in Indian Affiliates

Compared with the entire population of companies engaged in India as a whole, investors are more likely to be substantially affected by Indian policies. Among companies that engage in India via ownership of an affiliate, 38.5 percent U.S. companies are substantially affected by at least one Indian policy (table 3.4).[143] Tariffs and customs issues have a substantial effect on this group of U.S. companies. High duties or taxes and those that are inconsistent, variable, or nontransparent also substantially affect goods producers investing in Indian affiliates.

[141] The population of companies that are exporters, investors, and IP-intensive companies are not mutually exclusive. That is, any one company could be an exporter or an investor or an IP-intensive company, or any combination of those three categories.
[142] Chapter 4 provides a more detailed discussion of the experiences of U.S. exporters to India.
[143] Investors in Indian affiliates account for 31.4 percent of U.S. companies engaged in India.

Table 3.4: Share of U.S. companies with foreign affiliates in India that are substantially affected by policy barriers, 2013, percent[a]

Type of company	Tariffs and customs procedures	FDI	IP and LCR	SPS and TBT	Taxes and financial regulations	Other	At least one policy
Goods producers	47.0	11.8	14.8	13.6	39.3	35.9	61.0
Services providers	7.5	8.8	9.1	2.9	17.8	13.7	22.8
All companies with foreign affiliates	23.8	10.0	11.4	7.3	26.6	22.9	38.5

Source: USITC calculations of weighted responses to the Commission questionnaire (questions 2.1, 3.3, 4.2, and 5.2).
Note: See appendix Table I.5 for underlying data for this table.
[a] Reporting an effect of 3–5, indicating the policy had a moderate, severe, or prohibitive effect on activities in 2013. Colors correspond to the share of companies substantially affected. Shares that are less than 10 percent are assigned green; between 10 percent and 20 percent, yellow; greater than or equal to 20 percent, red. See box 3.1 for a more details on color coding of survey results.

Companies that supply goods through Indian affiliates are more affected by Indian policy measures than companies that provide services through affiliates. Results show that 61.0 percent of U.S. goods producers investing in Indian affiliates are substantially affected by at least one policy, versus 22.8 percent for those investing in services providers. And while policy measures focused on direct investment are generally less of an issue for U.S. companies with an established Indian affiliate than are other policy issues impacting this group, goods producers that have affiliates are affected by these measures somewhat more than services providers that have affiliates.[144]

IP-Intensive Companies

IP-intensive U.S. companies are more affected by policies in India than the entire population of U.S. companies engaged in India.[145] One-third of companies in this group are substantially affected by at least one Indian policy (table 3.5). Like the total population, IP-intensive goods producers and services providers are most affected by tariffs and customs issues and by taxes and financial regulations. More specifically, high duties or taxes as well as taxes that are inconsistent, variable, or nontransparent substantially affect the highest share of companies in this category.

[144] Chapter 7 presents a more detailed examination of policy issues that affect direct investment in India.
[145] Companies that rate patents, trademarks, copyrights, or trade secrets as "very important" to their business are considered to be IP-intensive, and they account for 68.4 percent of all U.S. companies engaged in India. These companies are responsible for a disproportionately large share of exports, foreign affiliate sales, and investment.

Table 3.5: Share of IP-intensive companies that are substantially affected by policy barriers, percent[a]

Type of company	Tariffs and customs procedures	FDI	IP and LCR	SPS and TBT	Taxes and financial regulations	Other	At least one policy
Goods producers	29.8	5.1	12.9	9.2	21.2	20.0	37.2
Services providers	11.6	7.0	9.9	2.3	20.2	12.9	27.7
All IP-intensive companies	22.2	5.9	11.7	6.3	20.8	17.1	33.3

Source: USITC calculations of weighted responses to the Commission questionnaire (questions 1.7, 2.1, 3.3, 4.2, and 5.2).
Note: See appendix Table I.6 for underlying data for this table.
[a] Reporting an effect of 3–5, indicating the policy had a moderate, severe, or prohibitive effect on activities in 2013. Colors correspond to the share of companies substantially affected. Shares that are less than 10 percent are assigned green; between 10 percent and 20 percent, yellow; greater than or equal to 20 percent, red. See box 3.1 for a more details on color coding of survey results.

Generally, IP-intensive companies are not as affected by IP- and LCR-related policy measures as they are by "other policy" measures. However, goods producers in this group (for example, those that produce pharmaceutical drugs and ICT products) are slightly more affected by IP and LCR barriers than services providers. Chapter 5 provides a more detailed presentation of survey results and a more in-depth examination of IP issues and their effects on U.S. companies.

State-level Policies versus National-level Policies

In addition to measures applied by India's central government, state-level policies also affect the operations of U.S. companies. Among all U.S. companies engaged in India, 22.6 percent perceive at least one state-level policy to have more of an effect on their operations than do national policies (table 3.6).

U.S. companies are most apt to be affected by state policies on taxes and by those on financial regulations and FDI, as these policies can vary from state to state. Tax issues such as high, inconsistent, variable, or nontransparent duties and taxes set by state governments affect 22.7 percent of U.S. companies engaged in India, more than those set by national tax authorities. FDI policies set by state governments make acquiring permits or approvals for investment difficult and pose restrictions on buying or using land.

Table 3.6: Share of companies that perceive Indian state-level policies to have a greater effect than national policies, percent

Type of company	Tariffs and customs procedures	FDI	IP and LCR	SPS and TBT	Taxes and financial regulations	Other	At least one policy
Goods producers	[a]	13.7	4.5	8.0	29.4	28.8	27.8
Services providers	[a]	28.4	5.5[b]	27.7	12.0	16.8	13.4
All companies	[a]	20.4	4.7	10.1	22.7	25.3	22.6

Source: USITC calculations of weighted responses to the Commission questionnaire (questions 2.1, 3.3, 4.2, and 5.2).
[a] No estimates are shown for tariffs and customs procedures, as these are set only by national-level policies.
[b] Low-precision estimate, with an RSE above 50 percent.

State policies in the "other" category also affect a relatively high share of U.S. companies engaged in India—again, more than national policies did. In that category, the issues most affecting American companies are the uncertain or inconsistent implementation of current or draft state regulations; subsidies and other assistance given to the U.S. companies' Indian-owned competitors, set by state policy; and state-level requirements that certain staff members of affiliates must be Indian citizens.

U.S.-based Companies' Perception of Indian Policies as Discriminatory

Policy measures can sometimes be used to directly discriminate against foreign companies competing in the domestic marketplace. More than half of U.S. companies engaged in India perceive themselves to be discriminated against, relative to Indian companies, in all policy areas except IP and LCR (table 3.7). Most notably, 59.6 percent of U.S. companies perceive that they are more affected than Indian companies by regulations surrounding investment in India; for example, they believe that they are more likely to have problems getting required permits or licenses. Also notable is the share of companies that see SPS and TBT measures as discriminatory, at 55.2 percent.

Table 3.7: Share of companies that perceive Indian policies as discriminatory, percent

Type of company	Tariffs and customs procedures	FDI	IP and LCR	SPS and TBT	Taxes and financial regulations	Other	At least one policy
Goods producers	58.1	54.9	38.0	54.5	57.6	60.5	61.4
Services providers	28.6	64.3	41.0	60.7	39.9	39.8	41.1
All companies	51.3	59.6	39.0	55.2	50.7	54.0	54.0

Source: USITC calculations of weighted responses to the Commission questionnaire (questions 2.1, 3.3, 4.2, and 5.2).

It is difficult to determine how much of the perceived effect of discrimination comes from policies that are inherently discriminatory against foreign companies, such as those related to FDI, and how much comes from policies that pertain to both foreign and domestic companies but may have a discriminatory effect. As an example of an inherently discriminatory policy, foreign firms face equity caps that are not imposed on domestic companies. In other areas, policy measures may not be explicitly discriminatory, but they may be seen as such if policy measures have more of an effect on U.S. companies in India than on their Indian counterparts. For example, lack of IP enforcement may affect U.S. companies more than Indian companies if the U.S. companies are more IP-intensive. Still other policies, such as most SPS and TBT measures, usually apply to both foreign and domestic firms, although they too may sometimes be implemented in ways that companies perceive as discriminatory.[146]

[146] Some examples of this are given in chapter 8.

Non-policy Issues Substantially Affecting U.S. Companies Engaged in India

In addition to policy measures, a range of other issues arise while doing business in India and can affect the operation of U.S. companies in the Indian marketplace. As with the policy issues outlined above, these "doing business" issues have been grouped to compare the effects of major types or groups of issues.[147] The non-policy issue groupings are corruption, judicial and administrative efficiency, issues surrounding employing workers, and infrastructure.

On average, non-policy issues affect fewer companies than most policy-related issues do. In 2013, 65.8 percent of all companies engaged in India perceive that they are more affected by policy issues than by non-policy issues.[148] India's lack of judicial and administrative efficiency substantially affects companies more than the other non-policy issues (table 3.8). Within this category, bureaucratic or regulatory delays affect companies more than other issues, such as judicial delays. Among the three types of infrastructure identified in the survey, weaknesses in India's physical infrastructure affects companies more negatively than similar deficiencies in its communications infrastructure and electricity supply.

Table 3.8: Share of companies engaged in India that are substantially affected by non-policy issues, percent[a]

Type of company	Corruption	Judicial and administrative efficiency	Labor market issues	Infrastructure	At least one issue
Goods producers	3.0	12.5	2.2	8.6	16.6
Services providers	1.2	10.7	2.8	6.2	13.3
All companies	2.2	11.8	2.5	7.6	15.2

Source: USITC calculations of weighted responses to the Commission questionnaire (questions 2.1 and 6.7).
Note: See appendix Table I.13 for underlying data for this table.
[a] Reporting an effect of 3–5, indicating the policy had a moderate, severe, or prohibitive effect on activities in 2013. Colors correspond to the share of companies substantially affected. Shares that are less than 10 percent are assigned green; between 10 percent and 20 percent, yellow; greater than or equal to 20 percent, red. See box 3.1 for a more details on color coding of survey results.

U.S. Companies' Perception of Recent Changes in India's Trade and Investment Policies

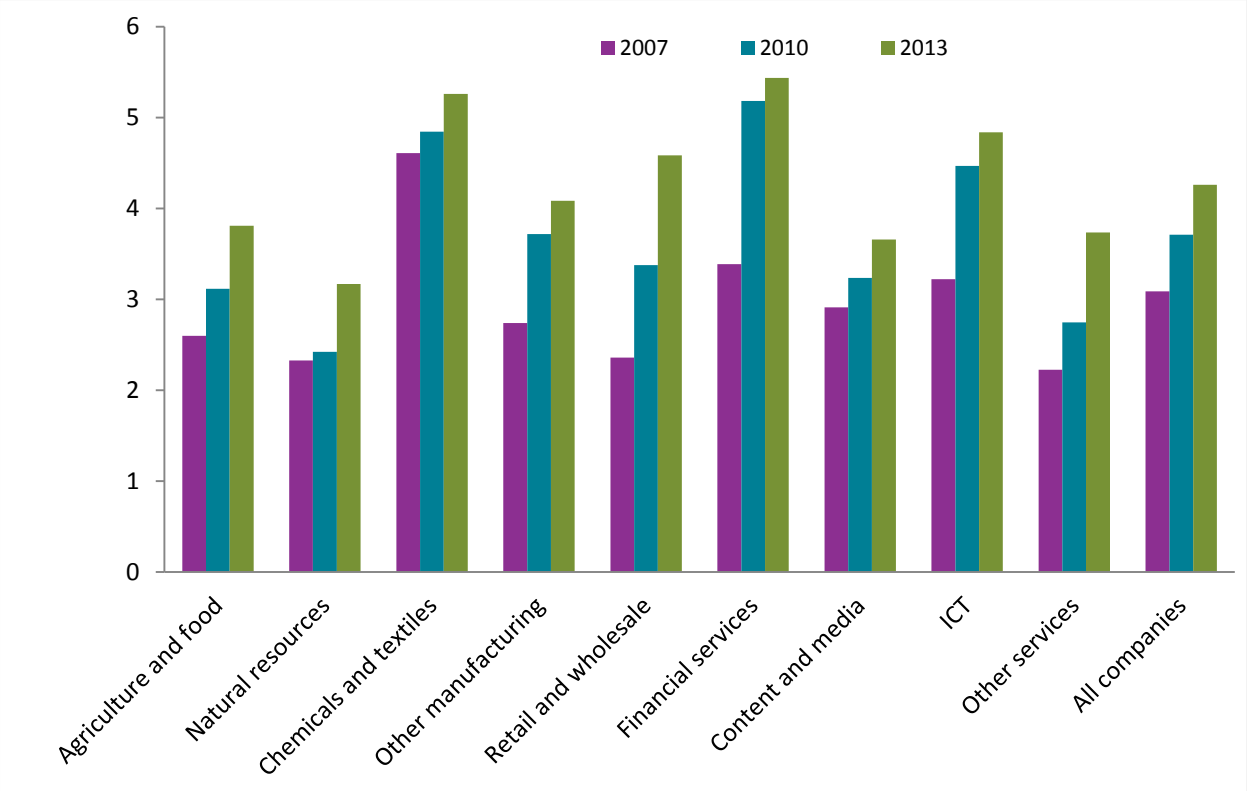
Of the U.S. companies engaged in the Indian market facing policy issues, the number of issues that they faced (out of 28 policy issues listed in the survey) increased between 2007 and 2013

[147] A detailed mapping of specific questionnaire items related to "doing business"—such as those questions asking companies about India's infrastructure and administrative efficiency—into broader issue groups can be found in appendix F.
[148] USITC calculations of weighted responses to the Commission questionnaire (question 6.3).

(figure 3.1). Every sector experienced this trend, with retail and wholesale companies reporting the greatest average increase (2 additional issues) over that period of time.

As the average number of Indian policies faced by U.S. companies increased, so too did the policies' effects (figure 3.2). The effects of the issues that U.S. companies faced increased moderately but pervasively between 2007 and 2013 across all policy and non-policy issue types. Among policy measures, the effects of SPS and TBT—such as complying with consumer labeling and standards—increased the most between 2007 and 2013. For non-policy-related issues, the effects of judicial and administrative inefficiency increased the most in this period. The effects of infrastructure-related issues increased between 2007 and 2010, but eased slightly between 2010 and 2013.[149]

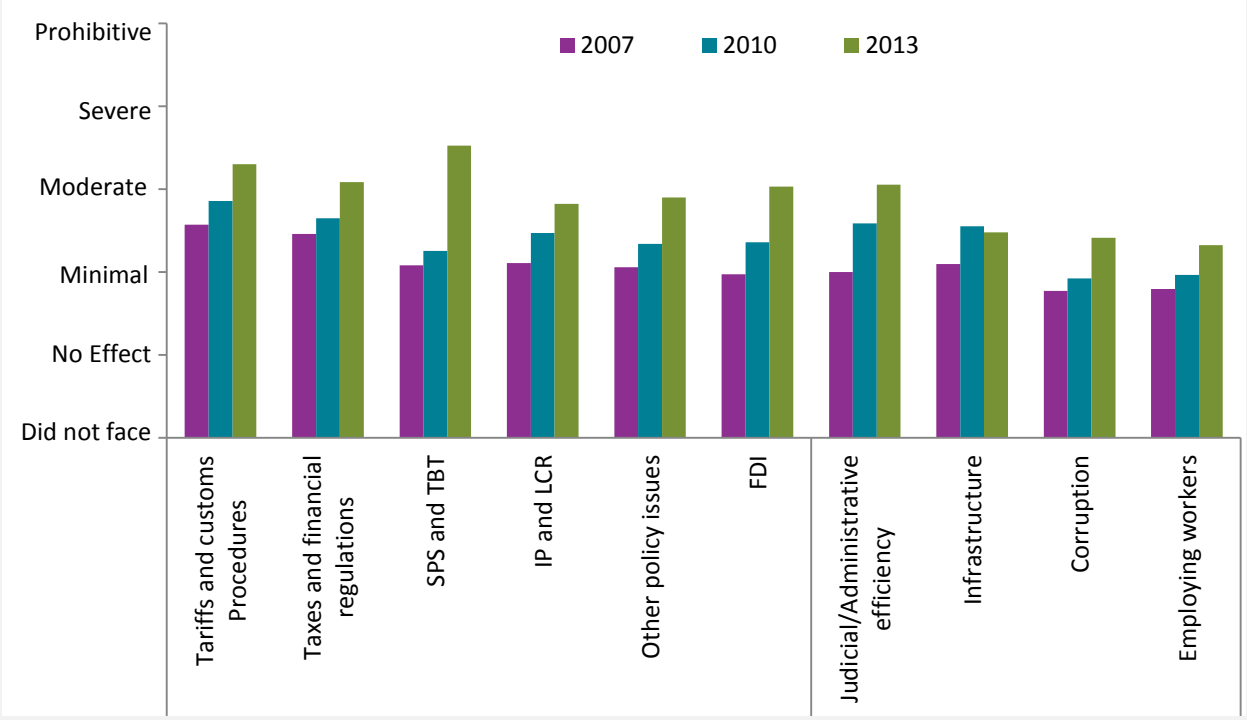
Figure 3.1: Average number of policy issues faced[a] by U.S. companies in 2007–13



Source: USITC calculations of weighted responses to the Commission questionnaire (questions 2.1, 3.3, 4.2, and 5.2).
Note: See appendix Table I.10 for underlying data for this figure.
[a] Companies rating the effect of policy measures as a 1, 2, 3, 4, or 5. See box 3.1 for a guide to understanding survey results.

[149] In order to control for companies new to engaging in India—which may have had more difficulties due to lack of experience in the market—the Commission also examined companies that had engaged in India throughout the entire period between 2007 and 2013. The trends for this population are similar to those shown in figure 3.2. However, results differ for individual policy measures faced by particular types of U.S. companies—such as high tariffs for exporters to India. See chapters 4 and 7 for discussions of these differences for specific policies.

Figure 3.2: Effect of Indian policy measures and "doing business" issues on companies engaged in India,[a] 2007–13



Source: USITC calculations of weighted responses to the Commission questionnaire (questions 2.1, 3.3, 4.2, 5.2 and 6.7).
Note: See appendix Table I.14 for underlying data for this figure.
[a] Companies rating the effect of policy measures as a 0, 1, 2, 3, 4, or 5. See box 3.1 for a guide to understanding survey results.

The negative effect of import bans on specific products, which mainly affected agricultural products, increased more in this period than any of the other individual policy measures included in the survey (i.e., the 28 policy measures and 10 non-policy issues that comprise six policy and four non-policy aggregations). For non-policy issues, bureaucratic or regulatory delays, or other red tape, saw the biggest increase in severity between 2007 and 2013.

Increases in the effects of Indian barriers over time should be interpreted with caution. They do not necessarily imply that barriers worsened over time or that India was unique in imposing new barriers. As noted above, the severity of policy barriers depends on the extent to which U.S. companies' activities were affected by Indian barriers. In some cases, U.S. activities were affected by the introduction of new policies in the period, such as the introduction of new LCRs in the ICT and solar power industries. In other cases, such as tariffs and FDI restrictions, barriers may have remained largely the same in the period (see discussions in chapters 4 and 7), but U.S. companies may be increasingly affected as U.S. trade and investment in India has risen.

Other countries have imposed new trade-restricting policies in the period covered by the Commission survey, which includes the global trade downturn of 2008–09 and its aftermath. The OECD, WTO, and United Nations Conference on Trade and Development (UNCTAD) have

issued a series of reports detailing an increase in trade-restricting measures imposed by G20 countries since 2008.[150] These reports show that, for example, G20 members[151] have implemented more trade-restrictive measures than trade-liberalizing actions in the areas of customs procedures, and that LCRs are becoming an "increasingly pervasive" policy.[152] On the other hand, most investment policies implemented by G20 countries have tended to eliminate investment restrictions and facilitate FDI.[153]

The Effects of Changes in Indian Policies on U.S. Exports and Indian Affiliate Sales

A substantial majority of U.S. companies (80.7 percent for exporters and 87.6 percent for those with Indian affiliates) estimate that the changes in Indian policies that occurred between 2007 and 2013 had no effect on their exports to India or their sales of goods or services through Indian affiliates (figure 3.3).[154] Others were affected to at least a measurable extent. More than 10 percent of U.S. companies estimate that they would have seen an increase of 10 percent or more in their exports or Indian affiliate sales if the changes since 2007 had not occurred.

Because the most affected companies were only able to select an increase or decrease of "10 percent or more" in the questionnaire, the Commission has calculated the overall effects on exports and foreign affiliate sales corresponding to a range of average policy effects for the most affected companies. For example, if the Commission assumes that these companies had a 15 percent reduction in their exports, on average, as a result of policy changes, then overall U.S. exports to India would have been 3.3 percent higher in 2013 in the absence of the policy changes (table 3.9).[155]

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[150] OECD-WTO-UNCTAD, *Report on G20 Trade and Investment Measures,* 2009–14.

[151] G20 members include the United States, the European Union and 18 major economies (Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, the Republic of Korea, Mexico, Russia, Saudi Arabia, South Africa, Turkey, and the United Kingdom).

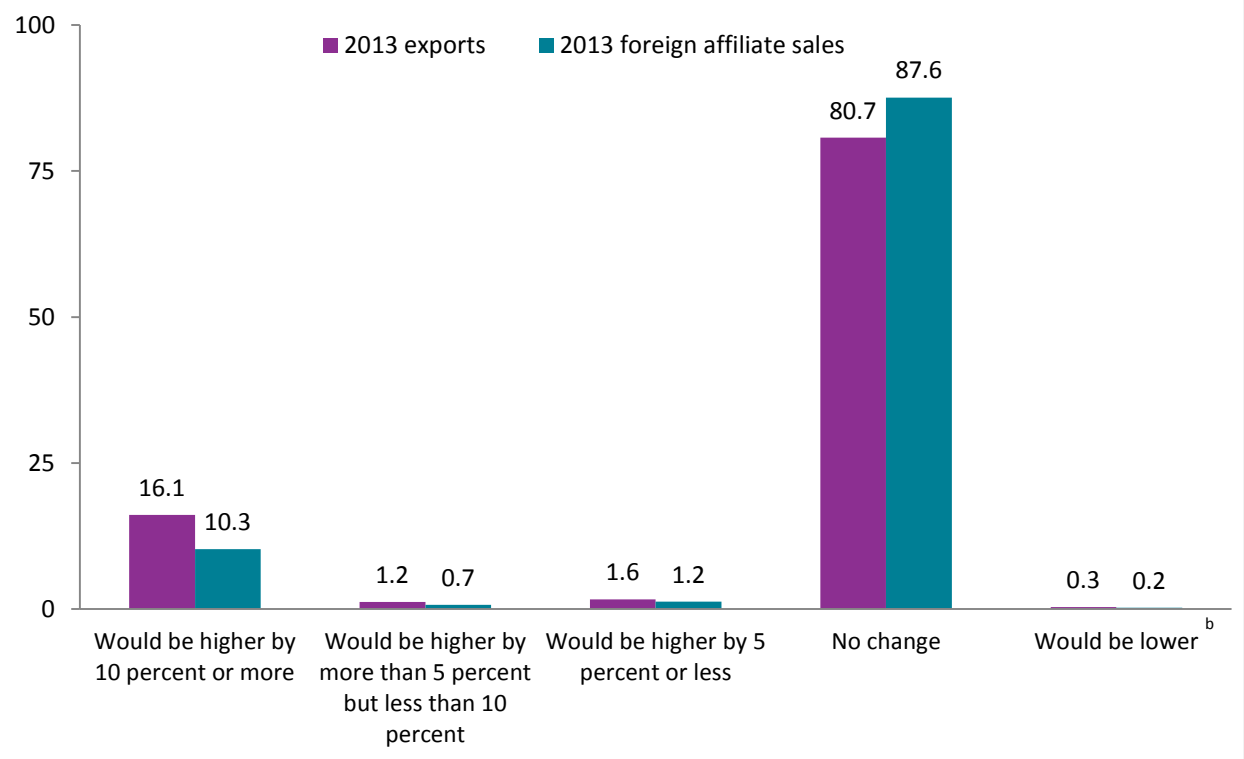
[152] OECD-WTO-UNCTAD, *Report on G20 Trade and Investment Measures (Mid-October 2012 to Mid-May 2013),* 2013, 11; OECD-WTO-UNCTAD, *Report on G20 Trade and Investment Measures (Mid-May 2013 to Mid-November 2013),* 2013, 7 and 11.

[153] OECD-WTO-UNCTAD, *Report on G20 Trade and Investment Measures (Mid-May 2013 to Mid-November 2013),* 2013, 4

[154] Companies were asked to estimate whether changes in the policies that had affected them in 2007–13 led to an increase or decrease in exports of goods and services and foreign affiliate sales of goods and services. See questionnaire (question 6.1).

[155] A 10 percent value implies that all companies reporting an effect of 10 percent or more had exactly a 10 percent effect. A 20 percent value implies a roughly uniform distribution of effects between 10 and 30 percent.

Figure 3.3: Distribution of effects[a] that changes in Indian policies have on U.S. companies' exports to or foreign affiliate sales in India, percent of U.S. companies engaged in India



Source: USITC calculations of weighted responses to the Commission questionnaire (question 6.1.1 and 6.1.2).
Note: See appendix Table I.15 for underlying data for this figure.
[a] Companies estimated to what extent their 2013 exports to India or 2013 foreign affiliate sales in India would have been higher or lower if Indian policies had not changed between 2007 and 2013.
[b] Combined share of companies whose exports or foreign affiliate sales would have been lower by "5 percent or less," "more than 5 but less than 10 percent," and "10 percent or more."

Table 3.9: Estimated change in U.S. companies' exports to India and foreign affiliate sales in India due to changes in Indian policies, 2013, percent

Assumed average policy effect for the most affected U.S. companies[a]	Change in 2013 exports	Change in 2013 foreign affiliate sales
Increased or decreased by 10 percent	-2.4	-2.9
Increased or decreased by 15 percent	-3.3	-3.9
Increased or decreased by 20 percent	-4.4[b]	-5.1

Source: USITC calculations of weighted responses to the Commission questionnaire (questions 2.5, 6.1.1 and 6.2.2).
[a] The questionnaire did not ask companies to specify an exact value or specific range beyond 10 percent. Hence, the Commission has assumed a range of average maximum effects for the most affected companies.
[b] Low-precision estimate, with an RSE above 50 percent.

The estimates of the overall effect of policy changes are not particularity sensitive to this assumption. Using the range of assumptions, the Commission estimates that, if India's policies had remained constant from 2007 to 2013, U.S. exports to India in 2013 would be higher by 2.4 to 4.4 percent and sales by U.S. affiliates in India in 2013 would be higher by 2.9 to 5.1 percent.

Companies employed one or more methods to calculate these effects: 53.1 percent compared their performance in other countries with their performance in India; 48.9 percent compared their actual performance with earlier projections; 9.0 percent relied on industry or trade association information; and 28.3 percent used some other method—mostly making good-faith or best-guess estimates.

Effects of Policy Changes on U.S. Company Strategy for Engaging in India

Most U.S. companies engaged in India (61.3 percent) that face regulatory impediments have made one or more strategic changes since 2007 (table 3.10).[156] Reducing resources used for exporting to India or investing in Indian affiliates are among the top strategies employed by all U.S. companies engaging in the Indian marketplace.

Table 3.10: Strategic changes by U.S. companies in response to regulatory impediments in India since 2007, percent

				All companies engaged in India		
Strategy	**Exporters to India**	**Investors in Indian affiliates**	**IP-Intensive companies**	**Large**	**SMEs**	**All companies**
Made no changes	**36.6**	**52.0**	**39.0**	**31.5**	**43.3**	**38.7**
Made changes	**63.4**	**48.0**	**61.0**	**68.5**	**56.7**	**61.3**
Directed less attention or fewer resources to the Indian export market	33.1	8.9	27.3	21.1	35.7	30.0
Halted or slowed plans for affiliate expansion	11.6	17.0	13.5	18.8	8.5[a]	12.6
Directed less attention or fewer resources to affiliates in India	7.3	11.1	8.6	10.6	5.6	7.6
Increased investment in affiliates in India to comply with LCRs or other regulations	7.5	13.6	8.2	14.0	3.1[a]	7.4
Changed Indian partners	6.5	4.8	6.9	6.2	7.3	6.9
Halted all exports to and or affiliate activity in India (exited Indian market)	3.7	3.7	4.2	4.0	3.9[a]	3.9
Shifted business operations from one product or business line within India to another	2.6[a]	5.4[a]	3.0[a]	2.7	3.4[a]	3.1
Shifted business operations from one state to another	3.0	2.8	3.2	3.7	2.3[a]	2.8
Reduced or limited the scope of work done in R&D facilities in India	1.8	4.1	2.4	3.2	1.4	2.1

Source: USITC calculations of weighted responses to the Commission questionnaire (question 6.5).
[a] Low-precision estimate, with an RSE above 50 percent.

[156] A very similar share (62.4 percent) of U.S. companies substantially affected by Indian policies made one or more strategic changes in this period.

Common strategies employed by U.S. companies differ slightly, depending on the companies' characteristics or the nature of their engagement in India. For example, large companies and exporters to India more often have made strategic changes in light of regulatory impediments. Smaller companies more commonly changed Indian partners than other groups. Most notably, while U.S. investors in Indian affiliates are the group most substantially affected by Indian policies out of all U.S. companies engaged in India, just over half of them have not made strategic changes in response to regulatory impediments they faced.

Prohibitive Barriers and Their Effects on U.S. Companies

During 2007–13, of the U.S. companies engaging in international trade or direct investment worldwide in the Commission's survey, 3.5 percent were prevented or deterred from conducting business in India, or were otherwise deterred from exporting to or selling certain products in the Indian market, as a result of Indian policies.[157] This section looks at two groups within this population: companies engaged in India and companies prevented from engaging in India because of policy barriers. Of companies already engaged in India, 7.3 percent faced issues preventing them from exporting or selling certain products in India during this time frame, while 1.1 percent of companies not engaged in India were completely prevented or deterred from conducting business there during this period.[158]

Among companies already engaged in India and facing prohibitive barriers, the most common barriers were SPS and TBT, tariffs, and taxes/financial regulations (table 3.11).

Table 3.11: Type of barrier preventing exporting or selling certain products by U.S. companies engaged in India

Type of company	Tariffs and customs procedures	FDI	IP and LCR	SPS and TBT	Taxes and financial regulations	Other
Goods producers	83.8	18.4	16.5	62.0	59.0	49.0
Services providers	46.0	62.4	38.1	23.6	72.7	82.8
All companies in India prevented from engaging in some business lines	73.2	30.6	22.5	51.3	62.8	58.4

Source: USITC calculations of weighted responses to the Commission questionnaire (questions 2.1, 7.2, and 7.5).

[157] This share should be interpreted with caution, as the survey may not be a representative sample of U.S. companies not engaged in India.
[158] Ibid.

Companies that have been entirely prevented from exporting or selling products in India have a slightly different set of concerns. For these companies, FDI measures are more prominent, but SPS and TBT barriers are less prohibitive (table 3.12).[159]

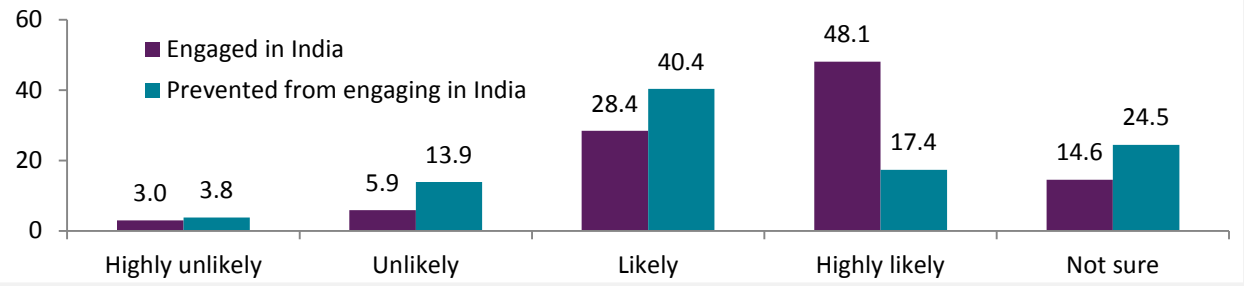
Table 3.12: Type of barrier preventing exporting or selling products in India by U.S. companies not engaged in India

Type of company	Tariffs and customs procedures	FDI	IP and LCR	SPS and TBT	Taxes and financial regulations	Other
Goods producers	66.2	21.9	14.9	54.2	32.5	30.8
Services providers	33.2	70.7	4.2[a]	9.6[a]	57.3	42.0
All companies prevented from engaging in India	50.4	45.3	9.7	32.8	44.4	36.2

Source: USITC calculations of weighted responses to the Commission questionnaire (questions 1.8, 2.1, 7.2, and 7.5).
[a] Low-precision estimate, with an RSE above 50 percent.

If the prohibitive barriers were removed, but the business environment and other policies remained the same, most of these companies would begin to export to or establish a foreign affiliate in India within the next 12 months (figure 3.4).[160] Most companies already engaged in India would begin to sell additional product lines.

Figure 3.4: Likelihood that companies would engage in new business lines or begin engaging in India within the next 12 months if prohibitive policy barriers were removed, percent



Source: USITC calculations of weighted responses to the Commission questionnaire (questions 7.2 and 7.4).
Note: See appendix Table I.16 for underlying data for this figure.

Effects of Changes in India's Trade and Industrial Policies on the U.S. Economy

This section offers a quantitative analysis of the way several Indian restrictive measures affect the economy of the United States. The analysis specifically addresses the request letter's interest in "a quantitative analysis of the economic effects of India's identified restrictive

[159] Estimates for companies not engaged in India should be interpreted with caution, as the survey may not be a representative sample of those companies.
[160] Ibid.

measures on the U.S. economy." This analysis complements the chapters treating these policies (chapter 4 for tariffs, chapter 5 for IP, and chapter 7 for FDI), which examine the effects of recent policy changes and U.S. firms' perceptions of these policies, as specified in the request letter: "changes in tariff and nontariff measures, including measures related to the protection of intellectual property rights, and other actions taken by India's government to facilitate or restrict the inflow of trade and FDI."

This analysis indicates that a complete removal of tariffs and restrictions on FDI, as well as an improvement of IP protection to levels achieved by countries with the strongest IP protections, such as those found in the United States and Western Europe, would lead to substantial improvement in U.S. economic engagement with India. The value of U.S. exports to India would increase by 66.4 percent, and U.S. investment in India would increase by 96.4 percent. However, the relatively low current levels of U.S. trade and investment with India mean that these large increases translate into small improvements in U.S. welfare, GDP, and domestic employment.

Summary of Economy-wide Effects

To simulate the effect of the identified policies, the Commission first needed an estimate of the magnitude of the policies or their direct effect in the Indian market. Tariff rates are readily available in international databases, and tariff changes are a core component of standard computable general equilibrium (CGE) models of trade. IP and FDI barriers are less standard in CGE analyses and present additional challenges. For the FDI simulation, the Commission first estimated changes resulting from the removal of Indian policy barriers on foreign affiliate sales in India; similarly, for the IP simulation, the Commission first estimated changes resulting from an improved level of IP protection on trade and affiliate sales. Subsequently, the Commission used these estimated changes to conduct simulations with an extended version of GTAP's CGE model.[161] The standard CGE model was extended to incorporate FDI into the model. It was also extended to accommodate potential aggregate changes in net employment levels, whereby more workers may be drawn into the labor pool in response to increases in real wages, as described in chapter 1 and appendix G.[162]

The analysis that follows calculates the effects on the U.S. economy of eliminating tariff and investment restrictions and raising standards of IP protection to levels comparable to those of the United States and Western Europe. The analysis concludes with the combined effect of

[161] The sectors used in the model are mapped to the sectors used in reporting survey results, to the extent permitted by data. In some sectors, such as the ICT sector and the content and media sector, the composition of industries in the model differed from that in the survey. The effects of these differences are discussed in the simulation results below.

[162] Traditionally, CGE models assume that there is a fixed labor supply, where labor may shift across sectors but economies experience no change in net employment as the real wage changes.

simultaneously improving all three policies. For each simulation, changes in U.S. exports to India and U.S. affiliate sales in India are reported at the sector level. In addition, the economy-wide effects on U.S. welfare, GDP, employment, aggregate trade with India, and investment in India are also reported. As indicated in chapter 1, the simulation results show the difference between U.S. activity in 2014 under the current Indian policy regime and what U.S. activity in 2014 would have been under a simulated liberalized policy regime, assuming all other conditions in the 2014 economy remained the same.

Economic Effects of a Complete Tariff Removal

Tariffs on India's agricultural and manufactured goods tend to both decrease the quantity of goods traded and increase their price in the Indian market. Eliminating tariffs on imports from all of India's trading partners would have a large effect on bilateral trade and a small positive effect on the U.S. economy. The removal of tariffs would lead U.S. exports to India to expand by 0.5 to 56.4 percent in sectors that now have tariffs in place. There would be small negative effects on the exports of products in sectors that are not currently subject to Indian tariffs (i.e., the services sectors) as U.S. workers shift to expanding sectors. Sales by affiliates of U.S. companies in India would expand by 1.8 percent or $1.9 billion. U.S. welfare would increase by $1.3 billion, and U.S. employment would increase by less than 2,000 full-time equivalent jobs. Although the percentage changes in U.S. exports to India would be large, these macroeconomic effects in the United States would be limited, because U.S. exports to India currently make up a small share of total U.S. exports, and these in turn are a small share of total U.S. output.

In this section, the Commission evaluates the effect of the current levels of tariffs on the U.S. economy. A more detailed discussion of tariffs follows in chapter 4, where the analysis focuses on determining which U.S. export industries face high tariff barriers in India, describing recent changes in the Indian tariff regime, and reporting results from the USITC survey on the effects of these tariffs on U.S. exporters between 2007 and 2013. Chapter 4 also provides more detail on some of the unique details of the Indian tariff regime, such as the special additional duty (SAD) that was incorporated into the model and is mentioned below.[163]

Inputs for the Tariff Removal Simulation

Tariffs incorporated into the model are based on the applied tariff rates for 2012, as reported by the WTO, and include the 4 percent SAD.[164] Table 3.13 summarizes the tariff rates at the aggregate sector level.[165]

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[163] Government of India, Customs Tariff Act of 1975 (51 of 1975), August 18, 1975, as amended in 1978, 1982, and 1985.

[164] In addition to the basic customs duty and the SAD, the Indian government also assesses two more taxes on imports: the education surcharge ("cess") and the additional customs duty. These two are excluded from the

Table 3.13: Tariff rates for U.S. exports to India, including special additional duty (SAD)

Sector	Tariff rate
Agriculture and food	29.7
Natural resources	10.7
Chemicals and textiles	12.1
Other manufacturing	8.1
Content and media	12.4
ICT	3.1
Retail trade	0.0
Financial services	0.0
Other services	0.0

Source: USITC calculations based on WTO's list of India's applied tariff rates for the United States, 2012, and including the 4 percent SAD.

Tariffs are highest for the agriculture and food sector, which includes both agricultural commodities and food processing. They are moderately high for chemicals and textiles and for content and media. There are no tariffs on services, so retail trade, financial services, and other services have zero tariffs. The ICT sector is a composite of goods (electronic equipment) and services (communications) and so has low, but non-zero, tariffs.[166]

Effects of Tariff Liberalization on U.S. Exports to India

There would be an overall positive effect on U.S. exports if Indian tariffs were liberalized. The tariff removal would lead to a reduction in the price paid by Indian consumers and companies for imported agricultural and manufactured goods. As a result, imports by India in liberalizing sectors would increase. The values of U.S. exports to India in all goods sectors are expected to increase, and U.S. exports in the agriculture and food sector would increase the most, as these exports face the highest average tariffs (table 3.14). This result is consistent with the survey and descriptive information presented in chapter 4, which indicates that Indian duties most severely affect U.S. agricultural exporters.

Table 3.14: Simulated effect of tariff liberalization on U.S. exports to India, 2014

Sector	Percent change
Agriculture and food	56.4
Natural resources	14.3
Chemicals and textiles	21.0
Other manufacturing	9.5
Content and media	21.2
ICT	0.5

model due to numerous, frequently changing exemptions and the variability of rates at the tariff line level. See chapter 4 for details of India's additional duties. In the simulation, the SAD has been applied to all sectors, although some product-specific exemptions exist.

[165] The tariff rates were placed into the model at a more detailed industry level originally obtained from tariff line data.

[166] In the simulation results, the ICT sector is composed of computer equipment manufacturing and communications services, as with the survey results, but does not include computer hardware and software consulting services. These appear in the "other services" sector of the simulation results.

Sector	Percent change
Retail trade	-3.7
Financial services	-2.5
Other services	-2.0
All sectors	7.6

Source: USITC calculations.

U.S. exports of services to India would decline slightly. Tariffs are not applied to services; as a result, services exports to India would become relatively more expensive. The reason is that tariff removal would make goods cheaper for Indian companies and consumers. Import demand by India would then shift toward other sectors and away from services, which would lead to a small decline in the quantity of services exports to India.[167]

U.S. exports to India in ICT would expand only slightly. As noted above, the ICT sector is made up of both goods and services. The goods industry within ICT (electronic equipment) would expand due to the tariff removal, while the services industry (communications) would contract as their prices rise relative to those of goods. Therefore, the results for the ICT sector are neither as positive as those for the manufacturing and agriculture/food sectors nor as negative as those for the services sectors, due to the offsetting effects in this sector.

Effects of Tariff Liberalization on U.S. Foreign Affiliate Sales in India

The overall effect of tariff liberalization on U.S. foreign affiliates in India would be positive. Liberalizing tariffs, however, would generate two competing forces. On one hand, foreign companies may choose to serve the market with cross-border trade rather than foreign affiliate sales because tariff removal would reduce the need for a presence in India. This force would act to reduce sales by U.S. foreign affiliates. On the other hand, the lower price of imported intermediate goods to India might mean companies in India could supply the Indian and global markets more cost effectively. This force would act to expand sales by foreign affiliates, along with domestic producers. These two forces would have opposing effects, with the result that some sectors previously facing high tariffs on inputs—e.g., agriculture and food, natural resources, and chemicals and textiles—would increase their foreign affiliate sales, while the other manufacturing and content and media sectors would decrease their foreign affiliate sales (table 3.15). Sales in services sectors, which do not face tariffs, would increase, as they would benefit primarily from lower imported intermediate input prices.

[167] The model provides a medium-term assessment, in which the increased demand for domestic services can be satisfied by movements in the labor and capital markets.

Table 3.15: Simulated effect of tariff liberalization on U.S.-owned affiliate sales in India, 2014

Sector	Percent change
Agriculture and food	0.6
Natural resources	1.4
Chemicals and textiles	1.3
Other manufacturing	-1.3
Content and media	-1.5
ICT	1.6
Retail trade	0.2
Financial services	0.9
Other services	3.2
All sectors	1.8

Source: USITC calculations.

Macroeconomic Effects of Tariff Liberalization

U.S. welfare would increase by $1.3 billion under tariff liberalization due to a slight increase in U.S. output and a favorable movement of U.S. export prices relative to U.S. import prices (table 3.16). U.S. export prices would rise slightly in response to an increase in India's demand due to tariff liberalization. The price of U.S. goods imported from India would decline as India becomes more price competitive due to cheaper imported intermediates. U.S. welfare would also increase as the elimination of foreign tariffs improves the allocation of U.S. resources.

U.S. GDP would expand by $165.9 million as increased export demand by U.S. trading partners expands domestic production. This change is substantially smaller than the change in welfare; welfare measures benefits to consumers, while the GDP measures changes in economic

Table 3.16: Simulated effects of removal of tariffs by India, 2014

Economic measure	Percent change	Change (million dollars)
U.S. welfare	(+)	1,266.7
U.S. GDP	(+)	165.9[a]
U.S. employment	(+)	(+)[b]
U.S. real wages	(+)	[(c)]
U.S. exports	0.1	3,071.4[d]
To India	7.6	2,923.5[d]
U.S. imports	0.1	2,572.5[d]
From India	17.7	2,622.2[d]
U.S. investment in India	1.4	296.8[e]
U.S. affiliate sales in India	1.8	1,898.7[f]

Source: USITC calculations.

Note: (+) indicates a small positive change of less than 0.05 percent.

[a] The change in GDP level is based on 2014 GDP values by the IMF World Economic Outlook, April 2014 edition.

[b] Indicates a small positive change of less than 50,000 workers.

[c] Not applicable.

[d] The levels of exports and imports are based on data pulled from USITC/Dataweb (accessed September 25, 2014), and BEA, U.S. Trade in Goods and Services by Selected Countries and Areas, table 7 (accessed October 3, 2014), and extrapolated to 2014.

[e] The level of foreign affiliate investment is based on BEA, U.S. Direct Investment Abroad, Annual Data: All Foreign Affiliates (accessed September 25, 2014).

[f] The level of foreign affiliate sales is based on BEA, U.S. Direct Investment Abroad, Annual Data: U.S. Direct Investment Position on a Historical Cost Basis (accessed September 25, 2014).

activity.[168] In this simulation, the change in welfare is larger than the change in GDP because the changes in international prices favor U.S. consumers, but are not captured in U.S. GDP. U.S. employment and real wages would increase with the GDP expansion; employment would increase by less than 2,000 full-time equivalent jobs.

U.S. economic engagement with India would increase for both exports and foreign affiliates. U.S. exports to India would increase by $2.9 billion as prices for Indian consumers decline and demand for U.S. goods increases. U.S. investment in India would expand by 1.4 percent, or $296.8 million, and U.S. affiliate sales would expand by 1.8 percent, or $1.9 billion, as the lower prices of imported intermediate inputs favors increased production in India, including by foreign-owned companies.

Economic Effects of Improved IP Protection

A lack of IP protection can reduce companies' willingness to engage with a country. Improvements in IP protection by India could increase demand for high-technology goods within India and increase U.S. companies' interest in investing in India. For example, improved IP protection in India could encourage a U.S. company to begin production in India, which would simultaneously increase supply of IP-intensive products within India and increase demand for high-technology inputs from the United States.

The Commission simulated the effect of India improving IP protection to U.S. and Western European levels. Such a change would have substantial positive effects on U.S. exports to India and on U.S. foreign affiliate sales in India, increasing U.S. economic engagement substantially. Exports would increase by 55.5 percent; foreign affiliate sales, by 84.5 percent. Although the effects of improved IP protection on exports and foreign affiliate sales would be greater than the effects of tariff removal, their effects on the U.S. macroeconomy would remain small, with U.S. welfare and employment increasing by less than 0.05 percent. Simulation results indicate employment gains of less than 10,000 jobs. The modeling results complement the discussion of the Indian IP regime in chapter 5, where the analysis presents survey results and focuses on the particular trade-secret, patent, copyright, and trademark barriers experienced by U.S. companies active in the India market.

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[168] In economic simulations, it is common for changes in GDP to differ from changes in welfare. GDP is the measure of all economic activity within a country. It consists of the sum of private consumption, investment, government consumption, and net exports. GDP here is defined as real GDP, which measures the real value (i.e., quantity) of its components. Welfare, on the other hand, summarizes the real value of present and deferred consumption. Welfare measures households' benefit from economic activity. It consists of the sum of real private consumption, real government consumption, and real savings. The change in welfare can also be decomposed into efficiency gains and terms of trade effects, which are determined by changes in the prices of imports and exports. Welfare and GDP can be affected differently by policies. For example, a policy change that led to a rise in the price of exports and a decline in the price of imports would lead to an increase in real income and thereby an increase in welfare but not an increase in GDP.

Inputs for the IP Simulation

Companies with IP-intensive products face reduced incentives to sell in markets with poor IP protections, as profits are lower and the ability to charge a premium is compromised by the inability to protect against IP theft. This may reduce companies' exports to the market and their investment levels in the market. It may also change the types of goods that a company sells through foreign affiliates abroad; companies may prefer to sell less IP-intensive and less technologically advanced goods abroad when IP protections are lower.

No existing databases measure such direct effects of policies affecting IP. To produce model inputs, the Commission econometrically estimated the relationship between IP policies and trade and foreign investment.[169] An established method for estimating these relationships is to examine the effect of variations in IP policies on exports and foreign affiliate sales, after accounting for other trade flow determinants such as country income levels, industry size, and the distance between countries.[170] The econometric specifications are described in appendix G.

For IP, the relationship also depends on the IP intensity of each industry.[171] The level of IP protection is assessed using the Economist Intelligence Unit (EIU) IP index, which is a measure that assesses the effectiveness of countries' IP regimes. The EIU index assesses countries on a scale of 1 to 5, with 1 indicating the lowest level of IP protection, and 5 indicating the highest level. India's 2013 IP protection regime is assigned a value of 3, while that of the United States and other Western European countries is assessed a 5. The simulation assumes that India achieves an IP protection regime of 5.[172]

Consistent with the survey results in chapters 1 and 5, nearly all sectors invest resources into the production of IP-intensive goods, and were modeled as such. Although every sector is conceivably affected by IP concerns, there are three sectors which are excluded from direct effects of IP policy changes in the analysis, although they may still be affected indirectly. Agricultural commodities were excluded because most IP investment in the "agricultural" sector in fact appears in other industries, such as agricultural chemicals, biotechnology (which is included in pharmaceuticals), in professional services (under R&D), or in government

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[169] There are other potential effects, including costs of enforcement that have not been modeled due to a lack of data.
[170] See Anderson, "The Gravity Model," 2011.
[171] The IP intensity of an industry can be measured in a variety of ways, such as number of patents or number of scientists employed. The analysis in this report uses R&D investment as a share of total value added of each industry to approximate its IP intensity. The sectoral R&D data are obtained from the Business R&D and Innovation Survey conducted by the National Science Foundation (NSF). This methodology has been adapted from USITC, *China: Effects of Intellectual Property Rights Infringement, 2011,* 4–13 and appendix H.
[172] The model results for exports and foreign affiliate sales closely reflect the model inputs obtained econometrically. Model input tables G.2 and G.4 are therefore similar to tables 3.17 and 3.18. See appendix G for details.

research.[173] The construction sector is largely unconcerned with IP as well, and therefore excluded.[174] The government sector is also excluded from receiving direct effects.[175]

Effects of Improved IP Protection on U.S. Exports

The simulation results show that improved IP protection would lead to an increase in the technology embedded in U.S. exports to India and an improvement in Indian companies' ability to use these imports. U.S. exports to India would increase in all sectors (table 3.17).[176] Pharmaceuticals exports would increase the most, by 170.7 percent.

Table 3.17: Simulated effect of IP policy improvement on U.S. exports to India, 2014

Sector	Percent change
Agriculture and food	21.9
Natural resources	13.4
Chemicals and textiles	66.1
Pharmaceuticals	170.7
Other manufacturing	83.0
Content and media	11.0
ICT	75.4
Retail trade	37.9[a]
Financial services	37.9[a]
Other services	30.3
All sectors	55.5

Source: USITC calculations.

[a] Retail trade and financial services entered the analysis using the same level of IP intensity due to lack of disaggregated data for retail trade.

Other sectors, including agriculture and food and other services, would see a substantially smaller increase in exports, due in part to their composition. The agriculture and food sector is composed of both agricultural commodities and food manufacturing. As noted above, agricultural commodity producers are assumed to be indirectly affected by IP policies, while the food processing industry is assumed to be directly affected. As a result, the agriculture and food sector as a whole would be moderately affected by IP policy changes. Similarly, the "other services" sector includes both industries that would be affected (computer hardware and software consulting) and unaffected (construction and government services) by IP liberalization.

[173] Agricultural commodity producers were also not part of the Business R&D and Innovation Survey conducted by the NSF.

[174] Construction services were not included in the Commission's survey. In the Business R&D and Innovation Survey conducted by the NSF, construction firms did not consider patent or other IP protection to be an important factor for their business, and were therefore assumed to be not directly affected by changes to IP protection. Jankowski, "Business Use of Intellectual Property Protection," 2012.

[175] Although governments invest a substantial amount in IP, any goods they export are not affected in the same way as those of private companies, and governments have no foreign affiliates.

[176] The simulation targeted these changes, which were obtained directly from the estimation of model inputs.

Effects of Improved IP Protection on Foreign Affiliate Sales

Foreign affiliates in India would be expected to sell more, as improved IP protection of their high-technology products would lead to productivity growth that is not experienced by domestic Indian companies (table 3.18). As these affiliates become more productive, their sales would expand. The effects would generally be greater on foreign affiliate sales than on exports, with estimated effects on sales varying between 39.5 and 136.6 percent in broad sectors (table 3.18).[177] The sectors with the strongest response to improvements in the IP regime would be the chemical and textiles (which includes pharmaceuticals) and other manufacturing sectors. In contrast to the results for exports, increases in affiliate sales of the agriculture and food sector would be in line with those in other sectors. This stronger response is because the majority of U.S. investment in this sector is in food processing, which would be affected by the improvement of Indian IP standards, rather than agriculture, which would not. The "other services" sector would be the sector least affected, as it includes both construction and government services.

Table 3.18: Simulated effect of IP policy improvement on U.S.-owned affiliate sales in India, 2014

Sector	Percent change
Agriculture and food	99.1
Natural resources	95.6
Chemicals and textiles	136.6
Pharmaceuticals	167.1
Other manufacturing	132.7
Content and media	115.9
ICT	111.0
Retail trade	110.7
Financial services	109.7
Other services	39.5
All sectors	84.5

Source: USITC calculations.

Macroeconomic Effects of Improved IP Protection

The simulation results indicate that U.S. welfare would increase by about $3.6 billion, primarily due to favorable changes in the price of exports and imports (table 3.19).[178] U.S. export prices would increase relative to its import prices as India's demand for U.S. exports increases. U.S. GDP, employment, and real wages move together, and all three would expand slightly due to the increase in exports, both to India and globally. Employment would increase by less than 10,000 full-time equivalent jobs.

[177] These results are consistent with results found in a report published by the OECD on trade secrets, along with another report by Sonecon on the relationship between FDI flows and IP, although each paper uses different specifications and yields slightly different quantitative results. See Lippoldt and Schultz, "Uncovering Trade Secrets," 2014, and Shapiro and Mathur, "How India Can Attract More Foreign Direct Investment," 2014.

[178] As noted above, the difference between the welfare effect and GDP effect is due primarily to favorable price movements for the United States as export prices increase relative to import prices.

Table 3.19: Simulated effects of IP improvement by India, 2014

Economic measure	Percent change	Change (million dollars)
U.S. welfare	(+)	3,569.2
U.S. GDP	(+)	728.9[a]
U.S. employment	(+)	(+)[b]
U.S. real wages	(+)	([c])
U.S. exports	1.0	24,191.5[d]
To India	55.5	21,443.9[d]
U.S. imports	0.3	9,545.2[d]
From India	-1.0	-744.7[d]
U.S. investment in India	68.1	14,444.6[e]
U.S. affiliate sales in India	84.5	89,353.2[f]

Source: USITC calculations. Where specified, changes in levels are based on percent changes from model results and base levels obtained from sources outside the model.
Note: (+) indicates a small positive change of less than 0.05 percent.
[a] The change in GDP level is based on 2014 GDP values by the IMF World Economic Outlook, April 2014 edition.
[b] Indicates a small positive change of less than 50,000 workers.
[c] Not applicable.
[d] The levels of exports and imports are based on data pulled from two sources—USITC/DataWeb (accessed September 25, 2014); BEA, U.S. Trade in Goods and Services by Selected Countries and Areas, table 7 (accessed October 3, 2014)—and then extrapolated to 2014.
[e] The level of foreign affiliate investment is based on BEA, U.S. Direct Investment Abroad, Annual Data: All Foreign Affiliates (accessed September 25, 2014).
[f] The level of foreign affiliate sales is based on BEA, U.S. Direct Investment Abroad, Annual Data: U.S. Direct Investment Position on a Historical Cost Basis (accessed September 25, 2014).

U.S. exports to India would expand by 55.5 percent or $21.4 billion. India would increase its imports, from the United States and the rest of the world, as it makes more efficient use of high technology imported inputs. U.S. imports from India would be relatively unaffected, declining by 1.0 percent. As in the previous simulation, the change in GDP is lower than the change in welfare because the international price changes favor U.S. consumers but are not captured in U.S. GDP.

U.S. investment and affiliate sales would both increase, since foreign affiliates in India would be able to expand rapidly—again, due to their increased use of high-technology products.

Economic Effects of a Complete Removal of FDI Restrictions

Barriers to FDI in India can restrain foreign investment, as restrictions discourage or prevent companies from entering the market. Their removal could foster increased U.S. and other foreign investment, as well as—to a lesser extent—increased trade between the United States and India. The simulation of the removal of FDI restrictions assumes that India removes all restrictions on FDI, regardless of the investor's home country. U.S. welfare and GDP would change little relative to the current size of the economy: U.S. welfare would increase by $26.8 million, while GDP would decline by $64.3 million. The main U.S. beneficiaries of the removal of FDI restrictions would be U.S. foreign affiliates in India, particularly in the highly restricted retail services and insurance industries. Removal of equity limits and other FDI

restrictions would likely lead to an increase in the establishment of new U.S.-owned affiliates—so much so that sales by all U.S. owned affiliates in India would rise by about 20 percent. U.S. exports to India would experience much smaller effects, with some sectors seeing small positive changes, and others seeing declines.

The modeling results complement the discussion in chapter 7. Chapter 7 describes India's barriers to FDI by sector, and presents the survey results related to the Indian policy barriers that particularly impact companies' investment decisions.

Inputs for the Removal of FDI Restrictions

As with IP, there are no existing databases of the direct effects of FDI policies. To provide model inputs, the Commission estimated the effect of Indian policies on foreign affiliate sales after accounting for trade flow determinants such as country income and distance. The assessment of country- and sector-specific FDI policy is based on the OECD's FDI Regulatory Restrictiveness Index.[179]

The size of the restrictions, and therefore the size of the model inputs, varies by sector.[180] Some sectors are quite closed to foreign investment, including retail trade, agricultural commodities, and air transportation.[181] These less-open sectors would see a greater expansion of sales in the case of full liberalization. Sectors in India that are already more open, such as electronics and metals, would have lower estimated effects from liberalization. Some sectors were deemed to be fully open for FDI by the OECD, so the model inputs included no change to FDI in these sectors.[182]

Effects of the Removal of FDI Barriers on Foreign Affiliate Sales

As a result of removed FDI barriers, foreign affiliate sales would rise for all foreign affiliates located in India, including those owned by U.S. companies. Sales would rise most in the industries that face the highest barriers to FDI. Many services industries are highly restricted in India, and their foreign affiliate sales would increase substantially with the liberalization (table 3.20). Insurance services' foreign affiliates would expand the most, followed by retail services. Content and media, a mix of goods and services, also expands substantially. The "other

[179] See appendix G for a discussion of the restrictiveness index and details on the econometric specifications.
[180] As with the IP simulation, the model results for foreign affiliate sales closely reflect the model inputs obtained econometrically. See appendix G for details.
[181] Retail services includes multibrand and single-brand retail. The investment barriers only apply to multibrand retail; however, a lack of data precluded treating multibrand retail separately. The estimated increase in foreign affiliate sales may therefore somewhat overstate the effect of FDI liberalization on retail services. Air transportation is included in the "other services" sector.
[182] The sectors that were deemed fully open by the OECD Regulatory Restrictiveness Index in 2013 were electricity distribution, forestry, hotels and restaurants, maritime transportation, surface transportation, transport equipment, and wholesale distribution.

services" sector would increase by less, as this sector includes government services and recreation, which are unaffected by liberalization.

Table 3.20: Simulated effect of FDI liberalization on U.S.-owned affiliate sales in India, 2014

Sector	Percent change
Agriculture and food	20.8
Natural resources	7.1
Chemicals and textiles	16.6
Other manufacturing	0.6
Content and media	72.1
ICT	31.1
Retail trade	85.2
Financial services	74.0
Banking	73.7
Insurance	89.6
Other services	27.1
All sectors	20.7

Source: USITC calculations.

Manufacturing industries are already relatively open to FDI, and would expand their sales by less than services industries would. U.S. affiliate sales in the agriculture and food sector would not increase by a large amount, despite the significant policies restricting FDI in agriculture. The United States has little investment in agricultural commodities, though it does have investment in the food processing industry, which is less restricted. The effect on the agriculture industry would therefore be moderate.

Effects of the Removal of FDI Barriers on U.S. Exports to India

U.S. exports to India from most sectors would not change much as a result of FDI liberalization (table 3.21). Most sectors would increase or decrease exports within a narrow band around zero, with two exceptions: the content and media sector, and the insurance services industry. U.S. exports of the content and media sector to India would decline markedly. Foreign companies already have a relatively large share of the content and media market in India, which means that their expansion within India due to the removal of FDI restrictions would encourage India to reduce its imports. Indian companies, including the foreign affiliates located in India, would instead become major exporters in that sector. The insurance industry has a moderate foreign presence and a high current level of restriction. This industry would also expand within India in the same way as the content and media sector, and produce the same effects, although to a lesser degree.

Table 3.21: Simulated effect of FDI liberalization on U.S. exports to India, 2014

Sector	Percent change
Agriculture and food	2.3
Natural resources	2.3
Chemicals and textiles	-1.3
Other manufacturing	2.6
Content and media	-32.5
ICT	1.0
Retail trade	3.8
Financial services	-1.6
Banking	1.5
Insurance	-14.2
Other services	1.6
All sectors	(+)

Source: USITC calculations.
Note: (+) indicates a small positive change of less than 0.05 percent.

Macroeconomic Effects of the Removal of FDI Barriers

The main U.S. beneficiaries of FDI liberalization would be companies with affiliates in India. Macroeconomic effects on the U.S. economy would be minimal. The liberalization would yield a small increase in U.S. welfare of $26.8 million (table 3.22). The liberalization would have almost no effect on U.S. employment.[183] The liberalization benefits to the United States would primarily accrue to U.S. companies in India rather than the U.S. economy. The model does not account for certain benefits that may accrue to the U.S. economy. For example, the model assumes that profits would stay in country and not be repatriated. Additionally, any positive linkages between activity of foreign affiliates and supporting activity in U.S. headquarters are not directly modeled. U.S. investment and affiliate sales are both expected to increase substantially, by 17.4 and 20.7 percent respectively. This expansion would not be part of U.S. welfare, because welfare is based on consumption in the United States and not on income flows abroad. U.S. employment and GDP would decline as a result of liberalization in India. As with welfare, the effects are small. The GDP decline would arise from the decline in demand for U.S. products, primarily driven by falling foreign demand for products from the U.S. content and media industry and an overall increase in U.S. imports.

U.S. economic engagement with India would increase with the removal of FDI barriers, although the primary gains would be made in affiliate activity. U.S. exports to India would expand by $363.2 million, and U.S. imports from India would expand by $783.0 million.

U.S. imports from India would expand as the improved productivity of companies in India would lead to more competitive exports by Indian companies, both domestic and foreign owned.

[183] The model estimates a decline of less than 200 jobs.

Table 3.22: Simulated effects of FDI liberalization by India, 2014

Economic measure	Percent change	Change (million dollars)
U.S. welfare	(+)	26.8
U.S. GDP	(–)	-64.3[a]
U.S. employment	(–)	(-)[b]
U.S. real wages	(–)	([c])
U.S. exports	(+)	622.7[d]
To India	0.9	363.2[d]
U.S. imports	(+)	167.9[d]
From India	1.1	783.0[d]
U.S. investment in India	17.4	3,691.5[e]
U.S. affiliate sales in India	20.7	21,875.7[f]

Source: USITC calculations. Where specified, changes in levels are based on percent changes from model results and base levels obtained from sources outside the model.
Note: (+) indicates a small positive change of less than 0.05 percent.
[a] The change in GDP level is based on 2014 GDP values by the IMF World Economic Outlook, April 2014 edition.
[b] Indicates a small negative change of less than 50,000 workers.
[c] Not applicable.
[d] The levels of exports and imports are based on data pulled from USITC/Dataweb (accessed September 25, 2014); BEA, U.S. Trade in Goods and Services by Selected Countries and Areas, table 7 (accessed October 3, 2014), and extrapolated to 2014.
[e] The level of foreign affiliate investment is based on BEA, U.S. Direct Investment Abroad, Annual Data: All Foreign Affiliates (accessed September 25, 2014).
[f] The level of foreign affiliate sales is based on BEA, U.S. Direct Investment Abroad, Annual Data: U.S. Direct Investment Position on a Historical Cost Basis (accessed September 25, 2014). Under this liberalization, the return to capital invested in U.S.-owned affiliates in India would expand by $3.3 billion.

Combined Simulation

The combined simulation calculates the effects of simultaneously eliminating tariff and investment restrictions and raising standards of IP protection to levels comparable to those of the United States and Western Europe. The effects of the individual simulations above do not sum exactly to the combined simulation due to interaction effects of the individual policy changes, although they are close. However, the individual results can help inform a discussion of the combined results.

Effects of a Combined Simulation on Exports

The policy liberalizations directly affect exports to India and foreign affiliates in India. As discussed in the model inputs section above, the magnitudes of the policy barriers can be large, and hence the simulated effects on exports and foreign affiliate sales can be similarly dramatic. Simulated increases in exports vary from 11.9 percent in the content and media sector to 103.0 percent in agriculture and food (table 3.23). The total change reflects the combination of the individual policy changes. For example, U.S. exports by the content and media sector would decline substantially in the face of FDI liberalization alone, but would increase as a result of the other policy changes, yielding a small overall increase. The agriculture and food sector would experience a consistently high response in each simulation and would be particularly affected by tariff removals.

Table 3.23: Simulated effect of combined liberalization on U.S. exports to India, 2014

Sector	Percent change
Agriculture and food	103.0
Natural resources	57.4
Chemicals and textiles	83.2
Other manufacturing	80.6
Content and media	11.9
ICT	58.3
Retail trade	63.9
Financial services	52.0
Other services	46.8
All sectors	66.4

Source: USITC calculations.

Effects of the Combined Simulation on U.S. Foreign Affiliate Sales

Sector-level effects for foreign affiliates would be high for all sectors (table 3.24). Most sectors' affiliate sales would increase by at least 100 percent, and some by more than 200 percent.

Table 3.24: Simulated effect of combined liberalization on sales by U.S.-owned affiliates in India, 2014

Sector	Percent change
Agriculture and food	133.9
Natural resources	108.4
Chemicals and textiles	178.9
Other manufacturing	141.0
Content and media	240.3
ICT	171.1
Retail trade	285.8
Financial services	254.6
Other services	80.9
All sectors	123.5

Source: USITC calculations.

These are very large changes, and reflect the strong policy transformation implied in assuming a complete liberalization of tariffs and FDI barriers and adoption of standards of IP protection to those comparable. The other manufacturing and natural resources sectors would expand the least among the sectors, as FDI barriers are already relatively low. Content and media, retail trade, and financial services would expand by the most, as both FDI and IP policy reform would produce large effects.

Macroeconomic Effects of a Combined Simulation

Under the simultaneous liberalization of these policies, U.S. welfare would rise by $4.9 billion, or less than 0.05 percent of the current U.S. welfare level (table 3.25). The relative price of exports and imports would move in a direction favorable to the United States.[184]

[184] The difference between the welfare effect and GDP effect is due primarily to favorable price movements for the United States as export prices increase relative to import prices.

U.S. welfare would also benefit from the improved allocation of resources, as foreign tariffs distort the optimal allocation of U.S. (and foreign) resources, and their removal would improve U.S. economic efficiency. There would be a similarly small positive effect on U.S. GDP, employment, and real wages, as U.S. production would expand to take advantage of the increased demand for U.S. exports. Employment would expand by approximately 10,000 full-time equivalent jobs.

Table 3.25: Simulated effects of removal of selected trade barriers by India, 2014

Economic measure	Percent change	Change (millions)
U.S. welfare	(+)	4,931.2
U.S. GDP	(+)	809.9[a]
U.S. employment	(+)	(+)[b]
U.S. real wages	(+)	([c])
U.S. exports	1.1	28,812.8[c]
To India	66.4	25,628.1[c]
U.S. imports	0.4	12,206.7[c]
From India	20.8	14,776.4[c]
U.S. investment in India	96.4	20,432.8[e]
U.S. affiliate sales in India	123.5	130,516.8[f]

Source: USITC calculations.

Note: (+) indicates a small positive percent less than 0.05 percent.

[a] The change in GDP level is based on 2014 GDP values by the IMF World Economic Outlook, April 2014 edition.

[b] Indicates small positive value of less than 50,000 workers.

[c] Not applicable.

[d] The levels of exports and imports are based on data pulled from USITC/Dataweb (accessed September 25, 2014), and BEA, U.S. Trade in Goods and Services by Selected Countries and Areas, table 7 (accessed October 3, 2014), and extrapolated to 2014.

[e] The level of foreign affiliate investment is based on BEA, U.S. Direct Investment Abroad, Annual Data: All Foreign Affiliates (accessed September 25, 2014).

[f] The level of foreign affiliate sales is based on BEA, U.S. Direct Investment Abroad, Annual Data: U.S. Direct Investment Position on a Historical Cost Basis (accessed September 25, 2014).increase. Under this liberalization, the return to capital invested in U.S.-owned affiliates in India would expand by $3.3 billion.

Neither the welfare nor the GDP effects take into account all the benefits that may accrue to the U.S. economy as a result of the increased activity by U.S. foreign affiliates abroad. Although the model estimates the increase in profits to U.S. affiliates abroad, it does not estimate the value of those profits that are likely to return to the United States.[185] U.S. investment would nearly double, increasing by $20.4 billion. U.S. affiliate sales in India would expand by 123.5 percent. The simulated increase in return to capital (i.e., profits) in India would also, coincidently, be $20.4 billion. The increase in return to capital abroad is not captured in U.S. welfare or GDP but is a benefit that accrues to U.S. companies operating in India.[186]

[185] International organizations such as the OECD are looking to improve databases on repatriated earnings. The development of these databases will make it possible to estimate the effects of policy on these flows.

[186] About one-quarter of total earnings from U.S. direct investment abroad returned to the United States in 2013. USDOC, BEA, Table 4.1, U.S. International Transactions in Primary Income, Dividends and Withdrawals and Reinvested Earnings from Direct Investment Income (accessed December 1, 2014).

The results of the individual policy simulations are presented in table 3.26. Although the sum of the individual policy simulation results does not exactly equal the combined simulation due to interaction effects among the policies, placing them side by side provides an indication of the source of changes to the combined simulation results.

Table 3.26: Individual policy simulations, 2014, percent change

Economic measure	Tariffs	IP	FDI
U.S. welfare	(+)	(+)	(+)
U.S. GDP	(+)	(+)	(–)
U.S. employment	(+)	(+)	(–)
U.S. real wages	(+)	(+)	(–)
U.S. exports	0.1	1.0	(+)
To India	7.6	55.5	0.9
U.S. imports	0.1	0.3	(+)
From India	17.7	-1.0	1.1
U.S. investment in India	1.4	68.1	17.4
U.S. affiliate sales in India	1.8	84.5	20.7

Source: USITC calculations.
Note: (+) and (-) indicate a small positive or negative change of less than 0.05 percent.

Table 3.26 shows that the IP protection simulation is by far the largest component of the combined results.[187] Trade would expand, both with India and globally. Exports to India would expand by a substantial 66.4 percent. Changes in IP policies are the main driver of the increase in U.S. exports to India, with some of the effects arising from the tariff liberalization. U.S. imports from India would expand less than exports, driven largely by tariff liberalization. Global exports by the United States would increase by 1.1 percent, while total U.S. imports would increase by 0.4 percent.

The simulated increases in exports due to IP policy changes are larger than the simulated effects of tariff or FDI liberalization in most sectors. IP policy changes would affect services, while tariffs would not. Reductions in tariffs would drive the increase in U.S. imports from India. When tariffs are removed, cheaper imported intermediate inputs in India would lead to more competitive pricing of their outputs, which in turn would lead to higher exports by India to its trading partners, including the United States. Other policy changes would not produce the same substantial change to Indian output prices. Changes to IP and FDI policies would jointly drive the increase in U.S. foreign affiliate sales—again, with much of the effect stemming from IP policy changes.

[187] Although the IP results are the largest, there is no implied assessment as to which liberalization is the easiest to accomplish.

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Chapter 4
Tariffs and Customs Procedures

Introduction

India has liberalized its tariff and customs regime considerably since the early 2000s, but barriers that hinder U.S. exports remain in a number of areas. The U.S. Trade Representative has observed that the Indian tariff system is particularly complex and opaque.[188] Moreover, duties are relatively high in a global context, especially on imports that may compete with Indian products.[189] This chapter focuses on survey data and qualitative information about the effects of Indian tariffs and customs procedures.[190] In the Commission survey, close to one-fifth of U.S. exporters to India in surveyed industries were substantially affected by Indian tariffs. A lower share (15.7 percent) of U.S. exporters were substantially affected by issues with Indian customs variability. Some Indian customs procedures have improved recently, with simplified documentation, examination, and assessment requirements. Table 4.1 describes the major Indian policies addressed in this chapter and the U.S. industries that are most affected.

Table 4.1: Indian tariff and customs policies and the U.S. industries most affected

Policy	Description of the barrier	U.S. industries most affected
High tariffs	Tariff rates often exceed averages in other developing countries; in addition, India imposes several additional duties on top of the base rate.	Most agriculture industries; wine and spirits; automotive; textiles
Tariff fluctuations or variability	India uses the flexibility built into its tariff system to adjust duty rates in response to market conditions or policy priorities.	Edible oils; wheat; automotive
Customs administration	Customs delays at the border, problems with valuation procedures (especially pertaining to related party shipments and royalties), and uneven implementation of India's electronic document filing system.	All goods exporters: Particularly affected are IP-intensive industries and others in which royalty payments are common; companies that send intra-firm shipments from another location to India; and logistics providers

Source: Commission compilation.

Indian tariff rates are higher than those in most developing economies. The World Economic Forum's *Global Competitiveness Report 2013* ranks India 128th out of 148 countries on the global index of trade tariffs (with the lowest rankings representing the highest trade-weighted

[188] USTR, "India," 2013.
[189] Franceshin and Misuraca, *India Commercial Law, Customs and Tax Law,* 2011, 112.
[190] To help examine the impact of India's tariffs on the United States, Chapter 3 presents related estimates of how U.S. trade, investment, and the broader U.S. economy would be affected by a complete removal of tariffs in India.

average tariff rates).[191] Among BRICS countries (Brazil, Russia, India, China, and South Africa), India is the lowest-ranking in the report, just behind Brazil (126th) and China (123rd), with Russia ranking 103rd and South Africa 74th. Comparing countries with similar GDP per capita (under $2,000 per year), India ranked second lowest, ahead of Pakistan (142nd) but behind such countries as Laos (95th), Nicaragua (51st), Nigeria (124th), and Vietnam (92nd).[192]

While India's current applied tariffs remain relatively high when compared with those in other countries, they are low when compared with the tariffs India has historically levied. As noted earlier, India rapidly reduced its tariff rates on most products during the 1990s, and has continued its liberalization in recent years (figure 4.1). For example, in 2003, India's trade-weighted average applied tariff rate for all goods was about 23 percent; by 2011, it was less than 8 percent.[193] This rapid liberalization of tariffs contributed to a sevenfold increase in India's imports during the 2000s.[194] At the Commission hearing, Arvind Subramanian, who was subsequently named chief economic minister to the Indian finance ministry under the new Modi government, remarked that India has become a "strikingly open trader" for an economy of its size, pointing out that its manufacturing tariffs are nearly on par with OECD norms.[195]

Despite this increasing openness to imports, U.S. exporters to India report areas of concern with the Indian tariff regime. First, tariffs in some sectors (particularly in agriculture) remain quite high. For instance, while the average trade-weighted applied tariff for all goods imported into India in 2011 was less than 8 percent, the comparable figure for agricultural goods was 48 percent.[196] In addition, for many products, Indian bound tariff rates (tariff limits to which a country has legally committed in the WTO) are substantially higher than applied rates. India makes use of the flexibility this affords by modifying rates in response to market conditions, adding uncertainty for U.S. exporters. Also, base tariff rates do not give a complete picture of the duties assessed because India applies at least two additional duties on most imports, as detailed below. Finally, the Commission survey revealed that U.S. exporters to India did not

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[191] World Economic Forum, *Global Competitiveness Report*, 2013.

[192] One of the ways countries reduce tariffs is through participation in the World Trade Organization (WTO). India, like Brazil, South Africa, Pakistan, Nicaragua, and Nigeria, is an original member of the WTO (which was formed in 1995), and had participated in its predecessor group, the General Agreement on Tariffs and Trade. China, Vietnam, and Russia have joined the WTO more recently, and because joining often requires tariff reductions, these countries may have reduced their tariffs more recently.

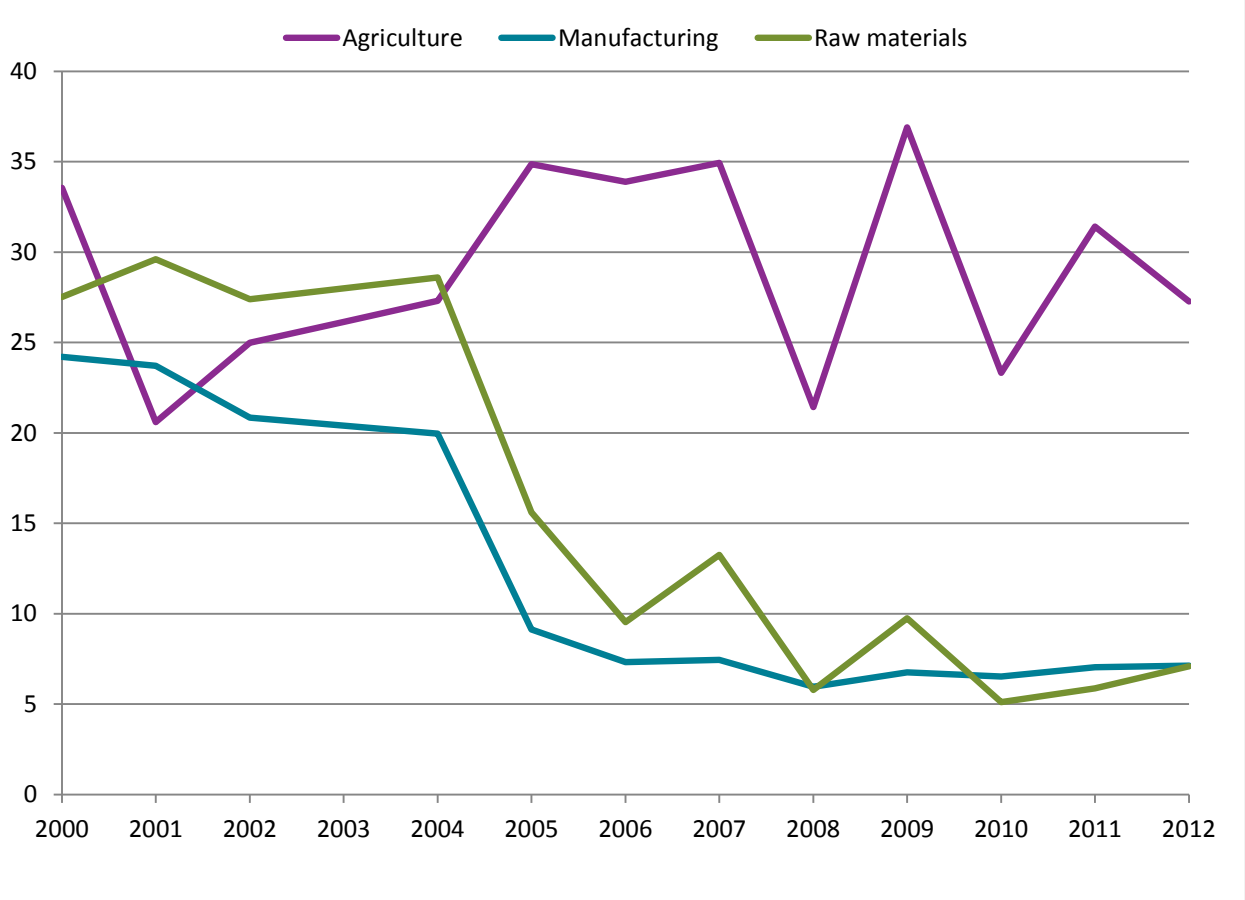
[193] See chapter 2. Trade-weighted average tariff rates are applied tariff rates adjusted to account for product import volumes. For example, imagine two products, one of which faces a 50 percent import duty while the second faces a 100 percent import duty. If the first product is imported in much greater quantities than the second, a trade-weighted average tariff rate for the two products will be closer to 50 percent than would a simple average of the two rates, which would be 75 percent. Trade-weighted averages are a useful measure of tariff restrictiveness, but they may understate the effects of duties in cases where rates are so high that they deter trade.

[194] See chapter 2.

[195] Arvind Subramanian, testimony before the USITC, February 12, 2014.

[196] WTO, "India," *Tariff Profiles*, 2012.

Figure 4.1: MFN tariffs applied to Indian imports of U.S. goods by sector, 2000–2012, trade-weighted average, percent



Source: World Trade Organization Integrated Database (tariff and trade data for 2000–2001, 2006, 2008-2011; tariff data for 2002 and 2012), Trade Analysis and Information System (tariff and trade data for 2004–2005 and 2007), and United Nations Commodity Trade Database (trade data for 2002 and 2013). Data accessed from WITS on various dates.
Note: Because of missing tariff information and the use of non-ad valorem tariffs on certain imports at the six-digit level, approximately $2.0 billion in imports of U.S. goods (or 1.4 percent of total imports of U.S. goods from 2000–2012, excluding 2003) has not been included in the total import value for the period 2000–2012 ($142.2 billion). Not all data are available in all years. The 2003 average tariff is the simple average of the 2002 and 2004 values. The 2012 average is based on tariff data for 2012 and trade data for 2013.
Note: See appendix Table I.17 for underlying data for this figure.

perceive Indian tariff barriers to be improving between 2007 and 2013; in fact, in some cases they perceived the effects of tariffs as worsening over this period.

Table 4.2 provides information from the Commission survey on the share of U.S. exporters affected by problems with tariffs and customs administration in India. As noted in chapter 1, the surveyed industries account for just over one-third of all U.S. industries. The Commission included industries in the nine industrial sectors most likely to be affected by Indian policies. Unless noted otherwise, references to "U.S. companies" below should be interpreted as including only companies in surveyed industries.

Table 4.2: Effects of tariffs and customs barriers on U.S. exporters to India, by measure, 2007–13

	Share of companies (%)		Mean effect[a]		
Policy issue	Facing the issue[b]	Substantially affected[c]	2007	2010	2013
High duties	23.0	19.7	2.8	3.0	3.5
Nontransparent or variable tariffs or taxes	13.3	10.7	2.6	2.8	3.3
Customs administration problems	19.5	15.3	2.4	2.7	3.2

Source: USITC calculations of weighted responses to the Commission questionnaire (question 3.3).

[a] On a scale from 0 (did not face the barrier) to 5 (prohibitive effect on activities).

[b] Share of companies reporting an effect of 1 (faced the policy but it had no effect on activities) to 5 (prohibitive effect) in 2007, 2010, or 2013.

[c] Share of companies reporting an effect of 3–5, indicating the policy had a moderate, severe, or prohibitive effect on activities in 2007, 2010, or 2013.

For each measure examined in the Commission's survey, the mean effect increased between 2007 and 2013. As described in more detail below, the increase in the negative effect is less pronounced when only U.S. exporters active during the entire period are included, suggesting that companies new to exporting to India may face tariff- and customs-related challenges when entering the market.

Although it is not reflected in the survey results, some of India's customs procedures have improved in recent years, with simplified documentation, examination, and assessment requirements. The most important step has been the introduction of semiautomated electronic documentation and procedures.[197] India earns an average rating for its size and income level on most international indicators of customs efficiency and trade facilitation. The problem areas raised by U.S. exporters relate to customs valuation rules for intra-firm shipments, incomplete implementation of the electronic data interchange, time to clear customs, and infrastructure challenges. After considering India's rankings in international measures of customs efficiency and describing recent customs policy changes, the chapter will summarize the results from the Commission survey on the severity of customs problems facing U.S. exporters.

Tariffs

The Indian government relies on import duties to fund the state much more heavily than do other BRICS countries or most lower-middle-income countries. In 2011, India's customs and other import duties[198] as a percentage of its total tax revenue were 17.1 percent. Among lower-middle income countries, only the Philippines and a handful of West African and small island nations rely more heavily on import duties than India. Among the more developed BRICS, by

[197] Indian Institute of Foreign Trade, "Trade Facilitation Gap Analysis," March 16, 2012.

[198] Other import duties include the additional customs duty and special additional duty described later in the chapter. These duties are collected by customs and listed in the Indian tariff schedule. They are designed to collect the equivalent of certain taxes imposed on domestically produced goods.

contrast, duties comprise 4.1 percent of tax revenue in Brazil, 9.4 percent in Russia, 5.1 percent in China, and 4.4 percent in South Africa.[199]

Because the Indian government relies more heavily on import duties to fund its initiatives, any significant liberalization in tariff policy is likely to require other sources of revenue to offset lost tariff revenue. India has had a persistent budget deficit, ranging between 5 and 10 percent of GDP, for most of the past decade.[200] The Indian government's attempts to balance these revenue considerations with its international commitments to tariff liberalization, along with its desire to protect certain sensitive domestic industries, has resulted in the relatively complex tariff system currently in place.

India's Complex and Changing Tariff Schedule

Although India's tariff structure has been simplified in the last decade, its tariff regime changes frequently, with changes in applied tariff rates announced both in annual budgets and in multiple amending notifications throughout the year. In addition to the frequent changes in rates, one reason that India's tariff structure remains particularly complex is the use of multiple duty-exemption programs (including a number of different import-duty refund programs for exporters). The exemption programs are frequently amended and subject to varying interpretations.[201]

Tariff rate changes and changes to exemption programs frequently appear via announcements in the *Gazette of India* (a publication similar to the U.S. *Federal Register*).[202] In the course of a year, the Indian government issues about 150 amending notifications to its tariffs.[203] While the number of notifications may not be much different from that in other countries,[204] the type of amendments India routinely makes reportedly adds complexity to the tariff regime, because many of them modify both the applied rate and the list of products qualifying for the tariff-exemption programs mentioned previously.[205] This makes it more difficult for exporters to track the current rate in effect for their product, and contributes to uncertainty in the total tariff rates for many products.

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[199] World Bank, Customs and Other Import Duties Online Database (accessed September 10, 2014).
[200] IMF, World Economic Outlook, "General government net lending/borrowing 2000–2013" (accessed July 24, 2014).
[201] USTR, "India," 2012; KPMG, "Adding Value to Your Trade," 2011.
[202] Bhandari et al., *Unleashing the Market in the India-U.S. Economic Relationship*, 2013; USTR, "India," 2012.
[203] Government of India, Ministry of Finance, Customs Tariff Database (accessed January 23, 2014).
[204] The United States issued approximately 77 modifications to its tariff schedule in 2013. Unlike in India, however, most U.S. tariff modifications concerned the addition of new statistical reporting numbers for products or the expiration of tariff preference programs for certain countries, rather than tariff-rate modifications on a product-specific basis. USITC, "Change Record—25th Edition, Revision 1," 2013.
[205] USTR, "India," 2014.

India has made some efforts to improve transparency and to simplify its tariff schedule, although progress on this has slowed in recent years. During the 1990s, India greatly reduced the variation in its applied tariff rates and, for a time, worked towards setting all tariff rates at one of just four levels.[206] This effort did not persist, as tariff rates in 2014 had many more than four tariff levels.[207] UNCTAD and WTO's *World Tariff Profiles*, first published in 2006 and most recently in 2012, offers a measure of comparison for recent years through its measure of "distinct applied rates." This figure is the number of different rates a country applies (for a country that only applies rates of either 0 or 5 percent, for example, the number of distinct applied rates would be two). In 2006, India had 747 distinct applied duty rates, and 356 distinct bound rates. In 2012, there were 387 distinct applied rates and 358 distinct bound rates.

The coefficient of variation,[208] however—which measures how much tariff rates differ from the average rate—stayed about the same between the two years, suggesting that the reduction in the number of applied rates did little to simplify the Indian tariff schedule. India adjusts its applied rates frequently, so it is not surprising that the number of applied rates varied substantially between 2006 and 2012. For this reason, it is difficult to determine whether the lower number of distinct rates in 2012 is the result of an effort toward simplification or just typical variation stemming from periodic changes in the applied rates, but it is noteworthy that cutting the number of applied rates almost in half did not reduce the level of variation in the Indian tariff schedule, as measured by the coefficient of variation. The number of distinct applied rates in India is higher than that of most countries (although the U.S. number is particularly high, at 1,113), but India's coefficient of variation seems to lie roughly in the middle among all countries.[209]

Because changes in applied rates and duty exemptions can be difficult for importers to track, India has made some efforts to improve transparency. In July 2009, the Indian government initiated the fee-based Customs Tariff Database Online to simplify the calculation of tariff rates for importers.[210] The goal is for the database to eventually replace what India calls the "jumbo notification," which is a book published each year (in hard copy only) with current tariff rates and exemptions. In an effort not seen in many countries, the new online database also includes relevant NTMs for products, not just tariffs.[211]

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[206] Bhala, "First Generation Indian External Sector Reforms," 2013.
[207] Goyal, *BIG's Easy Reference Customs Tariff* 2014, 2014.
[208] Defined as the standard deviation of tariff rates divided by the simple average tariff rate.
[209] WTO and UNCTAD, *World Tariff Profiles*, 2006; WTO and UNCTAD, *World Tariff Profiles*, 2012.
[210] *Times of India*, "Online Customs Tariff Database Introduced," July 22, 2009.
[211] Government of India, Ministry of Finance, Customs Tariff Database Online (accessed September 2, 2014). A one-year subscription to the database costs about $750, although one-time access can be as low as $10.

Nonetheless, Indian tariff rates remain unpredictable for many exporters. Contributing to this uncertainty is India's unusually high share of unbound rates, which allows authorities to set and change some tariff rates in response to market conditions or domestic concerns without violating international commitments. Only 73.8 percent of India's tariff lines are bound, compared with 100 percent in Brazil, China, Russia, the United States, and Vietnam, and 99 percent in Pakistan.[212] Among the goods with unbound rates in India are a number of natural resource and chemical products, as well as most motor vehicles.

Finally, not only can Indian authorities change unbound tariffs at any time, but the wide disparities between bound rates and MFN applied rates for a number of India's tariffs results in greater uncertainty for exporters, who might suddenly face much higher tariffs than they anticipated. India's bound tariffs averaged 48.6 percent (simple average), whereas its MFN applied rates averaged 13.2 percent (simple average) in 2012. India's average gap between bound and applied MFN rates in 2012 (35.4 percent) is the highest gap among the BRICS countries (table 4.3). Compared with lower-middle-income countries, India's gap is much larger than Vietnam's, and slightly lower than Pakistan's. The implications of this gap between bound and applied rates are addressed in further detail in the agriculture section below.

Table 4.3: Applied MFN rates and bound rates comparison for BRICS countries and selected lower-middle-income countries, 2012, percent

Type	India	Brazil	Russia	China	South Africa	Pakistan	Vietnam
Simple MFN average applied rate	13.2	13.5	10.0	9.6	7.6	13.9	9.8
Simple average bound rate	48.6	31.4	7.8	10.0	19.0	59.9	11.5
Maximum MFN applied rate	315	55	292	65	>1,000	100	135
Maximum bound rate	300	55	292	65	597	200	400

Source: WTO and UNCTAD, *World Tariff Profiles*, 2013.

U.S. Sectors Affected

The U.S. sector most likely to be affected by India's tariff rates is the agricultural sector. Although India's tariff rates on agricultural products have declined over time, they remain among the highest in the world. By contrast, manufactured goods tariffs are relatively low, and India applies particularly low tariffs on a number of products which the U.S. exports extensively, including: aerospace and defense equipment, precious stones, and medical devices and equipment. However, some U.S. manufacturing industries continue to face high import duties in India, including the textile and automotive industries.

[212] Government of Japan, METI, *Report on Compliance by Major Trading Trade Partners*, 2010.

Agriculture

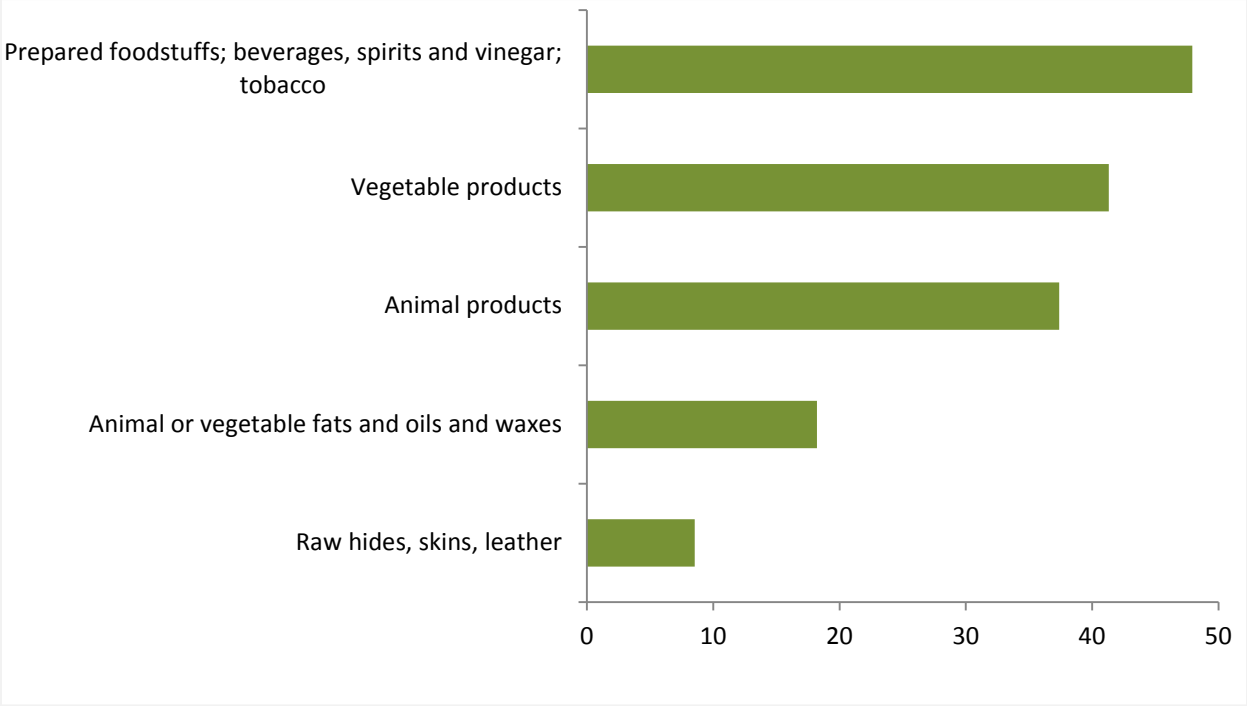
As in many countries, agriculture is an important sector politically in India. The Indian agricultural sector contributes less than 18 percent of India's domestic GDP, but employs more than 60 percent of India's population.[213] India uses a wide variety of policies, including tariffs, NTMs, and subsidies, in an effort to support domestic farmers and achieve self-sufficiency in food production—a major policy focus.[214] India is the world's largest producer of pulses, milk, major spices, jute, millet, and castor seed oil, and is the second-largest producer of wheat, rice, groundnuts (peanuts), fruits, vegetables, sugarcane, and cotton.[215] These domestically important sectors are particularly likely to receive some protection against imports, via either tariffs or NTMs (described in chapter 8). Because India produces many commodities in abundance, imports account for only three percent of agricultural market demand and are concentrated in products India does not produce in high enough quantities to satisfy the domestic market, such as edible oils and nuts.[216]

Historically, India has imposed high tariffs on most agricultural products, although these tariff rates, as noted in chapter 2, have generally been declining over time. India's simple average applied MFN tariff for agricultural products, which was 37.6 percent ad valorem in 2006, declined to 33.5 percent in 2012, albeit with increases in certain years during the period.[217] Trade-weighted average applied tariffs for agricultural products in recent years have typically ranged between 40 and 50 percent (figure 4.2). Among the highest applied agricultural tariff rates are those on imports of raisins (105 percent), coffee and teas (100 percent), durum wheat (100 percent), cane and beet sugar (100 percent), beer (100 percent), and wine and spirits (150 percent).[218]

India's bound tariff rates on agricultural imports range from 100 percent to 300 percent ad valorem, and are among the highest globally.[219] The average bound rate for agricultural products was 113.1 percent in 2012. Although India has unilaterally reduced its applied tariff rates, it retains the discretion to adjust tariffs up to its maximum bound rates in response to import surges or volatility in international food prices.[220] The highest disparities between bound

[213] Jha, "India's Economy: Growing Rapidly and Unequally," April 28, 2011.
[214] USITC, *India*, 2009, 2-1. Agricultural subsidies as set forth by the Indian government are noted in Government of India, *Twelfth Five Year Plan*, 2013.
[215] Arora, "Agricultural Policies in India: Retrospect and Prospect," 2013, 135–57.
[216] USITC, *India*, 2009, 2-1.
[217] WTO, "India," 2012.
[218] Goyal, *BIG's Easy Reference Customs Tariff 2014*, 2014.
[219] Alessandri et al., "Tariff Liberalization and Trade Specialization in India," 2009.
[220] Arora, "Agricultural Policies in India: Retrospect and Prospect," 2013, 135–57.

Figure 4.2: Trade-weighted average applied tariffs for agricultural products, 2011, percent



Source: USITC calculations based on WTO Integrated Database (accessed from WITS on January 22, 2014). Trade and tariff year: 2011.
Note: Trade-weighted averages. Excludes $421.2 million of imports with specific or missing tariffs, chiefly affecting $262.2 million of almond imports in section 2 (vegetable products).

rates and MFN applied rates occur for the following agricultural imports: oilseeds, fats, and oils (127.8 percent), cotton (104 percent), sugars and confectionery (88.8 percent), cereals and preparations (84.4 percent), other agricultural products (83.2 percent), and coffee and teas (76.8 percent).

India regularly raises tariff rates on agricultural imports when domestic production exceeds domestic demand. The Indian government's goal in adjusting tariffs appears to be to "balance competing interests of producers and consumers by adjusting rates in reaction to market conditions."[221] Typically, the Indian government lowers tariff rates when domestic prices are rising and domestic production fails to meet domestic demand, raising them when there are low international prices and surplus domestic production.[222] For example, the Commission study on agricultural trade with India documented instances in which the tariffs on wheat, rice, pulses, and vegetable oils fluctuated between zero and 90 percent ad valorem in response to market conditions, generally over a period of one to four years. Agricultural exporters have

[221] USITC, *India*, 2009, 5-7.
[222] Ibid.

remarked that the resulting uncertainty makes business planning and negotiation more difficult.[223]

Although the United States is a competitive global exporter of a number of agricultural products, such as wheat, corn, soybeans, and meat,[224] few of these exports go to India, in part due to Indian tariff levels. Other factors also limit exports of some of the United States' main agricultural products, such as the restrictions on genetically modified organisms (GMOs) discussed in chapter 8, and cultural and religious preferences that limit demand for meat. Tariffs, however, do depress the export levels of some products. For example, as noted above, the Indian tariff on edible oil (including soybean oil) fluctuates in response to market conditions. In years when India imposes high duties, U.S. exports tend to be much smaller than in the years when duties are low or zero. But because other factors influence which countries can supply the Indian market most competitively when duties are low, U.S. exports of soybean oil vary in years when India imposes low or no duties.[225] For instance, the United States exported relatively little soybean oil to India in 2007, when the duty was 45 percent, or in 2008, when the duty was eliminated and then put in place again a few months later. From 2010 to 2012, when duties were zero, U.S. exports fluctuated according to market conditions.

In a few U.S. agricultural industries, Indian duties do not seem to have a major effect on U.S. exporters' ability to compete in the market. The most notable example is almonds, which accounted for about 41.2 percent of all U.S. agricultural exports to India in 2013.[226] In turn, U.S. exports supply about 85 percent of India's almond market.[227] In-shell almond imports face a specific tariff of Rs 35/kg ($0.58/kg), which is equivalent to an ad valorem rate[228] of around 20 percent.[229] Still, the U.S. almond industry would ideally like to see the tariff lowered further. The industry asserts that when the 4 percent special additional duty (described later) is added to the base duty, India charges a rate that exceeds its bound rate.[230]

Manufacturing

India has largely continued tariff reductions on manufactured goods imports in the last ten years, with nonagricultural tariffs averaging 10.4 percent ad valorem in 2012 on a simple

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[223] USITC, *India*, 2009, 5-6.
[224] USITC, *India*, 2009, 5-9.
[225] Despite its ban on most genetically modified food, India has approved imports of soybean oil made from genetically modified soybeans. See chapter 8 for more information.
[226] USITC/DataWeb/USDOC (accessed September 3, 2014).
[227] Aradhey, *India: Tree Nuts Annual* 2013, 2013.
[228] Ad valorem rates are the most frequently used type of tariff rate. Ad valorem duties are assessed as a percentage of the imported item's value.
[229] USITC, *India*, 2009, 2-8.
[230] Statement of Blue Diamond Growers before the U.S. House of Representatives Committee on Ways and Means, Subcommittee on Trade, March 13, 2013.

average basis (6.1 percent on a trade-weighted basis; figure 4.1).[231] This is up somewhat from 8.6 percent (simple average) in 2008, but down substantially from 28.7 percent in 2004.[232] These rates are on par with those of other large developing countries: Brazil's simple average manufactured goods tariff rate is 14.4 percent, followed by China (7.9 percent), South Africa (7.5 percent), and Russia (7.1 percent).[233]

In the last decade, India has increasingly focused on developing specialized, higher-value-added manufacturing through its National Manufacturing Policy.[234] With a few exceptions, this focus has not generally resulted in higher applied import tariffs on manufactured goods. Rather than impose higher applied tariffs to manufactured imports that compete with products that are domestically sensitive or important to its manufacturing strategy, India often influences the quantity of these imports using other policy tools such as NTMs,[235] trade remedy cases, and exemptions from additional duties on imported inputs that are important to domestic manufacturers. An analysis of Indian trade barriers following India's major tariff liberalization in the 1990s found that while tariffs were reduced evenly across most manufacturing sectors, NTMs were reduced more for basic, intermediate, and capital goods than for finished and consumer goods, resulting in greater productivity gains for the industries in which NTMs were reduced more.[236] Another analysis found that India's tariff liberalization was partly reversed by a heavier use of antidumping and countervailing duties to protect import-sensitive sectors.[237] Exemptions from additional duties, which are often granted for domestically important inputs, are addressed in the "additional duties" section.

India keeps tariffs particularly low in certain industries where it relies heavily on imports to add value to the product before it is domestically consumed or subsequently exported to other markets. For example, India is one of the largest importers of gemstones, rough diamonds, and precious metals in the world, and most of these imports are used to manufacture products in India for both domestic and export markets. Given the limited availability and production of these raw materials in India, tariffs on them range from zero (precious stones) to 10 percent (gold). In 2013, U.S. exports of diamonds to India totaled over $3.8 billion, making India the second-largest export destination for U.S. diamonds, while U.S. exports of other precious stones to India totaled $34 million. Similarly, India is also one of the largest consumers of gold,

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[231] WTO, "India," *Tariff Profiles*, 2012.
[232] WITS, applied simple mean tariff, manufactured products percentage, 2013. Data for 2003 (the first year of the study period) are not available.
[233] WITS, applied simple mean tariff, manufactured products percentage, 2013.
[234] Government of India, Ministry of Commerce and Industry, Department of Industrial Policy and Promotion, "National Manufacturing Policy 2011," Press Note No. 2 (2011 Series).
[235] NTMs are discussed in more detail in chapter 8.
[236] Khandelwal and Topalova, "Trade Liberalization and Firm Productivity," August 2011, 1005.
[237] Bown and Tovar, "Trade Liberalization, Antidumping, and Safeguards," 2011.

accounting for more than 20 percent of world gold consumption.[238] In 2013, U.S. exports of gold to India totaled $1.5 billion, and India was the fifth-largest export destination for U.S. gold.

The defense and aerospace industry is another industry where Indian tariffs are relatively low, a situation that may benefit U.S. exports of defense-related equipment.[239] Imports of aircraft and parts by the Ministry of Defense are exempt from duties, and imports by the private sector may qualify for a duty exemption under certain conditions.[240] Government policies help spur demand for these products. India's Ministry of Defense increased its budget for aircraft equipment in 2012. The Indian government also supports several aircraft development programs, for both civil and military aircraft, which drive demand for imported components.

Duties are also low on most medical devices and equipment, a sector in which imports supply approximately 75 percent of the Indian market.[241] One of India's key challenges in this sector is that it has not been able to develop a strong manufacturing base for medical technology because of high startup investment costs and capital requirements, and because of a policy structure that favors imports. The Indian government does not provide incentives for domestic manufacturing of these products, and imports of inputs into some medical devices face duties that are higher than those on the finished goods, making the cost of domestic production uncompetitive with imports. For these reasons, even though demand for medical technology in India is rising rapidly, the growth of the Indian industry has been slow.[242] All these conditions create demand for imports of U.S. medical devices and equipment.

Despite relatively low overall tariff levels for manufactured goods, a few sectors are protected by higher rates. For instance, India has historically protected its domestic textile and apparel industry, which accounts for over 20 percent of industrial production and is the single largest employer in the industrial sector. India grows cotton and competes globally in the production of cotton yarn, fabric, and apparel. In order to protect its textile and apparel industries, tariffs in the cotton sector exhibit an escalating pattern, with imports of raw cotton subject to lower duties than more processed products. Because India's domestic cotton harvest is not large enough to meet demand, cotton to supply the downstream industries is a key U.S. agricultural export to India. Raw cotton is subject to a basic duty of 10 percent, and is exempt from additional customs duty and special additional duty. Cotton yarns and fabrics generally are subject to a basic rate of duty and to an additional customs duty, but are exempt from a special

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[238] *Dun and Bradstreet India*, "India Gem and Jewellery Sector: India's Foreign Trade" (accessed on September 5, 2014).
[239] Additional policy considerations affecting U.S. defense and aerospace companies' participation in the Indian market are presented in chapter 7.
[240] PwC, *Indian Aviation*, February 2013.
[241] Torsekar, "India's Medical Device Sector," June 2010.
[242] Deloitte and CII, "Medical Technology Industry in India: Riding the Growth Curve," 2010.

additional duty (these duties are described in the next section). Cotton apparel generally is subject to all three duties, and base tariff rates are often high.[243]

India levies specific rates of duty on many textile and apparel products, imposing duties by the square meter, kilogram, or piece. In instances where an import is subject to either ad valorem or specific duties, Indian customs officials charge whichever calculation results in a higher duty (usually the specific rate).[244] While the ad valorem rate is usually 10 percent, the ad valorem equivalent for specific rates can be as high as 300 percent.[245]

Another exception to the general trend of low tariffs in manufacturing is the very high tariff on direct imports of completely built motor vehicles.[246] This tariff has increased in recent years for vehicles over a certain dollar value or a certain size, from 60 percent in 2012 to 75 percent in 2013 and 100 percent in 2014.[247] The rate for smaller and less expensive vehicles is generally 60 percent. When additional duties are included, the total effective duty rate ranges from 119.7 percent to 181.4 percent.[248] The Society of Indian Automobile Manufacturers (SIAM) and the Automotive Component Manufacturers Association endorsed a policy of high tariffs in 2013 on completely assembled vehicles in order to increase local investment, value-added manufacturing, and employment in the Indian domestic automobile sector.[249] This is in line with India's Automotive Mission Plan (AMP) 2006–16. A collaborative effort between the Indian government and the automotive industry, the AMP aimed at establishing the country as a leading center for the design and manufacture of automobiles. The AMP states that high tariffs on automobiles may "restrict the flow of trade but may attract investment if the domestic market is big enough and growing."[250] U.S. automotive companies have been invested in manufacturing motor vehicles in India for a number of years, with some facilities wholly owned by the U.S. parent and others operating as joint ventures with Indian partners.

Additional Duties Compounded on Base Rates

Up to this point, this chapter has mostly described the Indian tariff system using only its base tariff rates, but most exports to India face several other taxes at the border. India's import duty system comprises the base customs duty (the applied duty rates), the additional customs duty

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[243] Goyal, *BIG's Easy Reference Customs Tariff* 2014, 2014.
[244] USDOC, ITA, "Market Reports/Tariffs: Textiles, Apparel, Footwear and Travel Goods," December 11, 2012.
[245] USTR, "India," 2014.
[246] Alessandri et al., "Tariff Liberalization and Trade Specialization in India," November 2009.
[247] NexusNovus, "Opportunities in India's Automobile Sector," 2013. The dollar value for the higher tariff rate is $40,000, and the size is over 3000 cc in engine capacity.
[248] Goyal, *BIG's Easy Reference Customs Tariff* 2014, 2014.
[249] SIAM and the Automotive Component Manufacturers Association of India (ACMA) are two apex bodies appointed by the Government of India to work for the development of the automobile industry in India.
[250] Government of India, Ministry of Heavy Industries and Public Enterprises, "Draft Automotive Mission Plan," September 2006.

(ACD), and the special additional duty (SAD), all of which are published in its tariff schedule.[251] These additional duties are designed to be equivalent to certain domestic taxes, but U.S. exporters report that they are sometimes applied in ways that result in higher charges on imports, as described below. India also imposes a surcharge to fund education initiatives that it calls the educational cess. These duties are collected by customs authorities once goods have cleared customs.[252]

The ACD and SAD were introduced in 1975. The ACD is designed to collect the equivalent of the central excise tax imposed on domestically manufactured goods, while the SAD is intended to collect the equivalent of certain state-level taxes imposed on domestic transactions. The ACD is imposed at the same rate as the central excise tax rate on domestically produced goods sharing the same tariff classification. Because the excise tax only applies to manufactured goods, the ACD generally does not apply to imports of primary agricultural products. For manufactured goods, there is a list of ACD exemptions and reductions, a number of which are for inputs in industries in which India is competitive. For example, "goods used within the factory of production for the manufacture of drugs or medicines" are exempt from the ACD, as are certain inputs for textile and apparel manufacturing and metalworking.[253]

The SAD is set at a flat rate of 4 percent and applies to most goods, with only a few exemptions. Starting in 2007, faced with a potential WTO challenge involving the SAD, the Indian government allowed importers to apply for a refund of the SAD paid on imports subsequently sold within India and for which the importer has paid all applicable sales and value-added taxes.[254]

In 2004, the government introduced special surcharges to fund education initiatives.[255] The education cess is an additional 2 percent tax on the sum of the base duty and ACD; the secondary and higher education cess is an additional 1 percent on the same value. India seems to consider the education cess as a part of its total import tariff that would be subject to its bound rate commitments in the WTO—the main exemption from the education cess is for goods that are imported at the WTO bound rate, in acknowledgement that adding the education cess would raise the total import duty above the bound rate.[256]

One distinguishing aspect of the Indian tariff system is that the different duties are compounded on one another. After the base customs duty is assessed on the value of the

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[251] Goyal, *BIG's Easy Reference Customs Tariff* 2014, 2014.
[252] Government of Japan. METI. *Report on Compliance by Major Trading Trade Partners*, 2010.
[253] Goyal, *BIG's Easy Reference Customs Tariff* 2014, 2014.
[254] Goyal, *BIG's Easy Reference Customs Tariff* 2014, 2014, 101–2.
[255] Dezan Shira and Associates. "Trading with India," August/September 2013.
[256] The education cess is also charged on certain domestic income and service taxes. Goyal, *BIG's Easy Reference Customs Tariff* 2014, 2014.

goods, the ACD is assessed on the sum of the value of the goods plus the basic customs duty. Similarly, the special additional duty is typically 4 percent of the sum of the value of the goods, the base customs duty, and the ACD. As noted above, the educational cess is charged on the value of the customs duty and additional duty (but not on the value of the item itself, and not on the SAD). Exporters have asserted that this snowballing calculation method can result in effective duty rates that exceed India's bound rates in the WTO (as described in the case study at the end of the tariff section).[257] As shown in table 4.4, the additional duties can add significantly to the total cost of importing, even for a good with relatively modest tariff rates. The example product shown has a base tariff rate of 10 percent, but once all duties are factored in, the total rate rises to 29 percent. Because additional duties are assessed not just on the value of the good, but also on the base duty rate, their impact is magnified even more substantially for goods with higher base duties.[258]

Table 4.4: Total import duties assessed on an example product with a base duty rate of 10 percent

Duty component	Value	Calculation method
Item value	100.00	Standard cost + insurance + freight (CIF) calculation
Landing charge	1.00	1% of CIF value
Assessable value	101.00	
Base tariff duty	10.10	10% of the assessable value
ACD	13.33	12% of the sum of the assessable value and base tariff
Education cess	0.70	3% of the duty and ADC (not including assessable value or SAD)
SAD	4.98	4% of the sum of the assessable value, duty, and ADC
Sum of duties	29.11	

Source: USITC compilation of information from Goyal, *BIG's Easy Reference Customs Tariff 2014*, 2014. The imported product used for the calculation is a violin, but many manufactured goods face the exact same combination of duties.

Survey Results on Tariffs

In this chapter, survey results are based only on the responses received from companies exporting goods to India, unless otherwise noted. Exporters of goods to India include both goods and services producers. For example, the primary sector of a chain of restaurants operating in India may be "other services," but the restaurant may also export certain supplies and inputs from the United States to its Indian affiliates. Those exports of goods would be included in the data in this chapter, and would be reported as goods exports by the "other services" sector.[259]

[257] DISCUS, written submission to the USITC, April 11, 2014, 3.
[258] The economic modeling of the removal of tariffs in chapter 3 includes the SAD in its assessment of the effects of Indian duties.
[259] Results are not, however, provided for the financial services sector, because not enough of those firms exported goods to report statistically precise data. See chapter 3 for a complete discussion of sector definitions and survey methodology.

Perhaps unsurprisingly, given the disparity between agricultural and nonagricultural tariff rates, results from the Commission's survey indicate that high Indian duties have the most widespread effect on agricultural exporters. Among U.S. agriculture companies exporting goods to India, 37.2 percent faced duties that had a moderate, severe, or prohibitive effect on their exports. The comparable figure was 26.0 percent in chemicals and textiles and 21.0 percent in other services (table 4.5).

Table 4.5: Effects of high duties on U.S. companies that export goods to India, by sector, 2007–13

	Share of companies (%)		Mean effect[a]		
Sector	**Facing the issue[b]**	**Substantially affected[c]**	**2007**	**2010**	**2013**
Agriculture and food	39.3	37.2	3.6	3.8	3.9
Natural resources	11.6[d]	10.2[d]	3.9	4.0	4.2
Chemicals and textiles	27.4	26.0	2.8	2.8	3.8
Other manufacturing	24.8	19.1	2.8	3.0	3.5
Retail and wholesale	4.8[d]	1.8[d]	2.3	2.2	2.2
Content and media	19.2[d]	17.3[d]	2.8	2.6	2.8
ICT	25.1	13.6	1.8	2.5	2.4
Other services	22.3	21.0	2.4	3.2	3.4
All sectors	23.0	19.7	2.8	3.0	3.5

Source: USITC calculations of weighted responses to the Commission questionnaire (question 3.3).

[a] On a scale from 0 (did not face the barrier) to 5 (prohibitive effect on activities).

[b] Share of companies reporting an effect from 1 (faced the policy but it had no effect on activities) to 5 (prohibitive effect) in 2007, 2010, or 2013.

[c] Share of companies reporting an effect of 3–5, indicating the policy had a moderate, severe, or prohibitive effect on activities in 2007, 2010, or 2013.

[d] Low-precision estimate, with an RSE above 50 percent.

The survey also offers insight into the mean effect and change in the effects of high duties over time for each of the sectors. The effects are most severe for the U.S. natural resource sector, which faced a "severe" barrier from high duties, followed closely by the U.S. agricultural sector. However, the mean effects in these two sectors seemed to be relatively stable during the period, increasing only slightly between 2007 and 2013.[260] For goods exporters in the chemicals and textiles, other manufacturing, and other services sectors, by contrast, the effects of high import duties increased more substantially between 2007 and 2013.

While the effect of high import duties on U.S. exporters increased somewhat from 2007 to 2013, some of this effect is attributable to the varied perspectives of companies that entered or exited the Indian market during the period. If only firms that exported to India in all three years are included, the effect of high tariffs is somewhat more pronounced, but also slightly more

[260] This stability is observed despite the fact that this table includes all exporters, not just those active in all three years.

consistent across the period (table 4.6). Generally, Indian tariffs had an effect on U.S. exporters that was somewhere between "moderate" (a score of 3) and "severe" (a score of 4).

Table 4.6: Mean effect of high import duties, 2007–13

Type of company	2007	2010	2013
All exporters	2.8	3.0	3.5
Only exporters active during entire period	3.1	3.2	3.6

Source: USITC calculations of weighted responses by companies to the Commission questionnaire (question 3.3).

High import duties were the most common prohibitive barrier among exporters of goods to India—with prohibitive barriers defined as those that either kept companies completely out of the Indian market or kept certain of their products out of the market. Of all companies that faced one or more prohibitive barriers, 53 percent were kept out or curtailed by high import duties. High import tariffs and cumbersome customs procedures were also the most frequently mentioned issues in the comment section of the questionnaire.

Tariff and tax variability and nontransparency are also significant barriers for a number of U.S. exporters. These issues were most problematic for chemicals and textiles exporters, 16.8 percent of which cited a moderate, severe, or prohibitive effect from this issue (table 4.7). The agriculture, other manufacturing, and ICT sectors also had more than 10 percent of exporters citing this as a significant barrier.

Table 4.7: Effects of nontransparent or variable taxes or tariffs on U.S. companies that export goods to India, by sector, 2007–13

	Share of companies (%)		Mean effect[a]		
Sector	Facing the issue[b]	Substantially affected[c]	2007	2010	2013
Agriculture and food	13.0	10.9	2.7	3.4[d]	3.7[d]
Natural resources	8.3[d]	8.0[d]	3.8[d]	3.8[d]	3.9
Chemicals and textiles	17.4[d]	16.8[d]	2.9	2.9	3.5
Other manufacturing	15.1	10.9	2.4	2.8	3.3
Content and media	9.0	6.3	2.3	2.1	2.8
ICT	18.1	10.1	1.4	2.2	2.4
Other services	8.5[d]	2.5	2.1	2.2	2.3
All sectors	13.3	10.7	2.6	2.8	3.3

Source: USITC calculations of weighted responses to the Commission questionnaire (question 3.3).

[a] On a scale from 0 (did not face the barrier) to 5 (prohibitive effect on activities).

[b] Share of companies reporting an effect of 1 (faced the policy but it had no effect on activities) to 5 (prohibitive effect) in 2007, 2010, or 2013.

[c] Share of companies reporting an effect of 3–5, indicating the policy had a moderate, severe, or prohibitive effect on activities in 2007, 2010, or 2013.

[d] Low-precision estimate, with an RSE above 50 percent.

Case Study: Wine and Spirit Import Duties

U.S. exporters of wine and spirits are particularly affected by high and non-transparent duties and related taxes, and problems persist for this industry despite recent changes to the structure of Indian duties on these products. In 2007, the United States initiated a case against India under the WTO Dispute Settlement Understanding, claiming that the ACD and SAD charged on imported wine and spirits violated India's WTO commitments. The United States argued that if the ACD and SAD were considered duties, India would be in violation of its bound rate commitments, as the total duty would exceed the bound rate. The United States further argued that if the ACD and SAD were considered internal taxes and not import duties, as India claimed, then internal taxes on imported products would exceed those charged on equivalent domestic products.[261] After consultations failed to resolve the dispute, the United States requested establishment of a panel to review the matter. The panel largely found in favor of India, partly on procedural grounds. The United States then appealed certain issues of law and interpretation to the WTO Appellate Body, which then largely found in favor of the United States.[262] By the time the Appellate Body decision was circulated, however, India had exempted wine and spirits from the ACD and raised the basic duty from 100 percent to its bound rate maximum of 150 percent.[263] India states that alcohol excise is now a state matter.[264]

U.S. wine and spirit exporters maintain that several tariff-related problems still exist. First, because wine and spirits are exempt from the ACD, which is intended to mirror domestic excise taxes, these imports are subject to varying state excise taxes once they are imported into an Indian state.[265] U.S. exporters report that many Indian states have state excise tax regimes for alcohol that discriminate against imports, charging a higher tax rate than that charged on locally produced goods. For example, the state of Maharashtra reportedly exempts local wine producers from excise taxes entirely, while charging a 200 percent excise tax on imported wine.[266]

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[261] USTR, "United States Files WTO Case," March 2007.
[262] WTO, DSB, D*S 360: India – Additional and Extra-Additional Duties on Imports from the United States*, online summary.
[263] Reuters, "U.S. Wins WTO Appeal," October 31, 2008.
[264] Goyal, *BIG's Easy Reference Customs Tariff* 2014, 2014, 212.
[265] Sood, *India Wine Market Update 2012*, 2012.
[266] Wine Institute, written submission to the USITC, February 12, 2014.

Second, the 4 percent SAD is still charged at the border, although importers can apply for a refund. According to one group of U.S. wine exporters, the refund process is time consuming, and few importers are willing to go through the steps to obtain the refund.[267]

Third, a group of U.S. spirits exporters report that their products have recently faced customs valuation challenges under India's customs rules governing related-party transactions, which are described in the customs section of this chapter below.[268]

U.S. wine and spirits producers state that they would be better able to compete in the Indian market if India's duties were closer to those charged in similar markets, and that India is the most difficult of emerging markets to enter (a description of the Indian alcoholic beverage market and U.S. participation in it can be found in chapter 9). While U.S. producers welcomed the WTO decision, they report that the situation is largely similar to the one they faced before the case, since state and other taxes are still discriminatory and prohibitively high.[269]

Customs Procedures

According to international rankings, India's performance on customs administration is average for a lower-middle-income country. U.S. exporters, however, report some notable barriers. This section describes how India fares on international rankings of customs procedures and identifies problems raised by U.S. exporters. Reported difficulties include India's inconsistent interpretation of customs valuation rules, its imposition of bond requirements for intra-firm shipments, delays in customs clearance processes, and frequent issues with the online customs documentation system. This section also notes recent changes and reforms, and reviews survey results pertaining to U.S. exporters' perceptions of the severity of customs administration problems in India.

International Rankings

Customs administration and trade facilitation are the subjects of numerous international ranking and rating systems. International bodies have observed that cross-border trade is negatively affected when administrative inefficiencies lengthen the time it takes for goods to complete the customs process; in some cases, delays at the border can be more costly than

[267] Wine Institute, written submission to the USITC, February 12, 2014. India's 2014 tariff schedule lists the SAD on wine and spirits as zero, but this may be inaccurate, as only the refund procedure is given in the list of exemptions—no general exemption is listed for wine or spirits—and the U.S. exporters contacted reported that they were still being charged the duty.
[268] DISCUS, written submission to the USITC, April 11, 2014.
[269] Wine Institute, written submission to the USITC, February 12, 2014; DISCUS, written submission to the USITC, April 11, 2014.

tariff barriers.[270] While India's performance in this domain is average to slightly above average for its size and income level, importers nonetheless remain frustrated by poor infrastructure conditions, congestion at the ports, and high costs of freight.[271]

On the OECD's trade facilitation indicators, India performs better than the averages for Asian countries and for lower-middle-income countries in the areas of customs information availability, advance rulings, appeal procedures, simplification and harmonization of documents, automation, and internal border agency cooperation.[272] On the other hand, India's performance for fees and charges and for streamlining procedures is below the averages for Asian and lower-middle-income countries.

An additional measure of customs procedure efficiency comes from the rankings contained in the World Economic Forum's *Global Competitiveness Report 2013*.[273] India ranked 88th out of 148 countries in that report for burden of customs procedures, based largely on surveys of business leaders. Its ranking is in the middle among the BRICS countries, which are Brazil (139th), Russia (124th), China (60th), and South Africa (52nd). Among countries with similar GDP per capita, India ranked slightly better than most; its ranking put it behind Laos (63rd), but ahead of Pakistan (91st), Vietnam (99th), and Nicaragua (104th).

The World Bank's Logistics Performance Index (LPI) also evaluates customs administration performance in India as compared with that of other countries. Based on surveys of worldwide logistics providers, the LPI scores countries on six dimensions of trade logistics performance, one of which is customs administration. India's overall LPI ranking is 54th out of 160 countries, and India scores near the top of the list of lower-middle-income countries, just behind Vietnam and tied with Indonesia. However, on customs administration, which the report defines as the "speed, simplicity, and predictability of formalities by border control agencies," India ranks 65th worldwide. Its customs administration score is lower than its scores for the other five dimensions evaluated, and is slightly lower than the customs administration scores of its lower-middle-income competitors. In short, while the logistics providers surveyed seem to view India's customs administration performance as about average for its income level, India remains behind its more developed competitors such as China, which was ranked 38th in customs administration.[274]

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[270] De, Raihan, and Ghani, "What Does MFN Trade Mean for India and Pakistan?" June 2013.
[271] Ibid.
[272] The OECD Trade Facilitation Indicators profile each country and try to quantify trade facilitation by various factors, including formalities in documents, automation and procedures, fees and charges, appeal procedures, information availability, consultations, advanced rulings, and governance and impartiality.
[273] World Economic Forum, *Global Competitiveness Report*, 2013.
[274] World Bank, *Connecting to Compete*, 2014, 34–35.

Cost to import offers a final measure of customs performance. Compared to the other BRICS countries, India is the second-cheapest country for importers in terms of cost to import per container. Some estimates suggest that the cost of importing into India (excluding duties) is around 15 percent of the value of the goods, including the cost incurred due to customs clearance delays. The costs are nonetheless far from negligible; based on India's total trade of $490 billion (2008–09, including imports and exports, as there are some transaction costs associated with exports), the transaction cost works out to almost $75 billion.[275] In addition, the number of documents needed to import a product into India is higher than in Brazil, China, and South Africa. India is better than average among the BRICS countries for the number of days it takes to import a product into the country, but compared with the United States, it takes four times the number of days (and twice as many documents) to import a product (table 4.8). Ease of importing does not always correspond to income level, though; two of India's lower-middle-income competitors, Vietnam and Pakistan, have lower transaction costs and shorter delays than most of the BRICS countries.

Table 4.8: Customs indicators for imports into BRICS countries, selected lower-middle-income countries, and the United States, 2012

Indicator	India	Brazil	Russia	China	South Africa	Pakistan	Vietnam	United States
Cost to import per container (U.S. dollars)[a]	1,200	2,275	2,780	615	1,940	705	600	1,315
Number of documents needed to import	11	8	11	5	6	8	8	5
Time to import (number of days)	20	17	23	24	23	18	21	5

Source: World Bank.

[a] Cost to import includes documents, administrative fees for customs clearance and technical control, customs broker fees, terminal handling charges, and inland transport.

Inconsistent Interpretation of Customs Valuation Rules

U.S. exporters have reported problems with customs valuation rules in India, despite some regulatory improvements.[276] An amendment to the customs valuation legislation was made in 2007; reportedly, it was intended to bring India into better conformity with WTO guidelines on customs valuation, in light of an Indian Supreme Court ruling. Before this ruling, India included certain transaction costs in customs duty calculations that were outside of international norms and used a method of calculating the value of imports that left more of the valuation decision

[275] Indian Institute of Foreign Trade, "Trade Facilitation Gap Analysis," March 16, 2012.
[276] USTR, "India," 2014.

to the Indian Customs Department discretion, rather than accepting the declared value of the goods listed on the invoice.[277]

Since the 2007 revision, declared values have been accepted in most cases, but some of the exceptions and details of the implementation have been problematic for U.S. exporters. Customs officials reportedly retain wide latitude to modify or challenge importers' valuation methods because they have the power to verify the importers' assessments and make re-assessments.[278] In the event that the Customs Department determines value inaccurately, the various levels of appeal are lengthy, and the litigation is time-consuming and costly. In addition, there is an ongoing legal challenge in India (which, to date, has resulted in conflicting court decisions) regarding the treatment of royalties and technical service fees in valuation methods.[279] These cases have been of particular interest to U.S. exporters of goods containing intellectual property, for which royalties are often paid.

Finally, one of the exceptions in the 2007 revisions concerns valuation of intra-firm shipments, which has been a concern for some U.S. firms. Indian customs procedures require that import shipments that are composed of intra-firm transfers of goods, also known as "related-party transactions," pay a bond that is held by the Indian Customs Department for one year. During that year, the Customs Department can challenge the valuation of these shipments. According to industry representatives familiar with the process, the system creates uncertainty, because there is considerable variation in how the rules are applied.[280] Also, one source mentioned that the requirement has the effect of increasing the firm's working-capital requirements and creates the presumption that declared import values are inaccurate until proven otherwise.[281]

Delays in Customs Clearance Processes

Although India has numerous land, air, and sea ports, imports into India suffer from congestion at the ports, adding to the length of time that importers need to clear their imports. India presently has 12 major public ports and 187 minor ports, along with many private ports. In order to help clear goods more quickly, 155 inland container depots (ICDs) and container freight stations (CFSs) are in operation in India, and another 89 are at different stages of development. For clearance of air cargo, there are 36 functional international airports. There are 138 land customs stations (LCSs) along India's international borders, of which 66 are functional. Still, studies conducted by the Indian Customs Department indicate that the average time taken by import consignments for clearance is 10 days after landing. At the Chennai Custom House, for

[277] Raichandani, "Customs Valuation in India" (accessed September 2, 2014).
[278] Goyal, *BIG's Easy Reference Customs Tariff* 2014, 2014, 996.
[279] Mishra, "Customs Valuation," December 3, 2012.
[280] Industry representative, interview with USITC staff, Mumbai, India, June 26, 2014; industry representative, written correspondence with USITC staff, March 5, 2014.
[281] Industry representative, written correspondence with USITC staff, March 5, 2014.

example, the overall clearance time for imports has gone up from an average of 2–3 days to 6–7 days, which may be due in part to a 40 percent shortage in customs officers in Chennai.[282]

Under the current customs clearance system, importers need to obtain permission from various authorities before they can file a bill of entry,[283] but authorities cannot process the required import clearance documents simultaneously.[284] This results in importers having to pay an additional charge for holding cargo in the warehouse, adding to the transaction costs of importing into India. Moreover, the critical shortage of appraisers and assessment officers at some ports lengthens the customs process.[285]

The clearance of cargo is further delayed because 90 percent of the billing manifests reportedly contain errors, many of which are minor issues such as misspellings. The errors must be corrected before the shipment can be processed, and it takes a minimum of half a day to correct these errors after the initial filing. The Indian Customs Department levies a nominal fee of Rs 20 to Rs 50 ($0.33 to $0.83) to rectify each error. In addition, where the errors are major ones having an impact on revenue, the Customs Department may impose penalties (such as fines) on the steamer agents.[286]

Frequent Issues with ICEGATE

India implemented the Indian Customs Electronic Commerce/Electronic Data Interchange Gateway (ICEGATE) in 2011. In the three years since then, ICEGATE has facilitated filing of billing manifests to a large extent. However, reports suggest that ICEGATE can sometimes be unstable, non-operational, and slow. On average, about 1,200 bills of entry are filed daily on ICEGATE, and importers claim that the ICEGATE system is not robust enough to handle this volume. In one study, over 40 percent of shipping agents reported that there are frequent breakdowns of the ICEGATE system (at least one a week) and that they last from one to three hours.[287] Such losses of connectivity are major obstacles to the prompt filing of importers' billing manifests. In addition, some physical paperwork is still required, so the system is not fully electronic.[288] The Indian Customs Department blames importers for not filing more of their customs documents

[282] *Big Navigators*, "India's Annual Container Volume Dips," May 17, 2013.
[283] A bill of entry is a declaration by an importer of the exact nature, precise quantity, and value of goods that have landed, and is prepared by a qualified customs clerk or broker. A billing manifest is a transport document that serves as a tally sheet and gives a detailed summary of all bills of lading issued by a carrier or an agent for importation.
[284] Indian Institute of Foreign Trade, "Trade Facilitation Gap Analysis," March 16, 2012.
[285] *Times of India*, "Importers Fret over Delay in Cargo Clearance," January 27, 2011.
[286] Indian Institute of Foreign Trade, "Trade Facilitation Gap Analysis," March 16, 2012.
[287] Ibid.
[288] Industry representative, telephone interview with USITC staff, August 13, 2014.

online, while importers blame ICEGATE for delays in entries and other technical issues with the program.[289]

An electronic data interchange such as ICEGATE can facilitate preclearance of shipments. Such a system allows customs officials to assess the risk of incoming shipments in advance and stop only those that require additional screening, while allowing the rest to proceed. One industry representative expressed the view that ICEGATE is falling short of its full potential because India has not used it to enable customs officials to pre-clear shipments; instead, officials usually hold up an entire shipment while a portion of it is inspected.[290]

Recent Developments

In recent years, India has been pursuing reforms to facilitate trade. In 2013, the Indian government released its 12th five-year plan (2012–17), which states that the government needs to remove bottlenecks relating to burdensome customs duties, cumbersome customs procedures, and low port productivity.[291] In 2012, the Indian government began offering full-time customs clearance—24 hours a day, seven days a week—for both imports and exports in New Delhi, Bangalore, Chennai, and Mumbai, responding to criticism that the limited availability of customs clearance acted as a bottleneck to international trade, driving up transaction costs.[292]

One vehicle for improving trade efficiency is the WTO Trade Facilitation Agreement (TFA), concluded in Bali in December 2013. The TFA is a legally binding multilateral agreement in which WTO members agree to cut red tape and streamline customs procedures, including through the use of technology, and to improve cooperation among WTO members on customs matters. To be executed as a multilateral agreement, the TFA needs to be ratified by two-thirds of WTO member countries, and needs to be fully implemented in all WTO member countries by July 2015. In late July 2014, however, India announced that it was withdrawing its support for the agreement, owing to its disagreement with other WTO members regarding its agricultural support programs. India's withdrawal of support has delayed the implementation of the TFA as a multilateral agreement.[293] As of October and November 2014, WTO members continued to meet and discuss efforts to move the agreement forward. If the TFA is eventually ratified, India will need to speed up the processing of goods through its customs ports, including the release

[289] Japan Chamber of Commerce, "Suggestions for the Government of India," March 6, 2013.
[290] Industry representative, telephone interview with USITC staff, August 13, 2014.
[291] Government of India, Planning Commission, "*Twelfth Five Year Plan (2012–2017),*" 2013, vol. 3, 230.
[292] *Economic Times*, "Customs Operations to Work 24x7," August 7, 2012.
[293] WTO, "WTO Members Debate Future Work on Trade Facilitation," September 29, 2014.

and clearance of imported goods.[294] Under the TFA, WTO members that are developed nations have agreed to give India financial assistance to help it simplify its customs process.[295]

There does not seem to be a clear consensus among industry representatives about how much the TFA might improve customs facilitation in India. One logistics services provider reported that he would not expect much to change even if the TFA were implemented. Another said that because the agreement allows countries to direct specific reforms into "tiers" with different timelines, the size of the benefit from the TFA would depend entirely on which reforms India put into which tier.[296]

Survey Results on Customs Procedures

According to the results from the Commission's survey, a substantial minority (15.3 percent) of U.S. goods exporters believe that India's customs administration problems have a significant effect on their exports (table 4.9). The sectors in which customs administration problems have the heaviest effects are largely the same as those that also experience the heaviest effects from duties, with the agriculture and food and other services sectors particularly affected by both barriers. More than one-fifth of goods exporters in the agriculture and food, other services, and ICT sectors face customs administration problems that substantially affect their exports. Overall, the negative impacts of customs administration barriers are less severe than those of high tariffs.

On a sector-by-sector basis, most groups of goods exporters were more affected by customs administration problems in 2013 than they were in 2007 (table 4.9).[297] In the agriculture and food, chemicals and textiles, other manufacturing, content and media, and natural resource sectors, customs administration problems increased in average effect throughout the period. In the other services and ICT sectors, these problems were worse in 2013 than in 2007, despite improvement since 2010. In the retail and wholesale sector, the effect of customs administration problems was lower in 2013 than in other years, although it should be noted that the 2013 estimate for retailers and wholesalers is substantially less precise than the 2007 and 2010 estimates for that sector.

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[294] *Deccan Chronicle*, "WTO's Bali Package Mixed Bag for India," December 10, 2013.
[295] Chawla, "Customs/Port Efficiency to Be Same at Mumbai," July 12, 2013.
[296] Industry representative, interview with USITC staff, Mumbai, June 26, 2014; industry representative, telephone interview with USITC staff, August 13, 2014.
[297] Effects in the table include those reported by all exporters, not just those active in all three years.

Table 4.9: Effects of customs administration problems on U.S. companies that export goods to India, by sector, 2007–13

	Share of companies (%)		Mean effect[a]		
Sector	**Facing the issue[b]**	**Substantially affected[c]**	**2007**	**2010**	**2013**
Agriculture and food	26.6	24.4	3.1	3.4	3.6
Natural resources	4.0	2.6	2.3	2.3	2.9
Chemicals and textiles	22.5	16.8[d]	2.5	2.6	3.5
Other manufacturing	23.0	17.2	2.3	2.6	3.1
Retail and wholesale	2.9[d]	1.9[d]	3.3	3.5	2.3
Content and media	18.4[d]	16.1[d]	2.7	2.8	2.9
ICT	24.7	21.5	1.9	3.2	2.7
Other services	23.6	20.2	1.4	3.0	2.8
All sectors	19.5	15.3	2.4	2.7	3.2

Source: USITC calculations of weighted responses to the Commission questionnaire (question 3.3).

[a] On a scale from 0 (did not face the barrier) to 5 (prohibitive effect on activities).

[b] Share of companies reporting facing a policy effect, with an effect ranging from 1 (faced the policy but it had no effect on activities) to 5 (prohibitive effect) in 2007, 2010, or 2013.

[c] Share of companies reporting facing an effect with an effect of 3–5, indicating the policy had a moderate, severe, or prohibitive effect on activities in 2007, 2010, or 2013.

[d] Low-precision estimate, with an RSE above 50 percent.

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Chapter 5
Intellectual Property

Introduction

Innovation is a key driver of economic growth.[298] Intellectual property (IP) rights encourage innovation by providing innovators with a foundation for benefiting from and recovering the costs of their creations, and by setting the terms for others to obtain legal access to them.[299] This chapter describes the experiences of U.S. companies that rely on IP or are "IP intensive" and are engaged in the Indian market, based on data and information from the survey, the Commission's hearing, meetings with industry representatives and experts in the United States and India, and the relevant literature.[300] Chapter 3 presents related estimates of how U.S. trade, investment, and the broader U.S. economy would be affected by an improvement in India's IP regime to a level similar to that of the United States and other developed countries.

IP is particularly important to U.S. companies engaged in India; this is true for large companies and small and medium-sized enterprises (SMEs), and for companies in the wide range of industry sectors subject to the Commission's survey. Moreover, IP-intensive companies are responsible for the vast majority of exports, foreign affiliate sales, and foreign direct investment (FDI) in India.

The most frequently experienced categories of barriers for IP-intensive companies are those related to tariffs and taxes; IP-related barriers were cited less frequently. The IP environment was most problematic for pharmaceutical companies, substantially adversely affecting 27.9 percent of these companies in the Commission's survey. IP barriers vary by the type of IP involved—trade secrets, patents, trademarks, or copyrights (box 5.1)—and were described in detail at the Commission's hearing and in fieldwork.

Trade-secret-related concerns focus on the fact that India does not have a statute that prohibits trade secret misappropriation and similarly does not have a law that protects against the unfair commercial use of data submitted to regulators, according to industry representatives. The

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[298] NEC, CEA, and OSTP, "A Strategy for American Innovation," 2011, 7; Maskus, *Private Rights and Public Problems*, 2012, 1.
[299] Maskus, *Private Rights and Public Problems*, 2012, 2; USDOC, *Intellectual Property and the U.S. Economy*, March 2012, 1.
[300] In the context of the survey results, IP-intensive companies are those that rated any type of IP—including trade secrets, patents, copyrights, and/or trademarks—as "very important." Companies engaged or active in the Indian market are those that export to India or have an equity stake of 10 percent or more in an Indian affiliate.

Box 5.1: Major types of IP and Indian law

Copyrights generally protect original works of authorship, including literary, dramatic, musical, and artistic works such as books, movies, songs, computer software, and architecture. Copyrights do not protect facts, ideas, or methods of operation, although they may protect the way these things are expressed. In India, the Copyright Act of 1957, with amendments, is the governing law for copyright protection. Substantial amendments to the law were made in 2012, with the goal of bringing India's copyright regime into alignment with international standards.

Trademarks generally protect the right to use a distinctive mark or name to distinguish a product, service, or firm. India updated its trademark law in 2013 to bring it into alignment with international standards. As of July 2013 India implemented the Madrid Protocol, which allows a trademark owner to seek registration in any of the countries that have joined the Protocol by filing a single application.

Patents generally grant inventors rights to exclude others from making, using, offering for sale, or selling an invention. The Indian law governing patents is the Patents Act (1970), which entered into force in 1972. India amended the Patents Act in 1999, 2002, and 2005, with the goal of complying with the WTO Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS). India joined the WTO as a founding member in January 1995.

Trade Secrets include technical or business information that is secret, in the sense that it is not generally known among people who normally deal with the kind of information in question; has commercial value because it is secret; and has been subject to reasonable steps to keep it secret. Trade secrets are protected under the common law in India. There is no general trade secret statute, nor is there any statutory protection against the unfair commercial use of test data submitted to government regulators to obtain approval to market a product.

Other types of IP required to be protected under TRIPS include industrial designs, layout designs of semiconductor integrated circuits, and plant varieties. Industrial designs in India are protected under the Designs Act (2000). The Semiconductor Integrated Circuits Layout Design Act (2000) has been approved by the president of India and both houses of parliament but has not yet come into effect. Plant varieties are protected under the Protection of Plant Varieties and Farmers Rights Act (2001).

India also has enacted the Biological Diversity Act (2002); however, as only some provisions of the Act have been brought into force, there is substantial uncertainty regarding its interpretation and application to new agricultural biotechnologies. These other types of IP were mentioned only sporadically in survey responses and company interviews.

Source: Nishith Desai Associates, "Intellectual Property Law in India," December 2013, 2–43; USCS, Doing Business in India, 2014, 15–18, and 76.

patent-related concerns of industry representatives focus on limitations on patents for incremental innovations; expansive compulsory license provisions, which may require a firm with patented technology to license that technology to a domestic competitor or the government; and lengthy administrative and legal proceedings (table 5.1).

Table 5.1: IP barriers and industries affected

IP policy barrier	Description	U.S. industries most affected
No trade secret law	India does not have a statute that prohibits trade secret misappropriation or theft.	Most companies in the ICT (information and communications technology), financial services, content and media, natural resources, chemicals and textiles, and retail and wholesale industry sectors active in India consider trade secret protection very important.
No law that protects regulatory test data	Valuable test data submitted by innovator companies to regulatory authorities can be used by companies producing generics as a basis for the approval of their products.	Companies in the pharmaceutical, biotechnology, and crop protection subsectors.
Limits on patents for incremental innovations	Patents for incremental innovations, particularly those related to pharmaceutical and biotechnology inventions, are only available in limited circumstances.	Companies in the pharmaceutical and biotechnology subsectors.
Expansive compulsory license provisions	The Indian government can require companies to make their patented technologies available to competitors under a wide range of circumstances.	Companies in the pharmaceutical and biotechnology subsectors; producers of "green" technologies also may be affected.
Procedural and substantive enforcement issues related to patents and trade secrets	Administrative officials and courts are overburdened leading to long delays. U.S. industry representatives also report a recent trend of limiting foreign companies' patent rights.	Companies in the pharmaceutical and biotechnology subsectors are particularly affected. Most companies in the other manufacturing and ICT sectors in India also consider patent protection very important.
High rates of counterfeiting and piracy	Substantial infringement of copyrights and trademarks of both physical and digital goods.	Companies in the content and media sector, and those that produce luxury goods, electronics, pharmaceuticals, automobile components, packaged food and alcohol, and tobacco, are particularly affected. Most companies in the financial services, other manufacturing, and retail and wholesale trade sectors in India also consider copyright or trademark protection very important.
Procedural and substantive enforcement issues related to copyrights and trademarks	Clogged dockets and procedural issues reportedly prevent effective enforcement. Local politics and protectionism also may play a role.	Companies in the content and media sector are particularly affected. Most companies in the financial services, other manufacturing, and retail and wholesale trade sectors also consider copyright or trademark protection very important.

Source: Compiled by the Commission.

IP barriers differ from other types of barriers described in this report. Unlike tariffs or equity caps on foreign investment, the level of protection afforded by a country's IP environment is less easily quantified,[301] and more dependent on perceptions of rights holders providing goods and services in that environment. In accordance with the request letter from the House Committee on Ways and Means and the Senate Committee on Finance, the Commission has not made any findings regarding the legal merits of any Indian laws or policies. In the Commission's questionnaire, U.S. companies were only asked whether, and how, inadequate protection of IP affected their business in India.

U.S. companies have varying opinions on the effects of these barriers. Some industry representatives, particularly those in the pharmaceutical and biotechnology sectors, consider IP barriers a substantial obstacle to doing business in India. They assert that judicial and administrative decisions undercutting their valuable IP rights are motivated in large part by the industrial policy goal of supporting India's powerful generic drug industry.[302] By contrast, other U.S. industry representatives state that they have successfully engaged in a wide range of IP-sensitive activities in India.[303]

Similarly, India's government, its domestic pharmaceutical industry, and some representatives of academic institutions and nongovernmental organizations (NGOs) state that India appropriately balances its international IP obligations with its goal that IP rights not unduly limit access to medicines or other technologies. India's new Modi government has affirmed that IP rights are essential to the promotion of creativity and innovation, as well as affirming the importance of meeting its international IP obligations "while using the flexibilities in the international regime to address its developmental concerns."[304]

With regard to trademarks and copyrights, U.S. industry representatives in the content and media sector in particular (including the licensing of movies, music, books, and software) describe piracy and counterfeiting as key impediments to doing business, and emphasize the difficulty of protecting IP as Internet penetration increases in India. U.S. industry representatives further state that more Indian government resources and stronger and more

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[301] Some independent quantifications are available to compare IP regimes across countries. See chapter 3 for a discussion of the Economist Intelligence Unit (EIU) IP index, which assesses the effectiveness of countries' IP regimes. In the EIU IP index, India's 2013 IP protection regime is assigned a value of 3, while the regimes in the United States and other Western European countries are assessed a 5, the highest level of protection in the index.
[302] See PhRMA, written submission to the USITC, February 25, 2014, 2-4; BIO, written submission to the USITC, February 13, 2014, 1-2.
[303] For example, in their written submissions, Boeing and Abbott stated that their IP has been respected and they have not experienced major IP problems in India. See Boeing, written submission to the USITC, February 7, 2014, 2–3; Abbott, written submission to the USITC, April 18, 2014.
[304] Government of India, Ministry of Commerce and Industry, Department of Industrial Policy and Promotion, "National IPR Strategy," July 2014, 3.

effective enforcement efforts are needed to address these barriers; some Indian industry representatives express similar views.

Regardless of the type of IP at issue, U.S. industry representatives generally agree on two points. First, they state that careful planning and strategies are needed to operate in the Indian market while still preserving valuable IP. They report that these strategies may include limiting investments or not bringing the most valuable technologies to India because of infringement concerns.[305] Second, they express the belief that increased support for IP from the Modi government, through policies that promote rather than undermine IP rights, could substantially improve the business environment for all companies, foreign and domestic.[306] As the U.S.-India Business Council (USIBC) stated in its submission to the Commission,"An environment where IP is rewarded and protected is essential to growth, to the transfer of technology, and to the creation of an environment that supports true research and development (R&D) and innovation."[307] During the summer of 2014, representatives of U.S. and Indian companies from various industry sectors, including pharmaceuticals and biotechnology, expressed cautious optimism that the Modi government is prepared to implement improvements to India's IP system.

IP-intensive U.S. Companies and Barriers in the Indian Market

IP-intensive U.S. Companies Active in India

IP is of particular importance to U.S. companies engaged in India.[308] Of all companies engaged in India, 68.4 percent consider IP "very important," compared to 36.0 percent of those not engaged there.[309] This IP intensity applies to U.S. companies of all sizes: 82.7 percent of large companies and 63.8 percent of SMEs active in India are IP intensive.[310]

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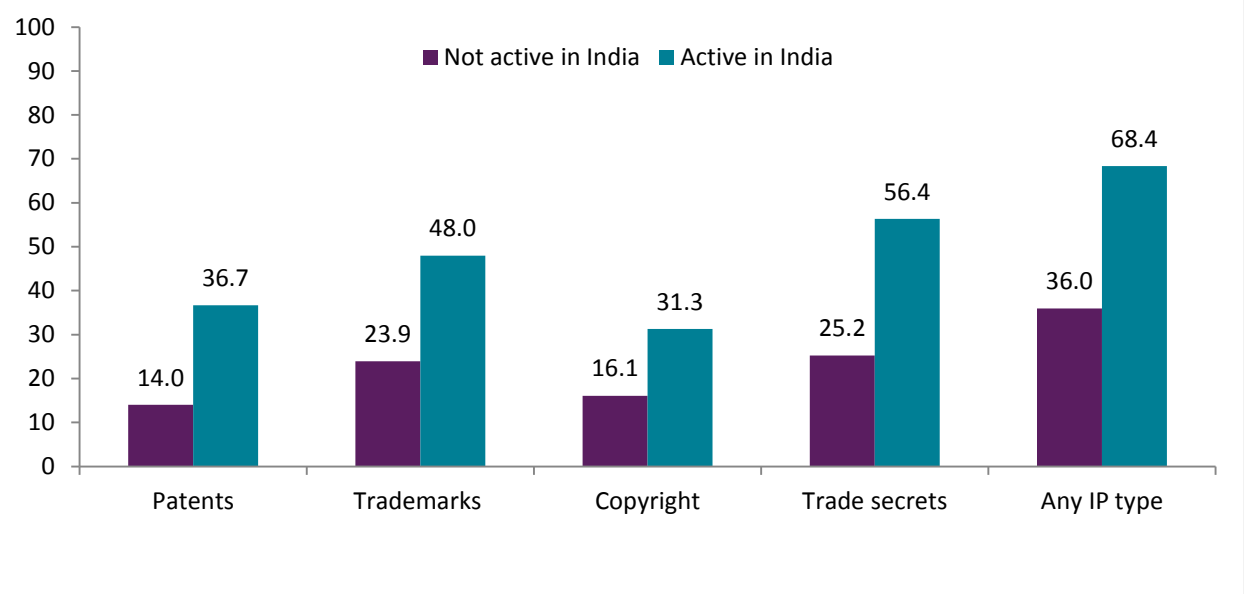
[305] Industry representatives, interviews by USITC staff, New Delhi, June 23, 24, and 26, 2014; industry representatives, interviews by USITC staff, Washington, DC, January 8, 2014.
[306] Industry representatives, interviews by USITC staff, New Delhi, June 24, 2014; industry representatives, interviews by USITC staff, Washington, DC, January 8, 2014; FICCI, "Recommendations for New Government," n.d. (accessed July 8, 2014); Shapiro and Mathur, "How India Can Attract More FDI," January 2014 (states that an improvement in India's IP regime to the level of China's would increase pharmaceutical investment, yield significant benefits for the foreign and domestic industries, and improve health outcomes).
[307] USIBC, written submission to the USITC, January 30, 2014, 7.
[308] This chapter defines companies that are "engaged" or "active" in India as those who export there or have an equity state of 10 percent or more in an Indian affiliate.
[309] Including companies active only in the United States and companies active abroad in countries other than India. The Commission's survey is designed to capture U.S. activity in India and may not be a representative sample of U.S. companies not engaged in India. See chapter 1 and appendix F for discussions of the composition of the sampled firms.
[310] USITC calculations of weighted responses to the Commission questionnaire, question 1.7.

The IP intensity of U.S. companies active in India varies by industry sector and type of IP. As discussed in chapter 1, U.S. companies in the content and media sector are the most IP intensive, with 96.8 percent of those active in India viewing IP as "very important," followed by the ICT (information and communications technology) and "other manufacturing" sectors (table 1.4). Even in agriculture and food processing, the sector with the lowest share of IP-intensive companies, 45.6 percent consider IP "very important." By IP type, trade secrets are essential to most U.S. companies engaged in India; 56.4 percent of U.S. companies in India consider them "very important" compared to only 25.2 percent of companies not engaged there (figure 5.1).[311]

Figure 5.1: Percent of companies that believe particular IP types are "very important" to their business



Source: USITC calculations of weighted responses to the Commission questionnaire (questions 1.7 and 2.3).
Note: See appendix Table I.18 for underlying data for this figure.

IP-intensive companies contribute a much larger amount to total U.S. exports, foreign affiliate sales, and investment than would be suggested by their share of all U.S. companies active in India (table 5.2). While IP-intensive companies account for 68.4 percent of all U.S. companies active in India, in 2013 they were responsible for the vast majority of exports, foreign affiliate sales, and investments by U.S. companies in India.[312]

[311] Some companies consider more than one type of IP "very important."
[312] IP-intensive sectors such as other manufacturing, ICT, chemicals and textiles, content and media, and financial services account for a large share of U.S. activity with India. For a complete breakdown of exports, foreign affiliate sales, and investment shares by sector, please see appendix H.

Table 5.2: Share of total U.S. exports, foreign affiliate sales, and investment in India by IP- and non-IP-intensive companies, 2013

Type of company	Share of U.S. companies active in India	Share of U.S. exports to India	Share of U.S. foreign affiliate sales in India	Share of U.S. investment in India
IP-intensive companies	68.4	92.3	88.7	89.2
Non-IP-intensive companies	31.6	7.7	11.3	10.8

Source: USITC calculations of weighted responses to the Commission questionnaire (questions 1.7 and 2.3).

Barriers Faced by IP-intensive Companies

IP-related barriers were neither the most frequent nor the most severe barriers that companies faced when doing business in India. Instead, the most frequently experienced barriers to trade were tariffs and customs administration barriers. These were also the most severe barriers: 29.6 percent of companies faced a tariff-related barrier between 2007 and 2013, and 25.5 percent were substantially affected by the barrier.[313] Moreover, about 50.2 percent of IP-intensive companies that faced a tariff-related barrier believed that their companies were more affected than Indian companies (who presumably would be less likely to face these border measures).[314]

IP-intensive companies also faced barriers related to taxes and financial regulations: 29.5 percent of IP-intensive companies reported facing some kind of tax-related barrier, and 23.6 percent were substantially affected by the barrier (table 5.3). Roughly half (47.4 percent) of IP-intensive companies perceived that they were more affected by these barriers than their Indian counterparts.[315] A number of high-profile tax disputes in India have involved the tax treatment of IP and other intangible assets.[316] The next most severe barrier, "other issues," includes uncertainty or inconsistency of regulations; subsidies, price supports, or preferences given to Indian competitors and state-owned enterprises; limitations on the cross-border transmission of data; and licensure requirements.[317]

[313] That is, they rated it as having a moderate, severe, or prohibitive effect on activities in India, with a mean rating overall of "moderate." USITC calculations of weighted responses to the Commission questionnaire (questions 3.3 and 4.2).
[314] USITC calculations of weighted responses to the Commission questionnaire (questions 3.3, 4.2, and 5.2). For further discussion of tariffs and tariff-related barriers, please see chapter 4.
[315] USITC calculations of weighted responses to the Commission questionnaire (questions 3.3, 4.2. and 5.2).
[316] See USITC, hearing transcript, February 12, 2014, 23–24 (testimony of Mark Elliot, U.S. Chamber of Commerce). According to Mr. Elliot, India's approach to IP taxation is inconsistent with international practices and not accepted by U.S. authorities, resulting in double taxation and controversy. Tax issues are described in chapter 8.
[317] These barriers are discussed in chapter 8.

Table 5.3: Effects of policy issues on U.S. companies that are IP-intensive and in India, 2007–13

	Share of companies (%)		Mean effect[a]		
Policy issue	**Facing the issue[b]**	**Substantially affected[c]**	**2007**	**2010**	**2013**
Tariffs and customs procedures	29.6	25.5	2.7	3.0	3.2
Taxes and financial regulations	29.5	23.6	2.6	2.7	3.1
Other issues	27.0	19.6	2.2	2.4	2.9
IP and local-content requirements	20.2	13.5	2.2	2.4	2.9
Sanitary and phytosanitary measures and technical barriers to trade	10.5	8.3	2.4	2.7	3.4
FDI	9.1	7.1	2.0	2.2	3.0

Source: USITC calculations of weighted responses to the Commission questionnaire (questions 3.3, 4.2, and 5.2).

[a] On a scale from 0 (did not face the barrier) to 5 (prohibitive effect on activities).

[b] Share of companies reporting an effect from 1 (faced the policy but it had no effect on activities) to 5 (prohibitive effect) in 2007, 2010, or 2013.

[c] Share of companies reporting an effect of 3–5, indicating the policy had a moderate, severe, or prohibitive effect on activities in 2007, 2010, or 2013.

Barriers involving IP and local-content requirements (LCRs) include requirements that products contain a certain amount of domestic content; involuntary technology transfer; and the level of IP protection,[318] including protection of regulatory test data.[319] Table 5.3 groups these barriers together because they are overlapping: for example, companies concerned about the compulsory licensing of a pharmaceutical technology may consider this an LCR, involuntary technology transfer, problems with protection of IP, or all of these.[320] About 20 percent of all IP-intensive companies faced IP and LCR barriers, and the mean effect of the barriers rose from minimal to moderate in 2013 (table 5.3).[321] Approximately 36.0 percent of IP-intensive U.S. companies believed that they were more affected by IP and LCR barriers than their Indian counterparts.[322] Possible reasons for this perception are addressed in the discussion of IP barriers below, and include the fact that patent denials, compulsory licensing, and IP infringement may enable Indian competitors to obtain access to valuable U.S. technologies and content.

IP-intensive Companies Are Altering Their India Strategies in Response to Barriers

More than three-fifths of IP-intensive companies (61.7 percent) that faced a regulatory impediment to doing business since 2007 altered their strategies in the Indian market in response to those barriers (figure 5.2). An estimated 41.8 percent either directed less attention

[318] As noted above, the Commission is not making any findings regarding the adequacy or inadequacy of the Indian IP regime, and has relied on survey results and the views of industry participants.

[319] As discussed below, India lacks statutory protection for the test data that Indian regulatory authorities require before granting approval for certain products, such as pharmaceuticals and agricultural chemicals.

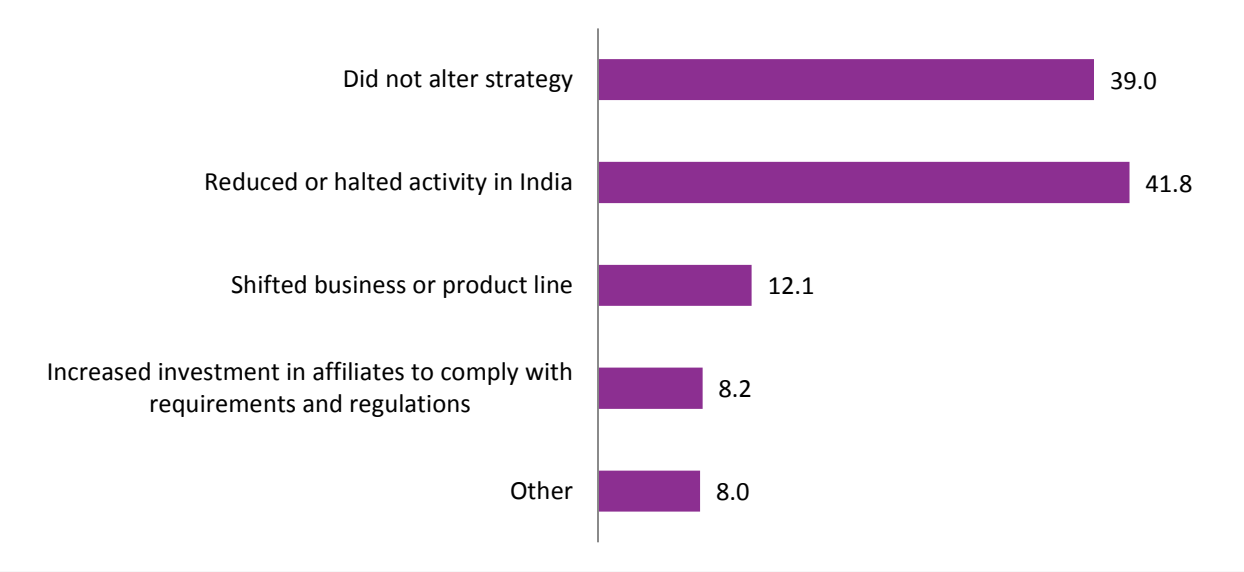
[320] The IP aspects of these barriers are discussed in this chapter; LCR issues are discussed in chapter 6.

[321] These numbers are higher for companies in the pharmaceutical/medicinal chemicals subsector, where 27.9 percent of companies faced IP and LCR barriers. See table 5.5.

[322] USITC calculations of responses to the Commission questionnaire, questions 3.3, 4.2. and 5.2.

or resources to the Indian market, reduced the scope of work done in R&D facilities in India, or halted or slowed exports and/or affiliate expansion and activities. An estimated 12.1 percent of IP-intensive companies shifted their business within India, by either altering product or business lines, moving from one state to another, or changing Indian partners. Fewer companies (8.2 percent) increased their investments in affiliates in India to comply with regulations, such as LCRs.[323] By contrast, 39.0 percent of companies made no strategic changes to their business despite having faced regulatory impediments.

Figure 5.2: How IP-intensive U.S. companies altered strategies in response to regulatory impediments in India, percent



Source: USITC calculations of responses to the Commission questionnaire (question 6.5).
Note: See appendix Table I.19 for underlying data for this figure.

The particular barriers experienced by U.S. companies, as well as the strategies adopted in response to these barriers, differ depending on whether the company's output relies on trade secrets, patents, copyrights, and/or trademarks, as discussed below.

Trade-secret-intensive Industries and Barriers in the Indian Market

Companies in a wide variety of industry sectors rely on trade secrets and are affected by barriers undermining trade secrets. These barriers include the lack of a statute that prohibits

[323] In a separate write-in box for the "other" strategic changes companies made in response to regulatory impediments, a number of companies stated that they limited the types of products or services that they exported to or sold in India, reduced the patent filings that they made in India, increased resources for direct customer management or their IP team, delayed investment in or stopped clinical trials, or changed local licensees. Commission questionnaire (question 6.5).

trade secret theft, as well as the inadequate protection of the data that innovative companies must submit to gain regulatory approval for marketing new pharmaceutical or agricultural products. U.S. industry representatives consider the legal framework for protecting trade secrets in India to be insufficient. The U.S. government also has repeatedly noted these policy problems.[324]

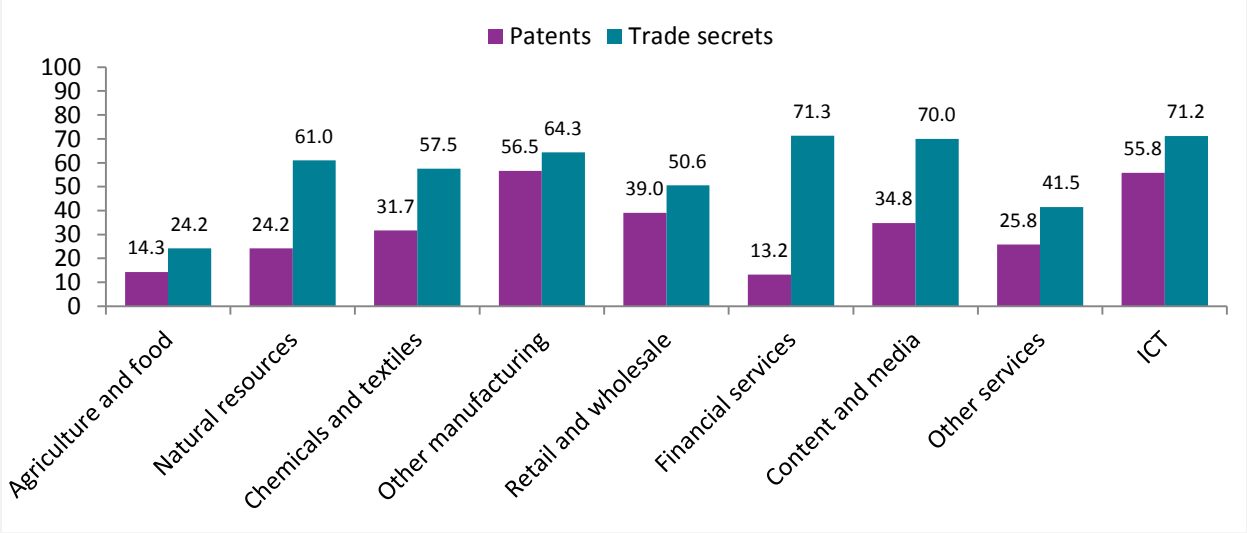
Trade-secret-intensive Industries

U.S. companies that create innovative products and processes, and particularly those that are R&D intensive, often protect their innovations through trade secrets.[325] Companies rely on trade secrets to protect valuable proprietary or technical information (such as test data and formulas) and confidential business information (such as customer lists or strategies). Because trade secrets do not have to be registered with a government agency, and protections are relatively easy to implement, many companies—particularly SMEs—rely on them as a default mode of IP protection.[326]

U.S. companies active in India generally consider trade secrets more important than patents; overall, 56.4 percent of U.S. companies active in India view trade secrets as “very important,” while 36.7 percent view patents as "very important."[327] More than two-thirds of companies in the ICT, financial services, and content and media sectors, and the majority of those in the natural resources, chemicals and textiles, and retail and wholesale sectors consider trade secrets “very important.” The majority of companies in the ICT and other manufacturing sectors also view patents as “very important” (figure 5.3).[328]

[324] USTR, “2014 Special 301 Report,” 2014, 41–42; USDOC, “2014 Country Commercial Guide,” 2014, 15–16, 76.
[325] Jankowski, “Business Use of Intellectual Property,” February 2012, 5.
[326] Schultz and Lippoldt, “Approaches to Protection,” 2014, 7–8; USITC, *China: Intellectual Property Infringement*, November 2010, 4-1.
[327] USITC calculation of weighted responses to the Commission questionnaire (question 1.7).
[328] Similarly, the Business R&D and Innovation Survey, which is conducted by the National Science Foundation and the Census Bureau, finds that high- and low-technology manufacturers and knowledge-intensive service industries in the United States all rate trade secrets as important to their operations. Jankowski, “Business Use of Intellectual Property,” February 2012, 4.

Figure 5.3: Percent of U.S. companies in the Indian market who consider patents and trade secrets very important to their business, by sector



Source: USITC calculations of weighted responses to the Commission questionnaire.
Note: See appendix Table I.20 for underlying data for this figure.

India Lacks a Trade Secret Law

Notwithstanding the importance of trade secrets, there is no statute that specifically governs their protection in India, and there is reportedly little case law on the subject.[329] This insufficient legal framework reportedly creates uncertainty about the circumstances under which trade secret protections and judicial relief will be available in Indian courts.[330] This uncertainty deters foreign companies from conducting R&D and other knowledge-intensive activities in India.[331]

India Lacks Regulatory Test Data Protection

India also lacks statutory protection for the test data that Indian regulatory authorities require before granting approval for certain products—particularly, pharmaceuticals or agricultural chemicals that use new chemical entities—to be marketed in India. The WTO TRIPS Agreement

[329] Schultz and Lippoldt, "Approaches to Protection," 2014, 251–52; Nishith Desai Associates, "Intellectual Property Law in India," December 2013, 42; Grover and Khetarpal, "Legislation Needed on Confidentiality in India," 2013, 18.
[330] USTR, "2014 Special 301 Review," April 2014, 42 (India's reliance on contract law to provide trade secret protection may be insufficient in cases where there is no contract, such as theft by a business competitor or other third party); Schultz and Lippoldt, "Approaches to Protection," 2014, 251.
[331] Alliance for Fair Trade with India, written submission to USTR, February 24, 2014, 12–13; industry representatives, interview by USITC staff, New Delhi, June 24, 2014; industry representatives, interview by USITC staff, Mumbai, June 24, 2014; industry representatives, interview by USITC staff, Washington, DC, January 8, 2014; FICCI, "Recommendations for New Government," n.d., ii (accessed July 17, 2014); Grover and Khetarpal, "Legislation Needed on Confidentiality in India," 2013, 18; Schultz and Lippoldt, "Approaches to Protection," 2014, 251.

requires that when innovator companies submit test data to obtain marketing approval for these products, WTO members must protect the data against "unfair commercial use."[332] However, because TRIPS does not define the critical terms of this requirement, it is carried out differently across countries.[333] The United States and some other countries interpret TRIPS to require "data exclusivity," meaning that for a set period of time (usually five years or more), data submitted to a marketing authority by an innovator company cannot be directly or indirectly relied upon as a basis for the approval of a generic version of a product.[334] By contrast, some countries interpret TRIPS to require the protection of trade secret information only when it is obtained under unfair circumstances—for example, through dishonesty or breach of contractual obligations.

India has proposed legislation to protect test data, but it has not been enacted. In the area of crop protection, proposed legislation would provide five years of data protection.[335] Multinational companies, and some Indian companies, support this legislation.[336] For pharmaceuticals, in 2007 a government committee recommended a "calibrated approach" that would provide data exclusivity after a transition period.[337] Again, these proposals have not been implemented, notwithstanding support from both Indian and U.S. industry representatives.[338]

U.S. industry representatives in the pharmaceutical and crop protection subsectors support data exclusivity because generating the safety and efficacy data required for marketing approval requires a significant investment of time and resources.[339] U.S. pharmaceutical industry organization PhRMA estimates that creating a new medicine takes, on average, 10 to

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[332] TRIPS Articles 39.2 and 39.3, http://www.wto.org/english/docs_e/legal_e/27-trips_04d_e.htm; Schultz and Lippoldt, "Approaches to Protection," 2014, 7–8; Thomas, "Proprietary Rights in Pharmaceutical Innovation," February 28, 2006, CRS-18.
[333] Thomas, "Proprietary Rights in Pharmaceutical Innovation," February 28, 2006, CRS-18; Schultz and Lippoldt, "Approaches to Protection," 2014, 8; WHO, WIPO, and WTO, *Promoting Access to Medical Technologies*, 2013, 65.
[334] Public Citizen, written submission to the USITC, April 10, 2014, 19. According to a recent study by the Organisation for Economic Co-operation and Development (OECD), 10 of 37 countries evaluated do not provide data exclusivity for drugs, and 6 do not provide data exclusivity for agricultural chemicals. Lippoldt and Shultz, "Uncovering Trade Secrets," 2014, 8, 157–61.
[335] USTR, "2014 Special 301 Report," 2014, 41; USDOC, "2014 Country Commercial Guide," 2014, 15–16.
[336] USITC, hearing transcript, February 14, 2014, 251 (testimony of Douglas Nelson, CropLife America).
[337] Reddy and Sandhu, "Report on Steps," 2007, v.; Linton and Corrado, "A Calibrated Approach," 2007, 5.
[338] FICCI, "Response to hearing testimony of India," 2014, 26; USITC, hearing transcript, February 14, 2014, 251 (testimony of Douglas Nelson, CropLife America); industry representatives, interviews by USITC staff, Washington, DC, September 19, 2013.
[339] PhRMA, written submission to the USITC, February 13, 2014, 2; USITC, hearing transcript, February 12, 2014, 7 (testimony of Brian Pomper, Alliance for Fair Trade with India); USITC, hearing transcript, February 12, 2014, 19 (testimony of Mark Elliot, U.S. Chamber of Commerce); USITC, hearing transcript, February 12, 2014, 72 (testimony of Stephen Ezell, ITIF); USITC, hearing transcript, February 14, 2014, 253 (testimony of Roy Zwahlen, BIO); USITC, hearing transcript, February 14, 2014, 24 (testimony of Linda Dempsey, National Association of Manufacturers); USITC, hearing transcript, February 14, 2014, 251 (testimony of Douglas Nelson, CropLife America).

15 years and over $1.2 billion (including the cost of failures).[340] According to CropLife, the development of a new crop protection chemical costs in excess of $256 million and may take over 10 years from discovery to commercialization.[341] Without data exclusivity, generic applicants can substantially reduce the time and expense of the regulatory approval process for their generic products. In some cases, Indian generic companies have even obtained marketing approval for their drugs before the innovating company upon whose data they have relied.[342] These practices substantially undermine U.S. companies' incentives to develop and test products for the Indian market, and limit their willingness to bring their best new technologies to India.[343]

Patent-intensive Industries and Barriers in the Indian Market

Patents enable companies to commercialize the inventions that are the end product of R&D investments. U.S. industry representatives, and particularly those in the pharmaceutical subsector, report three main types of patent barriers: first, section 3(d) of the India Patents (Amendments) Act of 2005 (the 2005 Act), which limits the patentability of incremental innovations; and second, provisions in the 2005 Act that set broad terms for the issuance of compulsory licenses. The third concern, which also has been raised by patent-intensive companies in other industry sectors, is that administrative and judicial processes in India are overly burdensome and time consuming. These concerns have their foundation in India's patent law, which has evolved substantially in recent years (box 5.2).[344]

Box 5.2: The evolution of India's patent law

Patent protections in India have evolved over several phases. The first covered the period from 1911 to 1972, when India followed British practices and permitted the patenting of pharmaceutical products. During this period, most pharmaceutical product patents were owned by foreign companies, which also dominated the pharmaceutical industry in India.

In 1972, the Patents Act of 1970 entered into force. The Act revised the law to foster the development of an indigenous pharmaceutical industry and ensure that the public had access to low-cost medicines. The law provided protection for the process of creating new drugs, but not for the products. This change enabled domestic companies to reverse-engineer drugs produced elsewhere, and use a different

[340] PhRMA, written submission to the USITC, February 25, 2014, 1.
[341] USITC, hearing transcript, February 14, 2014, 250–251 (testimony of Douglas Nelson, CropLife America).
[342] Industry representative, telephone interview with USITC staff, November 18, 2013.
[343] See PhRMA, written submission to USTR, 2014, 28; USITC, hearing transcript, February 14, 2014, 251–52 (testimony of Douglas Nelson, CropLife America); industry representative, telephone interview with USITC staff, November 18, 2013.
[344] These three concerns also have been repeatedly raised by the U.S. government. See, e.g., USTR, "2014 Special 301 Report," April 2014, 39–41; US&FCS and U.S. Department of State, *Doing Business in India*, 2014, 4, 11, 76.

process to produce the generic version. The removal of patent protection for pharmaceutical products has been identified as a key factor behind the growth of the Indian generics industry.

This system continued in place until 1995, when the WTO Agreement entered into force, including the TRIPS agreement. Among other commitments, India agreed to provide a 20-year term of protection for all patents and to grant protection for pharmaceutical products, after a 10-year transition period.

The legislation implementing these changes, the 2005 Act, was controversial in part because of its potential negative effects on Indians' access to medicine. At the last possible moment, the legislature added provisions in the Act to limit the scope of patentable inventions, expand the circumstances under which compulsory licenses could be obtained, and offer new opportunities to challenge patents both before and after their grant. Compromises that India made to secure passage of the 2005 Act remain controversial today.

Sources: Shapiro and Mathur, "How India Can Attract," January 2014, 14–15; Indian Pharmaceutical Alliance, written submission to the USITC, February 24, 2014, 6; Ragavan, Baker, and Flynn, written submission to the USITC, February 10, 2014, 3; Turrill, "Finding the Patent Balance," 2013, 1560.

Patent-intensive Industries

Patents may be used to commercialize inventions directly, as in the case of pharmaceutical companies that market patented drugs, or indirectly through the license of patented technologies, as is the case for many companies in the ICT and manufacturing sectors.[345] According to survey results, more than half of companies active in India in the other manufacturing (56.5 percent) and ICT sectors (55.8 percent) consider patents to be "very important." About one-third of companies in the chemicals and textiles sector, which includes the pharmaceuticals subsector, view patents as "very important" (figure 5.3).[346] Companies in these sectors may be affected by the following patent barriers.

Limits on Patents for Incremental Innovations

Restrictions on the patentability of products include section 3(d) of the 2005 Act, which states that the mere discovery of a new form, property, or use of a known substance which does not result in the enhancement of known efficacy is not a patentable invention.[347] The provision was intended to prevent the practice of patent "evergreening," which reportedly occurs when a manufacturer makes minor improvements to an existing patented medicine, obtains a new

[345] USITC, *China: Intellectual Property Infringement*, November 2010, 4-1.

[346] The Business R&D and Innovation Survey, which is conducted by the National Science Foundation and the Census Bureau, similarly finds that R&D-intensive companies in the computer and electronic products, electrical equipment, appliances and components, machinery, and chemicals sectors are most likely to consider patents very important. Jankowski, "Business Use of Intellectual Property," 2012, 2.

[347] Section 3(d) also explains how it is to be applied: "For the purpose of this clause, salts, esthers, ethers, polymorphs, metabolites, pure form, particle size, isomers, mixtures of isomers, complexes, combinations and other derivatives of known substance shall be considered to be the same substance, unless they differ significantly in properties with regard to efficacy." 2005 Act, section 3(d).

patent, and thus extends the time in which it enjoys patent rights.[348] U.S. and Indian industry representatives state that section 3(d), as well as high thresholds for establishing patent law requirements of "non-obviousness" and "inventive step," potentially bar the grant of patents for important incremental innovations that routinely receive patent protection in other countries.[349]

According to experts at the World Health Organization (WHO), the World Intellectual Property Organization, and the World Trade Organization, the fact that an invention is incremental generally is not a valid ground for refusing to grant a patent, as most innovation is incremental by nature, particularly in the area of pharmaceuticals.[350] For example, patentable incremental innovations of pharmaceuticals might include new dosage forms, such as controlled-release formulations that increase patients' compliance; new formulations with improved storage characteristics; and new drug delivery mechanisms, all of which may represent substantial improvements over prior inventions.[351] Indian companies are among those reportedly developing key improvements to available drugs that are not directly related to therapeutic efficacy.[352]

The seminal case on incremental innovation in India is *Novartis AG v. Union of India*, in which the Indian Supreme Court held that, in the context of medicines, the enhanced efficacy required by section 3(d) is limited to "therapeutic efficacy."[353] Thus, Novartis was not entitled to a patent on its cancer drug, Glivec (also spelled Gleevec), because the new characteristics of the drug (such as improved thermodynamic stability and other properties) were not shown to make it more effective at curing cancer.[354] Under section 3(d), Indian patent examiners and judges are required to determine the therapeutic efficacy of drugs as part of the evaluation of

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[348] Ragavan, Baker, and Flynn, written submission to the USITC, February 10, 2014, 5; USITC, hearing transcript, February 14, 2014, 383–84 (testimony of Rohit Malpani, Doctors Without Borders).
[349] Hunter, prehearing statement to the USITC, February 13, 2014, 2; USITC, hearing transcript, February 12, 2014, 9 (testimony of Brian Pomper, Alliance for Fair Trade with India); USITC, hearing transcript, February 12, 2014, 21 (testimony of Mark Elliot, U.S. Chamber of Commerce); USITC, hearing transcript, February 12, 2014, 74 (testimony of Stephen Ezell, ITIF); USITC, hearing transcript, February 14, 2014, 255 (testimony of Roy Zwahlen, BIO); USITC, hearing transcript, February 14, 2014, 235 (testimony of Linda Dempsey, National Association of Manufacturers); USIBC, written submission to the USITC, January 30, 2014, 12; Burrill Media, "Accelerating Growth," 2014, 17; industry representatives, interviews by USITC staff, New Delhi, June 24, 2014; industry representatives, telephone interview by USITC staff, September 25, 2013; industry representatives, interviews by USITC staff, Washington, DC, September 19, 2013.
[350] WHO, WIPO, and WTO, *Promoting Access to Medical Technologies*, 2013, 131.
[351] Ibid., 130–31.
[352] WHO, WIPO, and WTO, *Promoting Access to Medical Technologies*, 2013, 131; Burrill Media, "Accelerating Growth," 2014, 17.
[353] *Novartis AG v. Union of India*, Supreme Court of India, Civil Appeal No. 2706-2716 of 2013 (April 1, 2013), 180.
[354] Ibid., 187.

patentability, a determination that arguably is more appropriately made by health professionals.[355]

U.S. industry representatives also are concerned about the "contagion" effects on other countries of section 3(d) and the compulsory license provisions in India's law.[356] That is, they are worried that other countries will follow India's lead and promulgate patent policies that undermine core business models based on incremental innovation.[357] For example, in 2008, the Philippines amended its patent law to add language similar to section 3(d) to describe inventions that would not be patentable.[358] In 2012, Argentina issued resolutions that limit the patentability of derivatives of pharmaceutical products in much the same way as India.[359] Indian generic drug manufacturers and international NGOs reportedly were quick to praise the revisions.[360]

The Compulsory Licensing of Patented Technologies

The India Patents Act sets broad parameters for the government to grant compulsory licenses that allow someone else to produce a patented product or process without the consent of the patent owner. Under section 84, the government can compulsorily license a patent three years after it is granted, on the grounds that (a) the reasonable requirements of the public with respect to the patented invention have not been satisfied, (b) the invention is not available at a reasonably affordable price, or (c) the invention is not being "worked" in India.[361] Section 83 sets forth general principles for determining whether the "working" requirement has been satisfied, including that patents are granted to encourage invention and ensure that inventions are worked in India on a commercial scale and to the fullest extent practicable; to encourage

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[355] WHO, WIPO, and WTO, *Promoting Access to Medical Technologies*, 2013, 132 (citing Yamane, H., *Interpreting TRIPS: Globalisation of Intellectual Property Rights and Access to Medicines*, Oxford and Portland, Oregon, Hart Publishing, 2011).

[356] The use of compulsory licenses in India and other countries is discussed below.

[357] USITC, hearing transcript, February 12, 2014, 77 (testimony of Stephen Ezell, Information Technology and Innovation Foundation); USITC, hearing transcript, February 12, 2014, 91 (testimony of Brian Pomper, Alliance for Fair Trade with India); USITC, hearing transcript, February 14, 2014, 427 (testimony of Julie Corcoran, Bayer Corporation).

[358] Banerjee, "The Success of, and Response to, India's Law against Patent Layering," May 2013, 227; PhRMA, "Special 301 Submission 2014," 2014, 136.

[359] Ibid., 96.

[360] Banerjee, "The Success of, and Response to, India's Law against Patent Layering," May 2013, 228.

[361] The term "worked" is not defined in the statute but generally can be understood as meaning using or exploiting the patented invention in India. Industry representatives also note that Indian law requires companies to file a yearly "statement of working" that proves the patentee is exploiting its invention in India. Noncompliance may justify the cancellation of a patent. The patent office also can issue a compulsory license if, among other things, more than two years have passed without a patent being continuously worked. BIO, "2014 Special 301 Submission," 2014, 9; PhRMA, "Special 301 Submission 2014," 2014, 27.

innovation and technology transfer; and not to impede public health or merely enable a monopoly on importation.[362] Separately, under section 92, a compulsory license can be granted to the government when it provides notice of the existence of a national emergency or where it intends to use the patented subject matter for noncommercial public use.[363]

To date, one compulsory license has been granted in India under section 84 for a Bayer cancer drug, Nexavar (see case study). According to USTR, the Singh government, which preceded the Modi government, was also considering other pharmaceutical products for compulsory licensing under section 92. Moreover, the Singh government promoted compulsory licensing in its National Manufacturing Policy of 2011 as a mechanism that could be used for technology transfer in the clean energy sector, and repeated these arguments in negotiations under the United Nations Framework Convention on Climate Change (UNFCCC).[364]

In providing testimony at the Commission, U.S. industry representatives raised substantial concerns about compulsory licenses.[365] Some questioned whether the Nexavar decision, and others that limit foreign companies' patent rights,[366] are motivated primarily by industrial policy goals rather than public health concerns.[367] Those who said that industrial policy goals predominate noted that Nexavar is a highly specialized anti-cancer medicine that benefits only a small fraction of India's patient population; removal of IP protections thus had a very limited benefit in terms of overall affordability or access to medicines.[368] Moreover, India spends

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[362] See 2005 Act § 83 (2005).

[363] According to Professors Ragavan, Baker, and Flynn, India has one of the most sophisticated and comprehensive compulsory license regimes of any country. Ragavan, Baker, and Flynn, written submission to the USITC, February 10, 2014, 5. See 2005 Act §§ 84 and 92 (2005).

[364] USTR, "2014 Special 301 Report," April 2014, 40–41.

[365] See, e.g., USITC, hearing transcript, February 12, 2014, 21 (testimony of Mark Elliot, U.S. Chamber of Commerce); USITC, hearing transcript, February 12, 2014, 73 (testimony of Stephen Ezell, ITIF); Blake, written testimony to the USITC, February 13, 2014, 3; Hunter, written submission to the USITC, February 13, 2014, 2; USITC, hearing transcript, February 12, 2014, 9 (testimony of Brian Pomper, Alliance for Fair Trade with India); USITC, hearing transcript, February 14, 2014, 256–57 (testimony of Roy Zwahlen, BIO); USITC, hearing transcript, February 14, 2014, 235–36 (testimony of Linda Dempsey, National Association of Manufacturers).

[366] Additional cases limiting the patent rights of non-Indian pharmaceutical companies are described below, see table 5.4.

[367] Blake, written testimony to the USITC, February 13, 2014, 3; Hunter, written submission to the USITC, February 13, 2014, 2; USITC, hearing transcript, February 12, 2014, 9 (testimony of Brian Pomper, Alliance for Fair Trade with India); USITC, hearing transcript, February 12, 2014, 22 (testimony of Mark Elliot, U.S. Chamber of Commerce); USITC, hearing transcript, February 12, 2014, 73 (testimony of Stephen Ezell, ITIF); USITC, hearing transcript, February 14, 2014, 256–57 (testimony of Roy Zwahlen, BIO); USITC, hearing transcript, February 14, 2014, 235–36 (testimony of Linda Dempsey, National Association of Manufacturers); Semiconductor Industry Association (SIA), written submission to the USTR, February 7, 2014; industry representatives, telephone interview by USITC staff, September 25, 2013; industry representatives, interview by USITC staff, Washington, DC, January 8, 2014.

[368] BIO, prehearing statement, February 13, 2014, 2; Hunter, post-hearing submission, February 25, 2014, 4; Global Intellectual Property Center (GIPC), written submission to the USITC, January 31, 2014, 5; industry representatives, interviews with USITC staff, Washington, DC, September 19 and 27, 2013.

substantially less on healthcare than other developing countries.[369] Reportedly, only 20 percent of India's population can afford access to critical medicines on India's Essential Drug List, despite the fact that none is patented.[370] According to the Indian Association of Biotechnology Led Enterprises and BIO, "[u]sing the patent system to control drug pricing forestalls making the difficult decisions about necessary investment in the healthcare system, but does not deal with the underlying issues."[371]

Moreover, generic manufacturers reportedly have made compulsory licenses a centerpiece of their business strategies. Thus, for example, Natco's 2011–12 Annual Report reproduces an Indian newspaper headline announcing the company's receipt of India's first compulsory license.[372] As the market for patented medicines in India is small, some industry representatives state that the real motivation for the Indian generic industry and the government is for domestic companies to be able to export valuable products that have been compulsorily licensed, or otherwise denied patent protection, to other developed- and developing-country markets.[373]

By contrast, some NGO representatives assert that too many drugs reportedly on the market are priced vastly beyond the ability of most people to pay, and generic competition has consistently been shown as an effective way to reduce these prices. Moreover, many drugs reportedly are developed with substantial contributions from public and charitable institutions; high price premiums thus should not be considered necessary to incentivize the required R&D.[374]

A potential middle ground is suggested by those who note that better data on the size of disease burdens and R&D investments, as well as the costs and benefits of different treatment methods, would provide a more sustainable basis for government decision-making than the ad hoc determinations made in particular compulsory license cases.[375] According to some, this

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[369] According to BIO, in 2011, India spent less on healthcare as a portion of GDP than Brazil, China, South Africa, Botswana, Angola, Burkina Faso, Congo, Gambia, and Cameroon. BIO, "2014 Special 301 submission," 2014, 14. In 2013, India reportedly spent 4 percent of GDP on healthcare. See chapter 2.

[370] BIO, written submission to the USITC, February 13, 2014, 2; Hunter, posthearing submission, February 25, 2014, 4.

[371] Burrill Media, "Accelerating Growth," 2014, 6.

[372] Natco, *29th Annual Report 2011–2012*, 2013.

[373] PhRMA, written submission to the USITC, February 25, 2014, 4; National Center for Policy Analysis, written submission to the USITC, April 4, 2014. For a discussion of the strong competitive position of the Indian generics industry see chapter 9.

[374] Public Citizen, written submission to the USITC, April 10, 2014; Knowledge Ecology International, written submission to the USITC, February 14, 2014, 5–6.

[375] One witness stated that India's patent policies should be judged against three TRIPS-consistent objectives: contributing to a "fair" share of the fixed costs of global R&D; promoting domestic technological development; and providing affordable access to medicine for the population. Subramanian, written testimony to the USITC, February 13, 2014, 16; U.S. government representative, interview with USITC staff, New Delhi, June 23, 2014.

type of evidence-based decision making would not have supported the pursuit of a compulsory license in the Nexavar case, as the medicine was appropriate only for a relatively small population and reportedly being provided for free or a reduced price to most patients.[376]

Procedural and Substantive Enforcement Issues

Multiple U.S. industry sources state that IP enforcement in India is hindered because the patent office and the courts are overburdened, leading to long delays in case processing.[377] Companies often wait many years for a patent application to enter into the examination process, only to have the claims opposed in a pre-grant proceeding, and then again in a post-grant opposition by the same opponent.[378] Moreover, injunctions reportedly are granted only rarely, and monetary relief is too low to deter infringement.[379] Biotechnology and pharmaceutical industry representatives also state that, through a loophole in the regulatory process, generic companies can use patent challenges as a basis for obtaining marketing approval to sell their products during the lengthy period while innovative companies' patents are under review.[380]

More positively, other industry representatives note that the new Indian government wants to improve the patent office by hiring more examiners with the appropriate technical knowledge and by digitizing the patent databases.[381] Some also state that IP cases are prioritized because many involve public health issues, and that the patent office's quasi-judicial processes shorten the overall time needed to resolve cases.[382]

In addition to procedural concerns, industry representatives point to a number of recent patent cases as indicative of a trend to limit the patent rights of foreigners.[383] For example, according to the Organisation of Pharmaceutical Producers of India (OPPI), approximately 13 of 48 molecules that are patented in India are under some form of legal challenge (table 5.4).[384]

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[376] Similarly, Novartis reportedly was providing Glivec free of charge to 95 percent of the potential patient population before the Indian Supreme Court's decision to deny the patent. U.S. government representative, interview with USITC, New Delhi, June 23, 2014; GIPC, written submission to the USITC, January 31, 2014, 6; industry representative, interview with USITC staff, Washington, DC, September 27, 2013.
[377] Industry representatives, interviews by USITC staff, Bangalore, June 20, 2014, Mumbai, June 16 and 24, 2014, and New Delhi, June 24, 2014.
[378] BIO, "2014 Special 301 Submission," 2014, 9, 12; industry representatives, interviews by USITC staff, Bangalore, June 20, 2014, Mumbai, June 16 and 24, 2014, and New Delhi, June 24, 2014.
[379] Industry representatives, interview by USITC staff, Mumbai, June 24, 2014; U.S. government representative, interview by USITC staff, October 29, 2013.
[380] BIO, "2014 Special 301 submission," 2014, 9, 12; PhRMA, "Special 301 Submission 2014," 2014, 27.
[381] Industry representatives, interviews by USITC staff, New Delhi, June 24, 2014, Mumbai, June 24, 2014, and Chennai, July 1, 2014.
[382] Industry representatives, interview by USITC staff, New Delhi, June 23, 2014; Ragavan, Baker, and Flynn, written submission to the USITC, February 10, 2014, 6.
[383] U.S.-India Business Council, written submission to the USITC, January 30, 2014, 12–13.
[384] OPPI, "IPR Challenges in India," 2014 (accessed July 21, 2014).

Table 5.4: Selected rulings on pharmaceutical patents in India

Company/product name	Status	Patent issue
Compulsory license (CL) cases		
Bayer/Nexavar	CL granted and upheld on appeal	In July 2014, the Bombay High Court rejected Bayer's appeal of a CL granted to Natco for this cancer drug.
Bristol-Myers Squibb/Sprycel	Generic enjoined/case pending	In June 2012, Natco obtained a license from the state of Uttarakhand to manufacture a generic version of the cancer drug Sprycel. BMS obtained injunctive relief against Natco and others, precluding further marketing of the generic.
	CL rejected	A CL requested by BDR Pharmaceutical Ltd. was rejected by the patent office.
	CL under consideration	In May 2014, the Department of Industrial Policy and Promotion (DIPP) of the Ministry of Commerce and Industry rejected a proposal made by the Ministry of Health (MoH) for a CL; however, a government committee reportedly is considering new grounds for its issuance.
Bristol-Myers Squibb/Ixempera	CL under consideration	In January 2013, the media reported that the government had started the process of issuing a CL for this cancer drug. To date, however, no ruling has been issued.
Roche/Herceptin	Patent relinquished	In April 2013, the MoH recommended that the government issue a CL for this cancer drug under section 92 of the Patents Act. Roche relinquished its Indian patent in August 2013.
Patent Applications		
AstraZeneca/Iressa	Patent denied	On November 26, 2012, the Intellectual Property Appellate Board (IPAB) upheld the denial of AstraZeneca's patent application for this cancer drug, finding a lack of inventive step. Appeal pending.
Novartis/Glivec	Patent denied	On April 1, 2013, the Indian Supreme Court denied an appeal challenging the rejection of a patent for Glivec under section 3(d), again for lack of an inventive step.
Boehringer Ingelheim/Pradaxa	Patent granted	A patent for this blood-thinning medication was granted after remand of the IPAB's patent denial.
Patent Revocation Proceedings		
Roche/Pegasys	Patent revoked	In November 2012, the IPAB revoked Roche's patent for this hepatitis C drug, citing a lack of inventive step.
Merck/combination drug	Patent revoked	In December 2012, the Patent Office revoked Merck's patent for this asthma drug, citing a lack of inventive step.
Pfizer/Sutent	Patent reinstated	In June 2013, the IPAB reversed two previous orders (in February 2013 and September 2012) revoking Pfizer's patent on this cancer drug. Pfizer's patent has been reinstated.
Allergan/Ganfort and Combigan	Patent revoked	In August 2013, the IPAB revoked the patents for Gancort and Combigan, ocular hypertension and glaucoma drugs, on the grounds that the inventions were obvious and that Allergan failed to comply with section 8 of the India Patents Act, which requires filing information on patent filings outside of India.

Company/product name	Status	Patent issue
Generics during patent term		
Merck/Januvia and Janumet	Generic permitted	In March 2013, the Indian firm Glenmark launched a generic version of Merck's patented diabetes drugs, after obtaining approval from regulatory authorities in Sikkim, a small state in India. Merck's request for injunctive relief was denied and its appeal is pending. In the meantime, the generic is on the market.
Novartis/Galvus	Generic enjoined	In March and April 2014, Novartis obtained multiple injunctions to stop generic versions of this diabetes drug.

Sources: *Bayer v. Union of India, the Controller of Patents, and Natco*, WP-1323, Bombay High Court, July 15, 2014; *Economic Times*, "Roche Sues Biocon, Mylan, DCGI," February 7, 2014; FICCI, "Response to Hearing Testimony of India," 14; OPPI, "IPR Challenges in India," n.d. (accessed July 21, 2014); Vishwanathan, "It's Raining Injunctions," April 28, 2014; BIO, "2014 Special 301 Submission," 2014.

However, these cases are not uniformly negative for U.S. and other multinational companies; some have been decided in favor of the patent holders. Moreover, according to one expert, the decisions provide evidence of due process for foreign companies; deciding authorities have reviewed the facts and law and issued reasoned decisions.[385] Indian pharmaceutical industry representatives note that many other cases and patents have been resolved in favor of global pharmaceutical companies.[386] Others assert that India's decision to allow multiple challenges to patents, its limitations on patentability, and its broad compulsory license provisions all are consistent with the flexibilities that TRIPS gives to WTO members to tailor their regimes to meet local needs.[387]

New Business Strategies for Patent-intensive Companies

U.S. pharmaceutical companies active in India reportedly are adopting business strategies that promote access to medicine while also respecting IP rights. These strategies include tiered pricing, where companies charge different classes of buyers different prices for the same product (both within a single country and across countries); partnerships with generic companies to launch authorized and lower-priced versions of their products; and more robust

[385] Subramanian, written testimony to the USITC, February 13, 2014, 15.
[386] IPA, written submission to the USITC, February 13, 2014, 2 (over 1500 patents have been granted to the top nine global pharmaceutical companies alone, for products and compositions, in addition to patents for manufacturing).
[387] Public Citizen, written submission to the USITC, April 11, 2014, 9–10; Ragavan, Baker, and Flynn, written submission to the USITC, February 10, 2014, 3; KEI, written submission to the USITC, February 14, 2014, 2; IPA, written submission to the USITC, February 13, 2014, 6.

patient access programs.[388] The WHO, WIPO, and the WTO state, however, that while these strategies are important complementary tools, "government commitment to provide access to medicines to those who cannot afford them remains essential."[389] Some industry representatives are optimistic about the new Indian government's commitment to improving access and the IP environment, and state that their companies have plans to expand their product and service offerings as improvements occur.[390]

New business strategies in the pharmaceutical sector are monitored by various NGOs, including the Access to Medicine Foundation, which ranks pharmaceutical companies' efforts to improve access to medicine in developing countries. In its Access to Medicine Index, the foundation has noted a number of positive initiatives in India related to patents and licensing. For example, Gilead Sciences achieved a top ranking in the 2012 Index, in part because of its participation in the Medicines Patent Pool, a United Nations-backed organization established in 2010 to improve access to HIV medicines.[391] Similarly, Johnson & Johnson has improved its rankings through the issuance of more non-exclusive voluntary licenses to generics producers to support access to medicine.[392] Representatives of industry and NGOs also point out that, in the context of the AIDS crisis, pharmaceutical companies have made pricing and licensing decisions in India and other developing countries that have enabled broader and less expensive access to patented technologies (box 5.3).

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[388] IPA, written submission to the USITC, February 24, 2014, 1–3 (describing increased investments and strategic partnerships between international and domestic pharmaceutical companies); industry representatives, interview by USITC staff, Mumbai, June 24, 2014; industry representatives, interview by USITC staff, New Delhi, June 24, 2014; industry representatives, interview by USITC staff, New Delhi, June 24, 2014; industry representatives, interview by USITC staff, New Delhi, June 23, 2014.

[389] WHO, WIPO, and WTO, *Promoting Access to Medical Technologies*, 2013, 155.

[390] Industry representatives, interview by USITC staff, Mumbai, June 24, 2014; industry representatives, interview by USITC staff, New Delhi, June 24, 2014; industry representatives, interview by USITC staff, New Delhi, June 24, 2014; industry representatives, interview by USITC staff, New Delhi, June 23, 2014.

[391] More recently, Gilead has announced that it will license technology underlying Solvadi, its hepatitis C drug, to seven Indian generic companies who will make the drug, set their own prices, and then pay Gilead a royalty on the their sales. Kalra and Siddiqui, "Gilead Licenses Hepatitis C," September 15, 2014; Access to Medicine Foundation and MSCI ESG Research, "The Access to Medicine Index 2012," November 2012, 56–57.

[392] Access to Medicine Foundation and MSCI ESG Research, "The Access to Medicine Index 2012." November 2012, 56–57.

Box 5.3: Compulsory licenses and AIDS drugs

Controversy over the terms of access to patented medicines in developing countries is not new. In 2001, in the midst of a growing HIV/AIDS crisis, the WTO Ministerial Council adopted the Doha Declaration to ensure that the TRIPS Agreement would be carried out in a way that would support WTO members' right to protect public health and promote access to medicines for all.

Between 2001 and 2005, WTO members issued 17 compulsory licenses on pharmaceutical patents, most of which involved HIV/AIDS medicines. Innovative governmental, nonprofit, and industry initiatives also increased dramatically. International development assistance for health grew rapidly, including through the establishment of Global Fund to Fight AIDS, TB and Malaria (the Global Fund) in 2002 and the U.S. President's Emergency Plan for AIDS Relief (PEPFAR) in 2003. Pharmaceutical companies donated or voluntarily licensed their products; according to PhRMA, the industry contributed $94.8 billion towards achieving the UN Millennium Development Goals. Price cuts and competition also substantially reduced the cost of AIDS drugs. All of these changes improved access to AIDS medicine in India, and other developing countries.

With expanded access to medicine came fewer compulsory licenses, which declined dramatically from 2006 to 2011. Lessons learned from the AIDS crisis may provide a basis for addressing developing countries' concerns about ensuring access to medicines for noncommunicable diseases, such as cancer, without undermining valuable IP rights. Even critics of pharmaceutical companies, including Knowledge Ecology International (KEI) and Doctors without Borders, have praised these AIDS-related initiatives.

Source: Bollyky, "Access to Drugs," July 2013, 2; Subramanian, written testimony to the USITC, February 13, 2014, 15; PhRMA, posthearing submission to the USITC, February 25, 2014, 3; USITC, hearing transcript, February 14, 2014, 432 (testimony of Rohit Malpani); KEI, "Gilead's MPP License," August 1, 2014.

Survey Results Regarding Trade-secret and Patent-intensive Companies

U.S. companies relying on trade secret and patent protection indicate they are affected similarly by the IP environment in India; about 17 percent of each type of company report facing this issue (table 5.5). Patent-intensive companies indicate that the level of protection has a greater negative effect, with 12.3 percent of patent-intensive companies substantially adversely affected by the barrier, compared to 9.2 percent of trade-secret-intensive companies. On average, companies viewed the IP environment as having a moderate negative effect on exports and affiliate sales in 2013, and the effect rose slightly from 2007 to 2013.

Table 5.5: Effects of the level of Indian IP protection on U.S. companies in India that rely on trade secrets and patents, and those in the pharmaceutical subsector, 2007–13

	Share of companies (%)		Mean effect[a]		
Type of company	**Facing the issue[b]**	**Substantially affected[c]**	**2007**	**2010**	**2013**
Trade-secret-intensive companies	16.8	9.2	2.4	2.6	2.9
Patent-intensive companies	17.0	12.3	2.6	2.9	3.2
Pharmaceutical companies	27.9	24.7	2.5	3.4	3.5

Source: USITC calculations of weighted responses to the Commission questionnaire (questions 3.3, 4.2, and 5.2).
[a] On a scale from 0 (did not face the barrier) to 5 (prohibitive effect on activities).
[b] Share of companies reporting an effect from 1 (faced the policy but it had no effect on activities) to 5 (prohibitive effect) in 2007, 2010, or 2013.
[c] Share of companies reporting an effect of 3–5, indicating the policy had a moderate, severe, or prohibitive effect on activities in 2007, 2010, or 2013.

Patent-intensive companies are more likely than trade-secret-intensive companies to indicate that Indian IP policies are discriminatory (i.e., that they are more adversely affected by the IP environment than are Indian companies); 39.2 percent of patent-intensive companies perceive that the IP environment is discriminatory compared to 30.0 percent of trade-secret-intensive companies.[393] This difference in perception may be explained, at least in part, by the fact that there have been well-publicized patent denials in the pharmaceutical subsector but few reported trade secret cases involving U.S. companies.

Examining pharmaceutical companies' responses alone reveals that companies in this subsector are more likely to indicate that IP protection in India is inadequate for their business needs than patent- and trade-secret-intensive companies in general. Approximately 28 percent of IP-intensive U.S. pharmaceutical companies active in India indicate that IP protection is inadequate, and 24.7 percent are substantially affected by it.[394] Pharmaceutical companies indicate the adverse effect of the IP environment has steadily increased, from a mean effect of 2.5 in 2007 to 3.5 in 2013.

Case Study: The Nexavar Compulsory License

India has granted one compulsory license under section 84 of the Patents Act for Nexavar, an oncology drug used to treat advanced stages of kidney and liver cancer. Bayer conducted all of the research and development (R&D) related to the drug in the United States. Beginning in 1999, Bayer USA obtained patent protection on the underlying compounds in Nexavar in

[393] USITC calculations of weighted responses to the Commission questionnaire (questions 1.7, 3.3, 4.2, and 5.2).
[394] These results do not necessarily reflect all effects on the global supply chains of multinational companies. For example, the U.S. affiliate of a pharmaceutical company headquartered outside the United States may not be negatively affected by the IP environment in India, despite the fact that other company locations have been negatively affected, if the U.S. affiliate is not involved in the export of the affected product.

various countries, including India. With annual sales of approximately $1 billion worldwide, Nexavar is important to Bayer's business.[395]

In July 2011, the Indian pharmaceutical firm Natco filed an application with the Controller General of Patents to compel Bayer to issue a license permitting Natco to manufacture and market Nexavar. In March 2012, the Controller granted the compulsory license, agreeing with Natco that all three of the grounds for a compulsory license were present: the reasonable requirements of the public with respect to the drug had not been satisfied; the drug was not available at a reasonably affordable price; and it was not being sufficiently "worked" or exploited in India.[396]

Bayer appealed and in March 2013, the appellate tribunal upheld the order but increased the royalty payable to Bayer from 6 percent of sales revenues to 7 percent. The tribunal also disagreed with the Controller's conclusion that "working" the patent in India could only be satisfied by local manufacturing, instead finding that "working" must be determined on a case-by-case basis.[397]

On July 15, 2014, the Bombay High Court upheld the finding that all three grounds for a compulsory license had been established.[398] As to the first ground, the Court rejected Bayer's argument that infringing copies of Nexavar being sold by another Indian company, Cipla, should have been considered in determining whether the public's requirements for the drug were being met.[399] The Court also stated that for non-luxury goods, such as medicines, the appropriate test was whether 100 percent of demand for the product had been met, and Bayer had not made this showing.[400] The Court also rejected Bayer's argument that its patient assistance program should be considered in determining if the medicine was available to the public at a reasonable price, as the reduced price was at Bayer's discretion and not available to all members of the public.[401] The Court also upheld the finding that the third ground for a compulsory license had been established because Bayer had not shown the reasons why manufacturing its product in India would be impossible or prohibitive such that importation alone should be considered sufficient to satisfy the working requirement.[402] Bayer has stated that it plans to appeal this ruling to the Supreme Court of India.[403]

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[395] Blake, written submission to the USITC, February 14, 2014.
[396] IPA, written submission to the USITC, February 13, 2014, 4–5.
[397] Ibid.
[398] Bayer Corporation v. Union of India et al., WP-1323, Bombay High Court, July 15, 2014.
[399] Bayer Corporation v. Union of India et al., WP-1323, Bombay High Court, July 15, 2014, 37.
[400] Ibid., 38–39.
[401] Ibid., 44.
[402] Bayer Corporation v. Union of India et al., WP-1323, Bombay High Court, July 15, 2014, 48–49.
[403] Life Sciences Intellectual Property Review, "Bayer Loses Another," July 16, 2014.

According to Bayer and PhRMA, the fundamental challenge for innovative pharmaceutical companies is that creating a new medicine takes a long time, substantial expense, and a high degree of uncertainty; they state that most new treatment ideas are abandoned, often after years of R&D investments.[404] Patent protection provides limited exclusivity as an inducement to incur these up-front costs and risks. Bayer and PhRMA stated that failure to provide such protection has a direct effect on India's ability to attract investment and on the U.S. pharmaceutical industry's ability to create exports, jobs, and future innovation.[405]

Trademark and Copyright Barriers in the Indian Market

The U.S. government, as well as U.S. and Indian trade associations, have found substantial piracy and counterfeiting in India. Industry representatives in the content and media sector in particular describe piracy and counterfeiting as key impediments to doing business in India, and emphasize the challenges associated with rapidly increasing Internet penetration. Foreign and domestic industry representatives generally agree that stronger enforcement efforts and more resources are needed to effectively address increased piracy and counterfeiting, particularly in the digital environment. Industry representatives also note the importance of new business models and approaches to reducing piracy and counterfeiting.[406]

Substantial Counterfeiting and Piracy in India

U.S. companies in numerous industries experience piracy and counterfeiting in India. Although effects are most pronounced in the content and luxury goods industries, other industries, such as pharmaceuticals, computer hardware, and alcohol, also are affected (table 5.6).

[404] Blake, written submission to the USITC, February 14, 2014; PhRMA, posthearing submission to the USITC, February 25, 2014, 2–3.
[405] Ibid.
[406] IIPA, written submission to the USITC, January 30, 2014, 3–4, 7–9; USTR, "2014 Special 301 Report," April 2014, 38, 42; BASCAP and CASCADE, "Counterfeiting, Piracy and Smuggling in India," 2013, 16; IMI, "Indian Music Industry Fights Back," n.d. (accessed July 22, 2014); industry representatives, interview by USITC staff, New Delhi, July 1, 2014 and industry representatives, interview by USITC staff, Mumbai, June 23, 2014.

Table 5.6: Selected examples of counterfeiting and piracy in India

Type of infringement	Descriptions and examples
Counterfeit and pirated movies, music, software, and other physical goods	New Delhi: Nehru Palace, Gaffar Market, Chandini Chowk, Palika Bazaar, and Sarojini Nagar. These markets reportedly offer large volumes of pirated software and optical media containing movies and music, as well as counterfeit clothing, shoes, cosmetics, electronics, and other products. Mumbai: Manish Market, Lamington Road, Dadar Train Station, Andheri Station Market, Borivili Train Station, and Thane Station Market. These markets reportedly sell infringing software, music, and movies. Hyderabad: Chenoy Trade Center and Hong Kong Bazaar. Shops reportedly sell pirated operating system software, electronic office tools, multimedia games, and antivirus software, as well as infringing movies and music. Chennai: Richie Street, Censor Plaza, and Burma Bazaar. Burma Bazaar reportedly is one of the largest pirate markets in India for Hollywood and Bollywood films. By contrast, copyrights and trademarks of the local Tamil film industry generally are respected.
Film piracy	Illegal camcording on the day a motion picture is released is a substantial problem in India. The cities of Indore, Ghaziabad, and Ahmedabad were identified in a forensic study as global hot spots for illegal camcording. Camcorded films are the source of illegal prints found on the Internet; pirated films from India reach the Internet approximately 3.15 days after their release. Camcorded copies also are sold to source labs, where they are illegally duplicated, packaged, and prepared for sale in street markets across the country and overseas. According to the International Intellectual Property Alliance (IIPA), in 2012 there were 69 incidents of unauthorized camcording of major U.S. motion pictures that were sourced to Indian movie theatres. In 2013, the number of incidents dropped to 43, a positive indicator.
Counterfeiting in seven industry sectors	Automobile components, alcohol, computer hardware, personal goods, packaged foods, mobile phones, and tobacco were identified as the seven industry sectors most vulnerable to counterfeiting and smuggling in India, according to a study commissioned by the Federation of Indian Chambers of Commerce and Industry (FICCI).
Counterfeit luxury goods	The growth rate for the counterfeit luxury goods market in India (handbags, watches, shoes, clothes, hats, sunglasses, perfume, and jewelry) is almost twice that of the legitimate market, and is largely driven by web shopping portals. The size of the counterfeit market is expected to increase from $410 million to $918 million in 2014, according to the Associated Chambers of Commerce and Industry of India (ASSOCHAM).
Counterfeit pharmaceuticals	According to the World Health Organization, a counterfeit drug is one that is deliberately and fraudulently mislabeled with regard to its identity or source. It may include products with or without the correct ingredients or with fake packaging. Estimates of counterfeit drugs in India range from 5 percent of the total market, according to the Ministry of Health, to 15–20 percent, according to a 2010 study by Pharma Secure, a U.S. company that uses a track and trace system to monitor counterfeit drugs in the market. India is the top supplier of counterfeit pharmaceuticals to the United States, according to U.S. Customs and Border Protection data and analysis.

Type of infringement	Descriptions and examples
Online piracy	Online piracy of music and of film and television content in India is carried out primarily through BitTorrent file-sharing networks; cyberlockers (which allow users to copy digital media onto a site operator's server for access at any time); and Web-based file hosts. India was ranked in the top 10 countries for Internet piracy, based on a study tracking Internet Protocol addresses that downloaded unauthorized content on peer-to-peer networks. The Entertainment Software Alliance (ESA) ranked India sixth in the world in terms of unauthorized file sharing of selected ESA member titles on public peer-to-peer networks in 2013.

Sources: IIPA, written submission to the USITC, January 30, 2014, 8–10; USTR, "2014 Special 301 Report," April 2014, 38, 42; USTR, "2013 Notorious Markets Report," February 2014, 16; FICCI, "Socio-economic Impact of Counterfeiting," 2012; ASSOCHAM, "Fake luxury market," January 14, 2014; WHO, "What are counterfeit medicines?" n.d., http://www.who.int/medicines/services/counterfeit/faqs/03/en/ (accessed December 4, 2014); U.S. Customs and Border Protection, "Intellectual Property Rights," 2014, 21; Karangis, Media Piracy in Emerging Economies, 2011, 348; BASCAP and FICCI, "Counterfeiting, Piracy and Smuggling in India," 2013, 11; MPDA, "Online Piracy a Genuine Threat," December 15, 2009; RnM Team, "India Ranks Eight," September 17, 2012; MPAA, "MPAA Comments," October 2013, 20; Motion Picture Distributors Association (India) (MPDA) website, "Movie Thieves," n.d., http://mpaa-india.org/moviethieves.html (accessed July 21, 2014); IIPA, "2013 Special 301: India," February 8, 2013.

Procedural and Substantive Enforcement Issues

There is "clear consensus"[407] among Indian and international industry representatives that a stronger governmental focus on enforcement is needed to reduce piracy and counterfeiting in India.[408] The Federation of Indian Chambers of Commerce and Industry (FICCI) and the International Chamber of Commerce, for example, have identified specific barriers to the effective enforcement of trademarks and copyrights, including the lack of central coordination, the fact that there is no priority for commercial crimes, and a reluctance to apply deterrent remedies (table 5.7).

Table 5.7: Barriers to effective enforcement

IP enforcement barrier	Description
Lack of central coordination	India's National IP Strategy does not adequately address counterfeiting and piracy, and pays little attention to the enforcement of existing laws.
No priority for commercial crimes	Police do not prioritize commercial crimes, like counterfeiting and piracy, because they are overburdened with more serious crimes.

[407] BASCAP and CASCADE, "Counterfeiting, Piracy and Smuggling in India," 2013, 3.

[408] U.S. and Indian industry representatives do not agree on the adequacy of the 2012 copyright law to address online infringement. (See box 5.1 for details of the 2012 law.) For example, the GIPC, which is part of the U.S. Chamber of Commerce, has noted that the law lacks clarity in the requirements for notice-and-takedown systems for online infringement and improperly permits the import of equipment that makes it possible to circumvent the technological protection measures used with digital content. GIPC, "Charting the Course," January 2014, 2. By contrast, the Confederation of Indian Industries (CII) disagrees that the new law lacks sufficient protections. CII, written submission to the USITC, February 24, 2014.

IP enforcement barrier	Description
Varying enforcement quality	Different regions have different levels of enforcement; central leadership is needed.
Specialized IP enforcement is underfunded	IP units within state police forces and nodal agencies at the national level lack resources.
Police not self-initiating investigations	Police should self-initiate investigations, rather than waiting for rights holders' actions.
Overburdened court system	It can take 2–3 years to obtain the summons necessary to initiate a case and 6–8 years to conclude one, and many cases take even longer, according to a FICCI survey of rights holders.
Reluctance to apply strong penalties and sentencing	Courts are not implementing deterrent sentences or financial penalties.

Source: BASCAP and FICCI, "Counterfeiting, Piracy and Smuggling in India," 2013, 16.

Others also have noted problems associated with overburdened administrative and court systems. The Semiconductor Industry Association (SIA), for example, states that it can take from five to seven years to resolve administrative and judicial challenges to trademarks. This delay reportedly undermines rights owners' ability to protect their trademarks; many defendants refuse to settle, preferring instead to continue their infringing activities unobstructed for years.[409] The International Intellectual Property Alliance (IIPA) similarly has identified clogged dockets, procedural delays, evidentiary issues, and difficulties in enforcing civil court orders as endemic factors that prevent effective judicial enforcement of copyrights.[410]

Enforcement efforts also reportedly have been hampered by local politics and protectionism. For example, DVD retail kiosks in Chennai's Burma Bazaar have posted notices that they respect the copyrights of the local Tamil Nadu film industry, while pirated copies of the latest films from Bollywood (centered in Mumbai) and Hollywood are available in large quantities and in plain sight. These arrangements reportedly reflect the "intense localism" of cultural identity, trade, and governance in India.[411] This localism also may contribute to the perception of some U.S. companies that Indian companies are less affected by inadequate IP protection, as reflected in the survey results.

Under the Indian constitution, law-and-order issues such as IP enforcement are state subjects, and police initiatives are organized at the state level.[412] India also has recently issued a National IPR Strategy, which recognizes that while IP laws are largely enforced by the state governments, there is scope for central government leadership and action.[413] Indian and international

[409] SIA, written submission to the USTR, February 7, 2014, 22–23; IIPA, written submission to the USITC, January 30, 2014, 12.
[410] IIPA, written submission to the USITC, January 30, 2014, 12–13.
[411] Karangis, *Media Piracy in Emerging Economies*, 2011, 348.
[412] Ibid., 2011, 341–42.
[413] Government of India, MOCI, DIPP, "National IPR Strategy," July 2014, 15–16.

industry representatives state that stronger leadership at the national level could substantially improve the enforcement environment.[414]

New Business Strategies of Copyright- and Trademark-intensive Companies

U.S. copyright- and trademark-intensive companies are implementing new business models and approaches to the Indian market, as well as targeted antipiracy strategies that address the opportunities and challenges presented by increasing Internet and mobile phone penetration.[415] In the music industry, for example, industry representatives note that new technologies are supporting a broad array of new products, and that effective industry and government initiatives to counter infringement also are needed (see case study below).

Survey Results Regarding Copyrights and Trademarks

Trademark and copyright protection are important to U.S. companies in the Indian market in many industry sectors; overall, 48 percent of U.S. companies active in India view trademarks as "very important," and 31.3 percent view copyrights as "very important."[416] The content and media sector makes the most use of copyright and trademarks, with about 80 percent of companies relying on these forms of IP protection (figure 5.4). This sector—which includes broadcasting; the publishing of newspapers, periodicals, books, databases, and software; the recording or publishing of media; and other licensing of intellectual property—overlaps with the "core" copyright industries, as defined by WIPO.[417]

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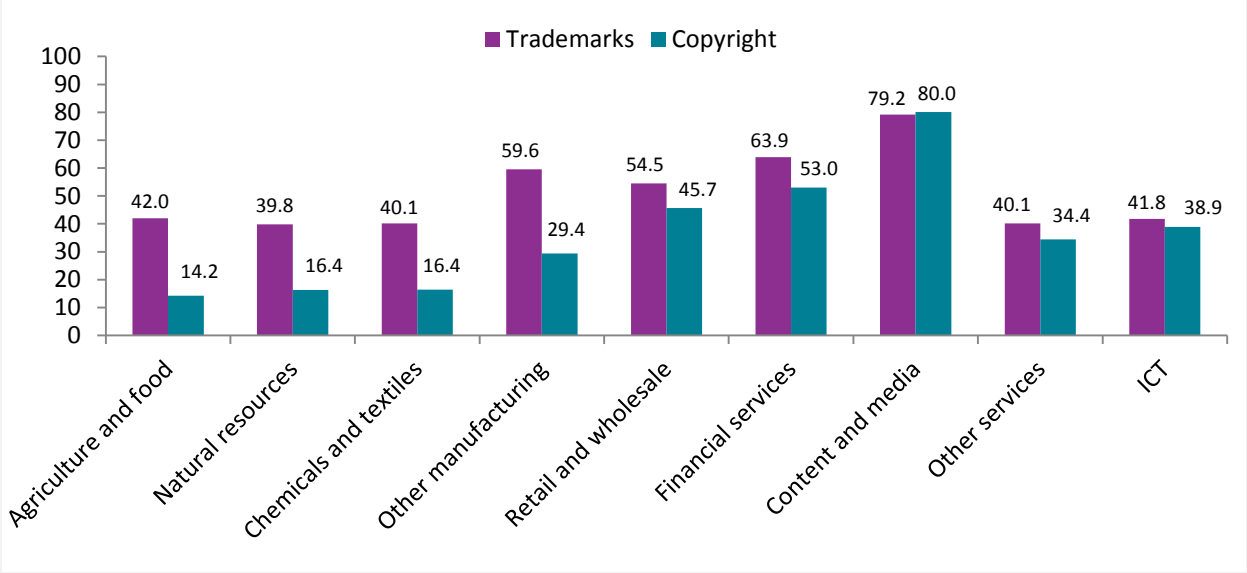
[414] BASCAP and CASCADE, "Counterfeiting, Piracy and Smuggling in India," 2013, 15; NASSCOM, written submission to the USITC, February 11, 2014, 9; industry representative, interview by USITC staff, New Delhi, June 24, 2014.
[415] India is predicted to be the second-largest Internet market in the world within the next two years, and the world's leading English-language market. Mobile phone penetration currently stands at around 70 percent, with growing numbers of mobile smartphone and tablet users having 3G Internet access. IIPA, written submission to the USITC, January 30, 2014, 3; industry representative, interview by USITC staff, Mumbai, June 23, 2014; industry representative, telephone interview by USITC staff, July 1, 2014.
[416] USITC calculation of weighted responses to Commission questionnaire (question 1.7). See figure 5.1.
[417] WIPO also has found that a wide range of industries rely in whole or in part on copyrights. WIPO, *Guide on Surveying the Economic Contribution*, 2002, 29–35.

Figure 5.4: Percent of U.S. companies in the Indian market who consider trademarks and copyrights very important to their business, by sector



Source: USITC calculations of weighted responses to the Commission questionnaire.
Note: See appendix Table I.21 for underlying data for this figure.

Other sectors also rely heavily on these types of IP protection. A majority of companies in the financial services (63.9 percent), other manufacturing (59.6 percent), and retail and wholesale trade (54.5 percent) sectors view trademarks as "very important." For these companies, trademarks protect the valuable brands they market in India by preventing competitors from leveraging a company or product's reputation and confusing consumers as to the source of the goods or services.[418]

U.S. companies relying on copyright and trademark protection indicate they are affected similarly by the IP environment in India; about 20 percent of companies in each category report facing this issue (table 5.8). Copyright-intensive companies indicate that the level of protection has a greater negative effect, with 15.5 percent of copyright-intensive companies substantially adversely affected by the barrier, compared to 11.6 percent of trademark-intensive companies. On average, companies viewed the IP environment as having a moderate negative effect on exports and affiliate sales in 2013, and the effect rose slightly from 2007 to 2013.

[418] USDOC, *Intellectual Property and the U.S. Economy*, March 2012, 11.

Table 5.8: Effects of the level of Indian IP protection on U.S. companies in India that rely on copyrights and trademarks, 2007–13

	Share of companies (%)		Mean effect[a]		
Type of IP intensity	**Facing the issue[b]**	**Substantially affected[c]**	**2007**	**2010**	**2013**
Copyright-intensive companies	20.7	15.5	2.5	2.8	3.2
Trademark-intensive companies	20.1	11.6	2.4	2.6	2.9

Source: USITC calculations of weighted responses to the Commission questionnaire (questions 3.3, 4.2, and 5.2).

[a] On a scale from 0 (did not face the barrier) to 5 (prohibitive effect on activities).

[b] Share of companies reporting an effect from 1 (faced the policy but it had no effect on activities) to 5 (prohibitive effect) in 2007, 2010, or 2013.

[c] Share of companies reporting an effect of 3–5, indicating the policy had a moderate, severe, or prohibitive effect on activities in 2007, 2010, or 2013.

Case Study: New Business Models and Antipiracy Strategies Are Supporting Music Industry Growth in India

The estimated value of music revenues in India is low, at less than $150 million compared to global music revenues of about $16.5 billion in 2012.[419] However, while revenues from physical music sales in India have been declining in recent years, revenues from the sale of digital music have been growing steadily, and are predicted to grow at a compound annual growth rate of 21.7 percent from 2012 to 2017.[420]

Digital music in India is consumed through mobile devices and the Internet, with both showing consistent growth over the last several years. A wide variety of price points and platforms are fueling this growth, including mobile phone products such as ringtones; digital downloads, delivered online or via mobile networks or kiosks; subscription and streaming services; and ad-supported music services.[421]

One of the biggest challenges to the growth of digital music in India is piracy.[422] To try to address this challenge, the Indian Music Industry (IMI), a group that represents both Indian and international music labels, has a vigorous antipiracy program. The program includes capacity building, public awareness and education, and enforcement. To date, IMI enforcement teams

[419] International Federation of Phonographic Industries (IFPI), *Recording Industry in Numbers*, April 2013, 64.
[420] FICCI-KPMG, "The Power of a Billion," 2013, 127.
[421] FICCI-KPMG, "The Power of a Billion," 2013, 127–31; IFPI, Recording Industry in Numbers, April 2013, 64; IIPA, written submission to the USITC, January 30, 2014, 8–9.
[422] IIPA, written submission to the USITC, January 30, 2014, 8–9.

have conducted more than 22,000 raids and obtained more than 5,000 convictions. These enforcement teams also focus on education and capacity building with local police.[423]

Increasingly, however, the IMI reports that it is moving to an "enforcement-cum-business" solution. Under this model, IMI has worked to license shopkeepers who had previously made money through the sale of cellphones installed with illegal downloads. Shopkeepers pay a license fee to IMI to legally access as much authorized content as they want from copyright owners. Revenues from the program are used for enforcement programs. Even more importantly, however, the program offers shopkeepers legal sources of income and reportedly delivers sustainable improvements in the IP environment.[424]

IMI also has taken substantial legal actions against online piracy. In 2012 and 2013, IMI obtained civil court orders against more than 250 websites dedicated to piracy and operating through hundreds of Internet service providers (ISPs). Although some have reappeared under other names, many are still blocked today. IMI notes that obtaining the cooperation of all ISPs to actively work with content owners to block illegal sites is necessary if online piracy is to be reduced.[425]

[423] IMI, "Antipiracy," n.d., (accessed August 7, 2014); IMI, "Indian Music Industry Fights Back," n.d, (accessed August 7, 2014).
[424] Ibid.
[425] Ibid.

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Chapter 6
Local-content Requirements

Introduction

In an effort to boost domestic manufacturing, increase local employment, and attract investment, many countries—both developing and developed—have applied local-content requirements (LCRs) for certain kinds of production within their borders. These measures typically stipulate a given percentage of the value of goods that must be sourced locally.[426] More recently, however, the scope of LCRs has been expanded to include local-testing requirements.[427] Since 2009, India has applied three LCR policies that principally affect the information and communications technology (ICT) and solar energy sectors (table 6.1).[428] The survey shows that while only a small share of U.S. companies were affected by these barriers, the barriers' negative effect increased from minimal to moderate between 2007 and 2013, consistent with the introduction of LCR policies starting in 2009.[429]

Table 6.1: Indian local-content restrictions and the U.S. industries most affected

Policy	Description of the barrier	U.S. industries most affected
Telecommunication license amendments	Requires testing of imported equipment in Indian laboratories; requires vendors to allow inspection of manufacturing facilities; and imposes liability when vendor has taken "inadequate" precautionary security measures.	ICT
Preferential Market Access (PMA)	Requires that ICT products deemed to have security implications include a specified share of local content when procured by government entities	ICT
Jawaharlal Nehru National Solar Mission (JNNSM)	Requires that certain projects use a specified share of local products.	Solar energy

Source: Compiled by USITC.

Indian LCR policies have reflected the country's desire to develop domestic manufacturing in "industries with strategic significance," for reasons that include addressing the country's fiscal

[426] WTO, "Agreement on Trade Related Investment," 2014.
[427] Hufbauer, "Local Content Requirements," September 2013.
[428] The ICT industry includes telecommunications equipment, such as cellphones and related services; consumer electronics, such as radios, televisions, and computers; and hardware, such as servers and network equipment. The industry also includes software services, as well as business process outsourcing enabled by information technology. Osec, *Market Study*, October 2011. The solar energy sector includes the solar photovoltaic sector and the concentrated solar power sector.
[429] As initially proposed, LCRs in the ICT sector were more onerous. Before being amended, telecommunication license amendments would have required forced transfer of sensitive source codes and technologies, and the Preferential Market Access policy would have applied to purchases by private companies and government agencies.

deficit;[430] meeting local demand for India's growing ICT and clean energy markets; and alleviating concerns about cybersecurity.[431] Additionally, India reportedly views its growing reliance on imported ICT goods as unsustainable; it has been estimated that by 2020, ICT goods will surpass oil as India's largest category of imports.[432]

Because India's application of LCRs has principally affected ICT and solar energy goods, these sectors will be the focus of this chapter.[433] Local-sourcing requirements for the retail sector, which could also be considered an LCR, are addressed in chapter 8, and LCRs in the pharmaceutical sector are addressed in chapter 5.

First, this chapter describes the Jawaharlal Nehru National Solar Mission (JNNSM), whose LCR policies apply exclusively to the country's solar energy industries, discussing the associated effects of these policies on the solar photovoltaic (PV) and concentrated solar power (CSP) industries.[434] Next, the chapter reviews India's Preferential Market Access (PMA) policy and telecommunications license amendments, both of which pertain exclusively to the ICT sector. The concluding section will present the results from the Commission's survey about the effects of LCRs on the ICT sector.[435]

LCRs and the Solar PV Industry

JNNSM and the Indian PV Market

The principal Indian government measures that affect U.S. firms' participation in the Indian PV (box 6.1) market are LCRs under the JNNSM. USTR and industry representatives indicate that opportunities for U.S. firms have been limited by these LCRs. In February 2013, the United

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[430] India's budget deficit ranged between 5 and 10 percent of GDP for most of the past decade. IMF, "General Government Net Lending/Borrowing" (accessed July 24, 2014).

[431] The Indian government has identified these two sectors, along with aerospace, shipping, and defense, as "industries with strategic significance." Government of India, "National Manufacturing Policy," October 2011; Tractus Asia Limited, "India ICT Sector," July 2012; EIU, *India Telecoms Report*, February 2014. India's National Manufacturing Policy (NMP), which was introduced in 2011, also lists bolstering local manufacturing as a goal, aiming for "local value additions" via government procurement in the solar energy, ICT, and electric automobile industries. However, the NMP does not have exclusive LCR policies that discriminate against foreign manufacturers. Palit, "The Trans-Pacific," June 5, 2014.

[432] McLain, "India," April 15, 2013.

[433] The ICT industry includes telecommunications equipment, such as cellphones and related services; consumer electronics, such as radios, televisions, and computers; and hardware, such as servers and network equipment. The industry also includes software services, as well as business process outsourcing enabled by information technology. Osec, *Market Study*, October 2011. The solar energy sector includes the solar photovoltaic sector and the concentrated solar power sector.

[434] These two technologies are described in boxes 6.1 and 6.3.

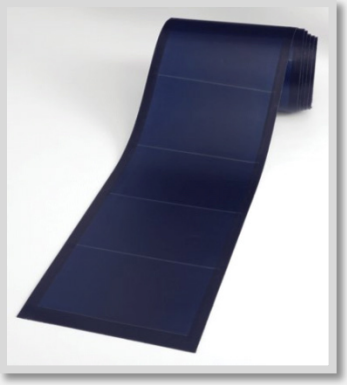
[435] Survey data for the solar energy industry were unavailable due to the small number of firms in the industry. Due to the unavailability of necessary data on restrictions of LCRs, the impact of LCRs on the U.S. economy was not estimated.

Box 6.1: Solar photovoltaic technology

Solar PV systems convert sunlight into electricity for on-site use or for distribution through the electric grid. The main components of PV systems are modules (also commonly referred to as panels), which are composed of cells that convert sunlight into electricity. PV modules are connected to an inverter, which converts the direct current generated by the system to alternating current. Equipment other than the PV modules—specifically, inverters and equipment such as racking and wiring—is referred to as the "balance of system."

There are three main groups of PV module types—crystalline silicon (c-Si), thin film, and concentrating PV (CPV). Crystalline silicon modules account for the majority of the global market and have been in production for the longest period of time. Thin-film technologies, which use a thin layer of a photosensitive material, are the second most commonly deployed PV technology. CPV technologies use reflectors to concentrate sunlight on a photosensitive material with a high conversion efficiency.

c-Si cells and modules (left) **Thin film modules** (center and right)



Sources: USITC, *Renewable Energy and Related Services,* August 2013, 3-1. Photos: SolarWorld, "Energy for You and Me," 2013 (left). Photos (center and right) courtesy of USDOE NREL. Credits: Peter McNutt (center) and United Solar Ovonic (right).

States filed a request with the World Trade Organization (WTO) for dispute settlement consultations with India in regard to the first phase of the JNNSM, and in February 2014 requested supplementary consultations with India regarding LCRs under phase 2 of the JNNSM for PV cells and modules. In April 2014 the United States requested establishment of a dispute settlement panel, which was established in May 2014 and composed in late September 2014.[436]

The JNNSM is the principal vehicle that the national government has used to encourage PV installations, though it is not the main driver of demand. It holds periodic auctions, in which

[436] As noted on the WTO website, "The United States claims that the measures appear to be inconsistent with: Article III: 4 of the GATT 1994; Article 2.1 of the TRIMs Agreement; and Articles 3.1(b), 3.2, 5(c), 6.3(a) and (c), and 25 of the SCM Agreement." On May 23, 2014, the WTO Dispute Settlement Body established a panel to review the matter and the panel was composed on September 24, 2014. WTO website, "Dispute DS456: India—Certain Measures Relating to Solar Cells and Solar Modules," http://www.wto.org/english/tratop_e/dispu_e/-cases_e/ds456_e.htm (accessed November 3, 2014); USTR, "New Trade Enforcement Action," February 10, 2014; USTR, *2013 National Trade Estimate Report*, March 2013, 187; industry representative, telephone interview by USITC staff, March 4, 2013; CEEW and NRDC, *Laying the Foundation*, April 2012, 20.

developers submit projects for consideration and the lowest-price projects are selected. The JNNSM roadmap includes three phases, with a goal of 1–2 gigawatts (GW)[437] of grid-connected solar (including CSP) during phase 1 (2010–13); cumulative installations[438] of 4–10 GW by the end of phase 2 (2017); and cumulative installations of 20 GW by the end of phase 3 (2022). During each phase of the JNNSM, there are multiple auctions or "batches" of projects awarded.[439]

The JNNSM also includes a goal of increasing domestic PV and CSP manufacturing. As laid out in the JNNSM mission document, "one of the Mission objectives is to take a global leadership role in solar manufacturing (across the value chain) of leading-edge solar technologies."[440] In order to qualify for the JNNSM, therefore, the government requires that project developers use locally sourced PV products, with the specific requirements varying by auction or "batch." For phase 1 batch 1 of the JNNSM, projects using crystalline silicon (c-Si) modules were required to use only domestically assembled modules (table 6.2). These projects were not, however, required to use domestically sourced cells. For phase 1 batch 2, projects using c-Si technology were required to use both domestically produced cells and modules. For this first phase of the JNNSM, there were no LCRs for thin-film cells and modules.[441] For phase 2 batch 1, 50 percent of the 750 megawatts (MW) of projects was allocated to developers using domestically produced cells and modules (regardless of whether c-Si or thin film).[442]

Table 6.2: PV local-content requirements in the JNNSM

Phase/batch	Power purchase agreement signed[a]	MW	Crystalline silicon Cells	Crystalline silicon Module	Thin film
Phase 1					
Batch 1	January 2011	140	No LCRs	If project uses c-Si technology, must use	No LCRs if thin film technology is used

[437] All references to PV in this chapter, whether in watts (W), kilowatts (kW), megawatts (MW), or gigawatts (GW), are in direct current. A kilowatt is 1,000 W, a megawatt is 1,000 kW, and a gigawatt is 1,000 MW.
[438] This chapter will refer to annual and cumulative PV installations. Annual installations are the amount installed in a particular year, while cumulative installations are total PV installations in all prior years.
[439] For comparison, India's installed electricity generating capacity was 250 GW as of July 2014. The global PV market was 38.4 MW in 2013 and was valued at $91.3 billion, including equipment and services. The PV module market was valued at $30.5 billion, and the inverter market at almost $7 billion. Government of India, MNRE, "Jawaharlal Nehru National Solar Mission," n.d. (accessed August 19, 2014), 3, 7; World Bank, ESMAP, *Paving the Way*, 2013, 5–6; CEEW and NRDC, *Laying the Foundation*, April 2012, 6–8; Government of India, Ministry of Power website, http://powermin.nic.in/indian_electricity_scenario/introduction.htm (accessed September 4, 2014); EPIA, *Global Market Outlook for Photovoltaics 2014–2018*, 2014, 18; Mehta, "PV Modules," February 10, 2014; Wilkinson, "The Changing Face," July 14, 2014; Pernick, Wilder, and Belcher, *Clean Energy Trends 2014*, March 2014, 4.
[440] Government of India, MNRE, "Jawaharlal Nehru National Solar Mission," n.d. (accessed August 19, 2014), 3, 7.
[441] USTR, *2013 National Trade Estimate Report*, March 2013, 187; industry representative, telephone interview by USITC staff, March 4, 2013; CEEW and NRDC, *Laying the Foundation*, April 2012, 20.
[442] Mercom, "Jawaharlal Nehru National Solar Mission: Guidelines," February 25, 2014.

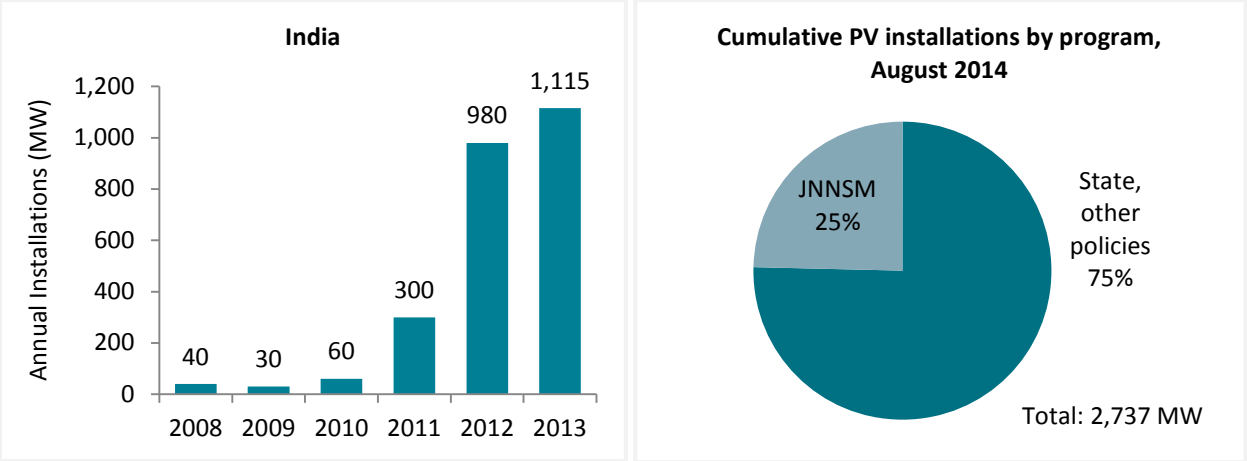
Phase/batch	Power purchase agreement signed[a]	MW	Crystalline silicon Cells	Crystalline silicon Module	Thin film
				only domestically produced modules	
Batch 2	January 2012	340	If project uses c-Si technology, must use only domestically produced cells and modules		No LCRs if thin film technology is used
Phase 2					
Batch 1	January 2014	750	50% of the 750 MW of projects must be generated using domestically produced cells and modules, regardless of the technology type		

Sources: Compiled by USITC.
[a] An agreement between a power producer and a utility or other entity for the purchase of electricity.

The JNNSM has contributed to the growth of PV installations in India, but as noted earlier, it has not been the main driver of demand. India has a large PV market, ranking fifth globally in 2013 in annual installations, with 1,115 MW of grid-connected and off-grid installations combined.[443] Most grid-connected PV installations in India have taken place under state and other programs rather than under the JNNSM, which accounted for only 25 percent of cumulative grid-connected PV installations in India (figure 6.1).[444] States do not need to follow the LCRs under the JNNSM, and large markets like Gujarat and Rajasthan have opted not to include domestic-content requirements in their solar programs.[445]

[443] EPIA, *Global Outlook for Photovoltaics until 2016*, May 2012, 50; EPIA, *Global Market Outlook for Photovoltaics 2013–2017*, 2013, 31; EPIA, *Global Market Outlook for Photovoltaics 2014–2018*, June 2014, 9; Government of India, MNRE, "Commissioning Status of Grid Connected Solar Power Projects," August 11, 2014; Solarbuzz, "Top 10 Solar PV Markets," March 11, 2014.
[444] As of August 2014. Government of India, MNRE, "Commissioning Status of Grid Connected Solar Power Projects," August 11, 2014.
[445] Anand, "Rajasathan Announces," July 21, 2011; Pearson, "India's Largest Solar Program," April 20, 2012.

Figure 6.1: PV installations in India are growing, but the JNNSM is not the main driver



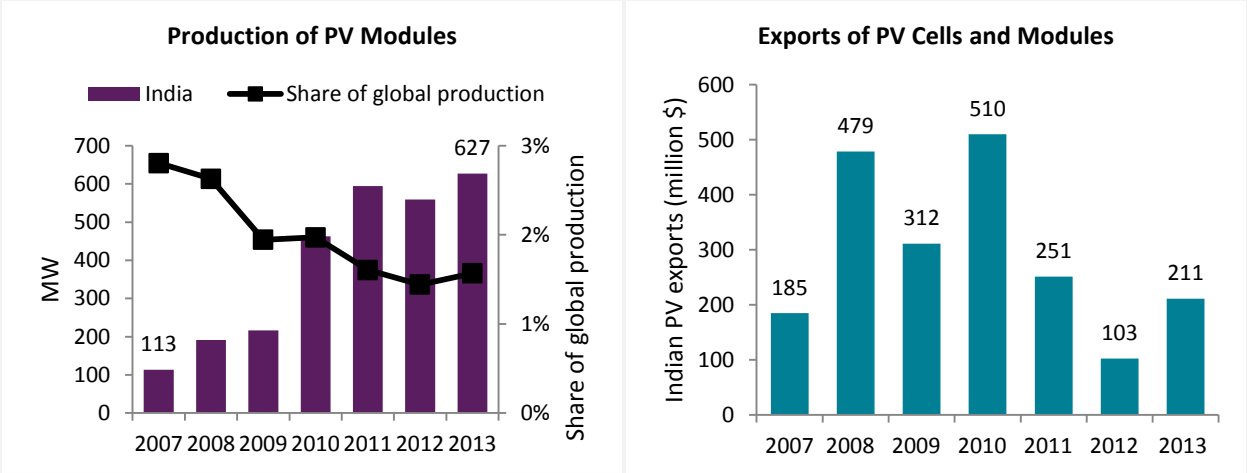
Sources: EPIA, *Global Outlook for Photovoltaics until 2016*, May 2012, 50; EPIA, *Global Market Outlook for Photovoltaics 2013–2017*, 2013, 31; EPIA, *Global Market Outlook for Photovoltaics 2014–2018*, June 2014, 9; Government of India, MNRE, "Commissioning Status of Grid Connected Solar Power Projects," August 11, 2014.
Note: Figures are from different sources, so totals may vary slightly. Installations by policy are as of August 11, 2014. See appendix Table I.22 and Table I.23 for underlying data for this figure.

India's PV industry primarily produces c-Si cells modules. Indian PV module production increased rapidly during 2007–11,[446] but leveled off during 2011–13 (figure 6.2). At the same time, India's share of global module production (by volume) and exports of cells and modules (by value) are below 2010 levels, though the decline in exports may primarily reflect declining module prices.[447] Although the Indian industry had 1.2 GW of c-Si cell production capacity and 2.8 GW of module production capacity as of April 2014, its capacity utilization is low.[448] There are varying reports on the extent to which this unused capacity could be brought online to supply the domestic market. U.S.-based SunEdison, for example, recently withdrew from a project that it was awarded in the phase 2 batch 1 auction over concerns that the domestic industry would not be able to meet demand in time, though the Indian industry has dismissed

[446] There is more Indian production of certain balance-of-system components. Indian manufacturing of PV inverters, for example, has substantially increased. See, e.g., Bonfiglioli website, http://www.bonfiglioli.com/en/photovoltaic/news-media-events/news/bonfiglioli-india-grows/ (accessed August 19, 2014); Choudhury, "Vacon Starts Manufacture of Solar Inverters," May 30, 2013; ABB, "ABB Becomes a Market Leader," March 7, 2013.
[447] The average global PV module prices declined from $1.48 per watt to $0.82 per watt (45 percent) during 2010–13. During that same period, the value of Indian PV module exports fell by 54 percent. *PVNews*, "Global PV Module Production in 2013," May 2014, 8; GTIS, Global Trade Atlas database (accessed May 14, 2014); pricing data from Mints, "Photovoltaic Manufacturer Shipments: Capacity, Price and Revenues," April 2014, cited in Feldman, Boff, and Margolis, "National Survey Report of PV Power Applications," August 27, 2014, 8.
[448] Bloomberg New Energy Finance database (accessed April 19, 2014); Johnson, "Exploring the Effectiveness," November 2013, 20–21; Stromsta, "SunEdison Quits India PV Project," April 7, 2014; MNRE website, "Tentative Domestic Manufacturing Capacity of Cells and Modules," n.d., http://mnre.gov.in/file-manager/UserFiles/tentative_cells_&_modules.pdf (accessed August 19, 2014); Pearson, "India Solar Panel Prices Rise," December 12, 2013.

these concerns. The phase 2 batch 1 auction, with its tighter LCRs, appears to have contributed to higher capacity utilization for certain Indian cell manufacturers.[449]

Figure 6.2: Indian production of PV modules (left) and exports of cells and modules (right)



Source: PVNews, "Global PV Module Production in 2013 Hits 39.8 GW," (May 2014), 8; GTIS, Global Trade Atlas database (accessed May 14, 2014).
Note: See appendix Table I.24 and Table I.25 for underlying data for this figure.

Effects of Barriers on the U.S. PV Industry

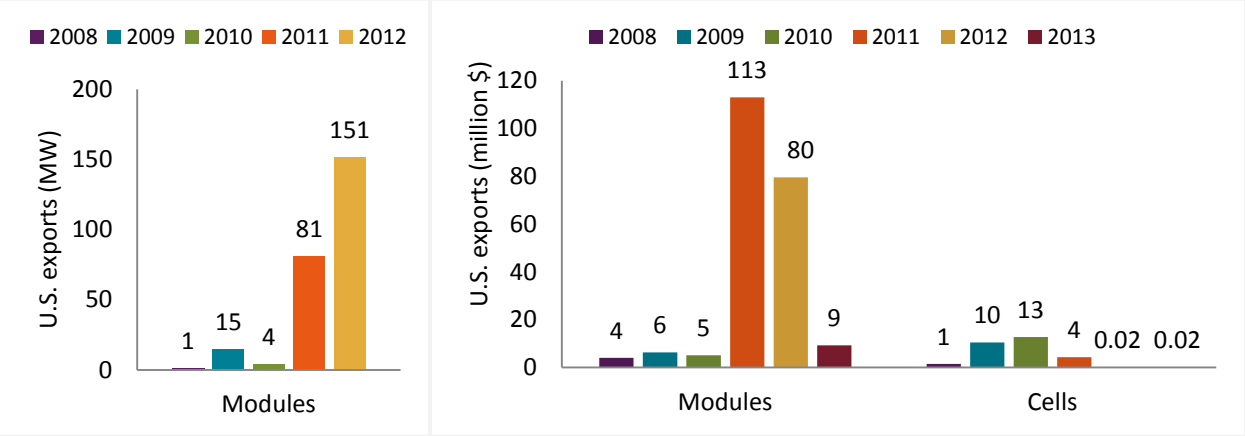
The first phase of the JNNSM likely had little negative impact on U.S. exports of PV modules to India. In fact, the quantity of U.S. exports increased from 4 MW in 2010 to 151 MW in 2012—the period of peak demand under phase 1 of the JNNSM (figure 6.3). However, the value of these exports to India declined during this period, likely reflecting declining module prices.[450] The limited effect from the first phase is largely due to the fact that thin film modules are the primary U.S. exports to India, and these products were not subject to LCRs in phase 1. Thin film accounted for more than 70 percent of the value of U.S. PV module exports to India in 2011, and more than 80 percent of module exports in 2012, based on Commission estimates using publicly available data. U.S.-based thin film producer First Solar accounted for more than

[449] Some developers have indicated that PV module prices increased after the phase 2 batch 1 auction in January 2014, but Indian manufacturers said that they have not raised prices or that any price increases were a result of higher wafer costs. Imported module prices in India were also increasing as of late 2013 due to a decline in the rupee and a tighter global PV module supply. Pearson, "SunEdison Drops Indian Solar Project," April 7, 2014; Pearson, "India Seeks to End Solar Dispute," April 3, 2014.

[450] The increase in exports is roughly correlated with demand under phase I of the JNNSM. Projects awarded under batch 1 were generally completed in January 2012, and under batch 2 in January to April 2013. In order to meet these deadlines, modules were likely imported in the prior year (2011 and 2012)—the exact period of the peak in U.S. exports. USITC DataWeb/USDOC (accessed March 22, 2014); EIA, "Solar Photovoltaic Cell/Module Shipments Report," various years.

60 percent of U.S. PV module exports to India in 2011 and more than 75 percent in 2012.[451] First Solar also likely supplied many modules from its plants in Malaysia: Indian PV imports from Malaysia (which are likely primarily First Solar products) totaled $172.0 million in 2011 and $80.6 million in 2012.[452]

Figure 6.3: U.S. exports of PV cells and modules to India



Source: EIA, "Solar Photovoltaic Cell/Module Shipments Report," various years; USITC DataWeb/USDOC (accessed March 22, 2014).
Notes: Data on the volume of U.S. exports to India in 2013 are not yet available. See appendix Table I.26 and Table I.27 for underlying data for this figure.

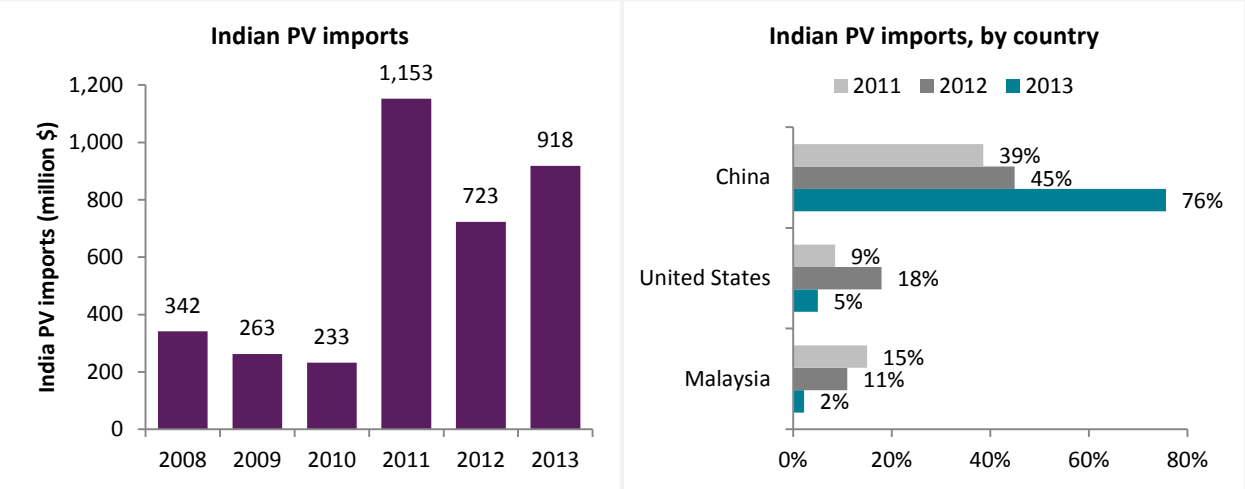
U.S.-produced thin-film products sold well in India during this time period for several reasons. First, thin film was not subject to the LCRs, thus allowing project developers to source thin-film products globally. In fact, thin film accounted for more than half of the installations under phase 1.[453] Second, U.S. manufacturers likely benefited from their access to low-cost financing from the Export Import Bank of the United States (Ex-Im Bank). This financing enabled lower borrowing costs for projects and therefore lower overall project costs.[454] Finally, thin film was

[451] Thin-film exports may have exceeded 80 percent of U.S. PV module exports in 2011 as well, but more than 70 percent is the best that can be reliably estimated based on publicly available data. U.S. c-Si manufacturers also initially did well in India, with c-Si cell and module manufacturer Suniva likely exporting around $50 million combined to India during 2009–10. (Note, however, that data are not available on how much of these exports were for the Indian market and how much were for cells to be assembled into modules for re-export.) It is not clear whether the subsequent decline in exports to India by Suniva is due to LCRs or other factors. GTIS, Global Trade Atlas database (accessed March 22, 2014).
[452] Based on Indian import data from GTIS, Global Trade Atlas database (accessed August 18, 2014).
[453] Johnson, "Exploring the Effectiveness," November 2013, 20; Deign, "What Is behind India's Love Affair?" February 14, 2012.
[454] Deign, "What Is behind India's Love Affair?" February 14, 2012; Choudhury, "Update: Indian Solar Industry Suffocated," August 20, 2012.

perceived by at least some purchasers as performing better than c-Si in the hot conditions in India.[455]

U.S. exports to India substantially declined during 2013, but this is believed to be unrelated to LCRs (figure 6.4). Most projects in phase 1 batch 2 were completed during January to April 2013, with most imports therefore likely taking place during 2012.[456] Most installations in 2013 were driven by state policies rather than the JNNSM and therefore are not subject to LCRs. Further, while the value of India's PV imports declined during 2011–13, this change has been less significant than the decline in PV module prices, indicating that India's import demand in volume terms likely increased. This demand, however, is increasingly being met by Chinese producers, who supplied 76 percent of imports in 2013, up from 39 percent in 2011.[457] Finally, at least one of the U.S. thin film producers who was a major supplier to India, Abound Solar, filed for bankruptcy, contributing to the decline in U.S. exports to India.[458]

Figure 6.4: Chinese producers have increased their share of the market for imports



Source: GTIS, Global Trade Atlas database (accessed March 22, 2014).
Note: See appendix Table I.28 and Table I.29 for underlying data for this figure.

The effect of extending LCRs to include thin film in phase 2 batch 1 of the JNNSM is not clear. As noted earlier, SunEdison withdrew from a project due to its concern that local manufacturers would not be able to supply the project, thus resulting in lost revenue for at least one U.S.-based project developer. However, it is unclear whether bids from project developers that

[455] Deign, "What Is behind India's Love Affair?" February 14, 2012; Pearson, "Solar Thin-Film Panels May Outperform Rival Technology," April 18, 2012.
[456] GTIS, Global Trade Atlas database (accessed March 22, 2014).
[457] Ibid.
[458] GTIS, Global Trade Atlas database (accessed March 22, 2014); Solarsis, "Solarsis and Abound Solar Announce Commissioning," January 16, 2012; Ex-Im Bank, "Ex-Im Bank Announces $9.2 Million Loan," July 18, 2011; Reuters, "Abound Solar Files to Liquidate in Bankruptcy," July 2, 2012.

intended to use thin film were priced low enough to be accepted even if there had been no LCR.[459]

U.S. firms, however, continue to pursue projects outside of the JNNSM. First Solar, which has lost market share in India, has entered into project development in India and plans to begin developing a 45 MW (alternating current) project in India in October 2014.[460] The ability of U.S. firms and manufacturers to continue to supply the non-JNNSM market will be enhanced by India's decision not to impose antidumping duties on imports from the United States and Malaysia, even though some supply opportunities may be lost if state-owned firms source only from local manufacturers (box 6.2).

Box 6.2: The India antidumping investigation and local sourcing

Additional preference for local sourcing may emerge from a recent antidumping investigation in India. India initiated an antidumping case on imports of solar cells and modules from China, Malaysia, Taiwan, and the United States, on November 23, 2012, in response to an application filed by the Solar Manufacturer's Association. The Ministry of Commerce and Industry found that there was dumping from all of the subject countries, but the Ministry of Finance decided not to implement the recommendation by the Ministry of Commerce and Industry. The head of the Ministry of Coal, the Ministry of Power, and the Ministry of New and Renewable Energy subsequently stated that state-owned companies would source from domestic firms for PV projects.

Source: Indian Ministry of Commerce and Industry website, http://commerce.nic.in/traderemedies/ad_casesinindia.asp?id=2&criteria=&CurrPage=7 (accessed May 8, 2014); Government of India, MCI, Department of Commerce, "Notification: Final Finding, Anti-Dumping Investigation," May 22, 2014, 153–55; Publicover, "India PV Ambitions Trump Duties," August 26, 2014; Pearson, "India Vows to Buy Local," August 25, 2014.

LCRs and the Concentrated Solar Power Industry

JNNSM and the Indian CSP Market

The JNNSM also covers the concentrated solar power (CSP) industry, with a goal of increasing the deployment of CSP technology and building a domestic CSP supply chain (box 6.3). There are several anticipated phases of CSP deployment and a goal of achieving cost parity with traditional grid electricity by 2020. To this point, only one reverse auction for CSP projects—phase 1 batch 1—has been completed, with 470 MW of projects awarded to the lowest-priced

[459] EnergySector India website, "JNNSM Phase-II Batch-1 Results of Financial Bids," http://www.energysector.in/solar-news/jnnsm-phase-ii-batch-1-results-of-financial-bids. (accessed September 17, 2014).

[460] First Solar is a vertically integrated company, and this vertical integration is an important aspect of its competitiveness in the global PV market. First Solar, "First Solar to Develop 45 (MW) AC," August 5, 2014; USITC, *Renewable Energy and Related Services*, August 2013, 3-14 to 3-15.

Box 6.3: CSP technologies

Concentrated solar power (CSP) is a power-generation technology that uses mirrors to concentrate the light from the sun to heat a fluid. This heated fluid is then used to produce steam that turns a turbine and generates power.

There are two main CSP technologies employed in India—parabolic trough collectors and linear Fresnel collectors. Parabolic trough collectors make up the majority of the installations in India. They consist of solar collectors (mirrors), heat receivers, and support structures. The curved mirrors are sheets of reflective material formed into a parabolic shape that concentrates incoming sunlight onto a central receiver tube. A tracking system is used to point both the solar collectors and the heat receivers toward the sun.[a] Linear Fresnel collectors are similar to parabolic trough collectors, but use a series of long mirrors placed at different angles to concentrate the sunlight onto a fixed receiver located above the mirror field.

Parabolic trough (image left) **Linear Fresnel** (image right)

Source: Photos courtesy of USDOE NREL. Credits: Geri Kodey (left) and AREVA Solar (right)
[a] A.T. Kearney and ESTELA, *Solar Thermal Electricity 2025*, June 2010, 6.

bids. As with the PV, there are LCRs for CSP projects, with developers required to source 30 percent of the content in these plants domestically.[461]

Projects under the JNNSM account for a much larger share of the CSP market in India than they do in the PV market. Before the JNNSM began, India had an installed CSP capacity of 5 MW.[462] In the first phase of the JNNSM in 2010, seven projects totaling 470 MW were selected.[463] The goal was that all projects would be done by 2013, but as of July 2014 only two were completed (table 6.3). Some development is taking place outside of the JNNSM, however, with the 25 MW

[461] Government of India, MNRE, "2009 Phase I Policy Document: Jawaharlal Nehru National Solar Mission"; Stuart, "Solar Thermal Exempt from Indian Import Duty," March 16, 2012.
[462] These data were extracted from the CSP Today Projects Tracker on August 1, 2014. CSP Today, "Global CSP Project Tracker," 2014.
[463] CSP World, "CSP World Map," 2013.

Solar One Project in Gujarat moving forward and the Solar Energy Corporation of India announcing in June 2014 that it will hold an auction for two 50 MW CSP plants.[464] And though no further auctions have been announced under the JNNSM, Indian government officials recently expressed support for more CSP, in part because plants can include energy storage and because it can be used in combination with other fuel sources.[465]

Table 6.3: JNNSM CSP projects and implementation status

Project name	Project Developer	Capacity (MW)	Technology	Status as of July 2014
Godawari Power	Lauren-Jyoti	50	PTC	Completed
Suntechnique	Reliance	100	LFC	Completed
Megha	MEIL	50	PTC	Under construction
Diwakar Solar	Initec Energia	100	PTC	Delayed
KVK Energy Ventures	Lanco	100	PTC	Delayed
Aurum Renewable	Indure	20	LFC	Delayed
Corporate Ispat	Consortium Shriram	50	PTC	Delayed

Sources: World Bank, Concentrated Solar Power, September 2013, CSP World, March 2014

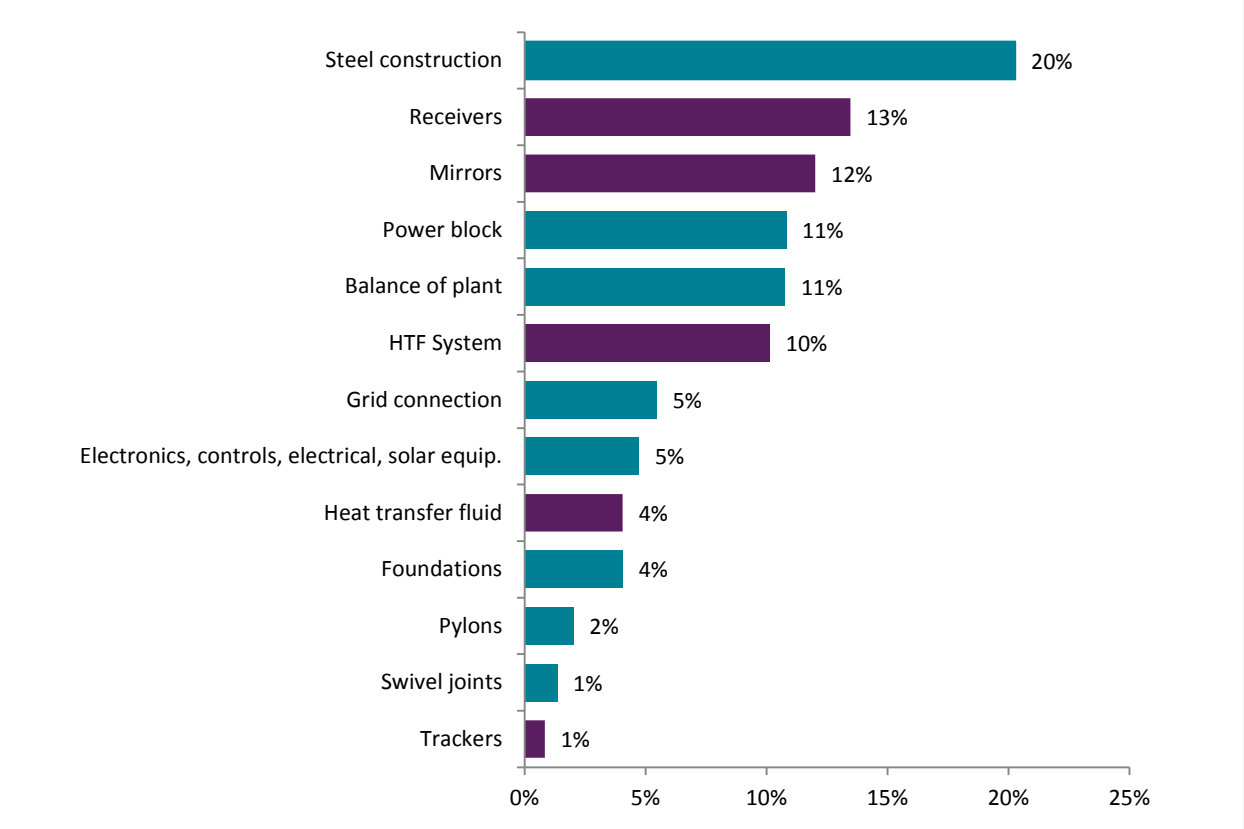
The development of the CSP market in India has been slow for a number of reasons, including the rapid decline of PV prices, which has also limited the growth of CSP in other countries. Constraints on the supply of heat transfer fluid have also raised difficulties. Another problem has been the inaccuracy of direct normal irradiance data needed to calculate costs and revenues. (Irradiance is the amount of radiant power received per unit area of surface.) Two existing plants in India have reported that because persistent dust and pollution diminish the amount of solar radiation received on the ground, irradiance is 15 percent less than predicted by the data.[466] There have also been problems associated with installing unfamiliar technologies, especially in cases where specifications may be perceived as unrealistic. For instance, Areva's Compact Linear Fresnel plant was the largest linear Fresnel plant in the world at 100 MW and was being built on this unprecedented scale under ambitious initial timelines.[467] The lack of support infrastructure is also an issue; CSP projects require the local state transmission utility to prepare transmission lines for taking the power generated for distribution to the local grid, as well as to obtain consent from multiple parties for laying water pipelines.[468] Moreover, poor coordination between state agencies and the Ministry of New and Renewable Energy institutions reportedly also delays progress, because CSP developers must

[464] Nagarajan, "India to Auction 100 Megawatts," June 13, 2014.
[465] Helioscsp, "India Wants to Install 29,800 MW of Electricity," August 7, 2014.
[466] Hashem, "What's Holding Back Indian CSP?" March 6, 2014.
[467] Stadelmann, Frisari, and Konda, "The Role of Public Finance in Indian CSP," March 2014, 4.
[468] World Bank, "Transforming India's Future with Solar Power," December 12, 2013.

determine which intervening public institutions are responsible for relevant decisions at both the state and central levels.[469]

Despite these challenges, the Indian industry is capable of meeting much of the domestic demand for CSP project inputs. It is capable of supplying components for well over 30 percent of the value of a CSP plant (figure 6.5) to the Indian CSP market. For example, Areva Solar reported that it sourced 60 percent of the equipment for the 100 MW Rajasthan Sun Technique–Dhursar plant from within India.[470] A large part of the cost of a CSP plant is comprised of products that the Indian industry is capable of producing, such as steel and support structures and similar components.[471]

Figure 6.5: Breakdown of the investment cost of a 50 MW parabolic trough



Source: "Ernst & Young and Fraunhofer, MENA Assessment of the Local Manufacturing Poetntial, 72–75, 2011; Mguni (2010); and World Bank, Development of Local Supply Chain, 2013, 1–38.
Note: Bars in purple above represent products that can currently be produced within India by local producers. Bars in blue represent products that cannot currently be produced in India. A parabolic trough is used because this is the most common type of CSP plant. Of CSP plants worldwide, 80 percent are parabolic troughs. See appendix Table I.30 for underlying data for this figure.

[469] World Watch Institute, "India's Solar Mission," November, 2012. 4.
[470] Pearson, "Areva Says India Solar-Thermal Costs Fell 35% since 2010," September 25, 2013.
[471] World Bank, *Development of Local Supply Chain*, February 2013, 1–38 and "Ernst & Young and Fraunhofer, Financing Renewable Energy in the European Market," 2011.

For example, the components of the support structures for mirrors for the Godavari project were produced by contractors within India.[472] Other Indian firms can produce parts of the power plant itself.[473] Industry representatives have indicated that the capabilities of the Indian industry have improved as a result of the first round of the JNNSM, and that additional local sourcing would likely be possible in any future rounds.[474]

Effects of Barriers on the U.S. CSP Industry

Because the Indian industry is capable of meeting the 30 percent domestic-content requirement, and because firms prefer to source much of the equipment for a project close to the project site,[475] it is unlikely that the domestic-content requirements have limited U.S. participation in the Indian market. CSP demand in India has, however, benefited U.S. firms, which are capable of supplying some of the specialized components and materials that are not readily available in India.[476] For example, U.S.-based companies Dow Chemical and Solutia have supplied heat transfer fluids[477] for all of the JNNSM projects.[478] In at least one instance, an engineering, procurement, and construction (EPC) supplier for a project in India shipped a product to the United States in order to have a specialized coating applied.[479] GE supplied the steam turbine for one of the projects.[480] A range of other firms have exported from the United

[472] Schweitzer et al., "Pioneer Again—EuroTrough Goes India," September 11–14, 2012, 8.
[473] World Bank, *Development of Local Supply Chain*, 2013, 35.
[474] BHEL, for example, has introduced a steam turbine for the CSP sector. Pearson, "Areva Says India Solar-Thermal Costs Fell 35%," September 25, 2013; industry representative, interview by USITC staff, April 1, 2014; *Hindu Business Line*, "BHEL's Hyderabad Unit to Launch Solar," April 12, 2013.
[475] Industry representative, telephone interview by USITC staff, April 1, 2014.
[476] EPC contractors have also commonly sourced from Europe-based firms for many of the key components of CSP plants. For example, Siemens was the turbine supplier for a number of projects; Schott supplied the heat collection element (the tube containing the heat transfer fluid) for multiple projects; and several Europe-based firms supplied mirrors for the projects.
[477] Heat transfer fluids are the liquids heated by the sun, which pass through a heat exchanger in order to heat water that is converted to steam to generate electricity. Dow website, http://www.dow.com/heattrans/csp/fluids.htm (accessed October 1, 2014).
[478] Solutia, a subsidiary of Eastman Chemical Company, supplies heat transfer fluids (HTF) for multiple applications to India. While it is not known if they export HTF from the United States or another location to India for CSP applications, a review of imports into the port of Mumbai indicates that most of their HTF exports to India originate in the United States. Similarly, while it is not possible to narrow down the end use of imports of Dow's DOWTHERM HTF, all identified imports into the port of Mumbai originated in the United States. Moreover, many of the raw materials for HTF that are produced outside of the United States are likely manufactured in the United States. Trade Data Services Inc., Import Genius database (accessed October 1, 2014); Dow, "Offering Long Term Solutions," November 2010, 5; NREL, Concentrating Solar Power Projects database (accessed June–October 2014).
[479] Industry representative, telephone interview by USITC staff, April 1, 2014.
[480] It is not known whether GE produced this turbine in the United States. Pearson, "GE, Siemens Win India Solar Turbine Orders to Offset U.S. Slump," January 6, 2012.

States to India for CSP projects, such as DuPont, 3M Company, and Weed Instrument Company Inc.[481]

U.S. firms have also been active in providing services for CSP plants in India. Areva Solar[482] completed the 100 MW Rajasthan Sun Technique Project, and Lauren Engineers and Constructors was the EPC contractor for the 50 MW Godawari project and the 25 MW Gujarat Solar One project. U.S.-based eSolar provided equipment and oversaw some of the installation and commissioning of an early 2.5 MW CSP plant in India.[483]

Preferential Market Access and the ICT Sector

In February 2012, India's Ministry of Communications and Information Technology—a policy-making body within the government of India—issued the Preferential Market Access (PMA) policy, which stipulated that between 25 and 30 percent of ICT goods would need to be sourced from domestic manufacturers during the first year of the policy.[484] As initially constructed, the LCRs were to increase in phases, with the rates varying based on the domestic availability of the good;[485] some products could reach 100 percent by the fifth year.[486] Further, the policy extended these requirements to both the private sector and government procurement.

In response to widespread resistance from international industry groups, the Indian Prime Minister's Office amended the policy in December 2013 to apply only to the central government's procurement of ICT goods and all ministries within the government, with the exception of the Ministry of Defense.[487] The policy applies primarily to ICT goods, as opposed to services.[488] As of January 2013, it included nearly 20 products, such as tablet and desktop computers, associated computer peripherals, cellphones, and memory cards.[489] In one example, since October 2013 the PMA has required at least 50 percent of the laptops, computers, and dot-matrix printers acquired by the government and associated ministries to be

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[481] U.S. firms have also supplied products such as parts of the boiler. Simhan, "Reliance's Solar Project Gets $80-m Loan," April 15, 2012; Trade Data Services Inc., Import Genius database (accessed October 1, 2014).
[482] Areva Solar is a U.S. firm headquartered in Mountain View, California, although it is a subsidiary of Areva, a French company. As of September 2014, Areva had announced that it would be exiting the solar industry, but it is not yet known whether Areva Solar will be sold or shut down. Castillo, "What Does Areva's CSP Exit Mean?" August 8, 2014.
[483] eSolar website, http://www.esolar.com/projects/bikaner (accessed September 5, 2014).
[484] Telecommunications goods were set at 25 percent, and other ICT products were initially 30 percent. Ezell and Atkinson, *Indian Economy*, April 2014. "Domestic manufacturers" includes all registered manufacturers in India, whether they are domestically owned or foreign-owned. Kedia, *Deconstructing*, February 2014.
[485] MCIT, "Policy," January 22, 2013; TIA, "U.S.-India ICT Working Group," November 1–2, 2012.
[486] SIA, "Written Comments," February 7, 2014, 18.
[487] Ezell and Atkinson, *Indian Economy*, April 2014.
[488] Industry representative, interview by USITC staff, Washington, DC, January 16, 2014.
[489] Kedia, *Deconstructing*, February 2014.

sourced locally, while the remaining half is permitted to be imported.[490] (Although many of the inputs for computers may be imported—such as hard drives—domestic assembly and testing constitute sufficient value additions to qualify the product as domestically produced.)[491]

Notably, the PMA permits domestic and foreign manufacturers to compete based on price, with no preference given to domestic suppliers. However, if the imported product and the domestically produced good are comparably priced, the Indian government may require the product to be sourced entirely locally.[492] Foreign-produced ICT goods are eligible when domestic manufacturers cannot meet the lowest bid or if the good is not produced within India.[493] Because the central government is a major consumer of ICT equipment, the PMA is believed to affect between 30 to 40 percent of India's ICT marketplace.[494]

The decision to apply the PMA only to government procurement was welcomed by at least some U.S. industry representatives, such as IBM.[495] Further, during Commission field visits to India, some U.S. industry representatives expressed optimism about the new government's responsiveness to industry concerns about extending the policy to the private sector.[496] Yet, despite the revisions to the PMA, some industry representatives remain concerned about the difficulties associated with complying with the policies. For instance, firms reported that certain products, such as routers, are not produced locally, while another firm suggested that the cost of acquiring locally produced goods was between 15 and 23 percent higher than when imported.[497]

The PMA largely reflects India's desire both to prioritize domestic manufacturing within a strategically important sector and to address India's national security concerns.[498] India's ICT goods and services market, which was estimated at nearly $200 billion in 2012, is the fifth largest in the world.[499] However, an estimated 60 percent of the ICT market is believed to be supplied by imported merchandise.[500] For example, the components for cellphones are supplied almost entirely by imports; semiconductors alone represent more than one-third of

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[490] Industry representative, interview with USITC staff, New Delhi, June 27, 2014; McLain, "India," April 15, 2013.
[491] MCIT, "Notification: Policy for Preference," January 22, 2013. Under the PMA, local assembly of a hard drive is treated as equivalent to local manufacturing of the good. McLain, "India," April 15, 2013.
[492] Industry representative, interview by USITC staff, New Delhi, June 27, 2014.
[493] Kedia, *Deconstructing*, February 2014.
[494] Ezell and Atkinson, *Indian Economy*, April 2014; McLain, "India," April 15, 2013.
[495] IBM Corporation, written submission to the USITC, February 17, 2014.
[496] Industry representative, interview with USITC staff, Bangalore, June 19, 2014; industry representative, interview with USITC staff, New Delhi, June 27, 2014.
[497] Industry representative, interview with USITC staff, New Delhi, India, June 27, 2014.
[498] The Indian government has become increasingly concerned about the country's vulnerability to cyberattacks. Kedia, *Deconstructing*, February 2014.
[499] TIA, written submission to the USITC, April 9, 2014.
[500] IESA, *Indian ESDM Market*, 2014.

the cost of producing a cellphone, and India lacks plants to make semiconductor wafers, requiring the country to import these inputs.[501] Domestic production of printed circuit boards—another critical component in cellphones and other ICT-related goods—mostly caters to low value-added applications, such as basic, non-Internet-enabled cell phones, forcing the country to source the bulk of these inputs from China.[502] Further, dot-matrix printers, which are widely considered to be an outdated technology, are one of the few ICT products that India produces domestically.[503]

As a result, India's ICT sector is heavily dependent on foreign firms; 200 foreign companies receive more than 85 percent of the country's total ICT-related revenues.[504] In each of the major ICT segments, including computers and peripherals and consumer electronics, multinationals supply the majority of the market, through either their exports of goods to India or their ownership of local production.

Case Study: High Operating Costs Limit Deeper Engagement in India by U.S. ICT Companies

In an effort to comply with India's LCR policies, such as the PMA, and penetrate India's burgeoning ICT market, U.S. firms have tried to establish manufacturing facilities within the country. However, many of these firms have indicated that doing so is difficult, due partly to infrastructure barriers—including unreliable electricity and the poor condition of many roads, which increases transportation costs—and to the lack of an industrial ecosystem to manufacture necessary inputs. For instance, Cisco Systems, one of the world's leading producers of ICT goods, has invested more than $1 billion in India since 2006. However, it has cited difficulties with manufacturing there, including the high costs associated with the country's poor infrastructure and absence of locally manufactured components.[505] In particular, the company's high-end ICT technologies, which include routers, switches, and servers, require multiple component suppliers that do not exist in India.

Similarly, Dell, which is India's largest retailer of personal computers, assembles computers and provides services in India, but does not manufacture any components there.[506] Because the PMA allows goods that have been tested or assembled in India to qualify as locally produced, firms like Dell may be able to comply with the policy by assembling ICT goods within the

[501] IESA, *Indian ESDM Market*, 2014.
[502] IESA, *Indian ESDM Market*, 2014.
[503] McLain, "India," April 15, 2013.
[504] Osec, *Market Study*, October 2011.
[505] Parbat, "Cisco: No Plans to Manufacture in India," December 9, 2013.
[506] McClain, "India," April 15, 2013.

country. However, importing necessary components for final assembly can add substantial costs to a company's operating costs, due to the high duties that India assigns to various electronic components. For instance, computer processors—which represent between 25 and 30 percent of the final cost of a computer—are assessed an effective duty rate of 12 percent.[507] Nevertheless, Dell imports from China the majority of the components it uses in India, because they are not available in India.[508]

In fact, the country's "inverted" duty structure means that imported components face higher tariffs than imports of finished goods.[509] For example, some raw materials used for ICT goods are levied a 14.7 percent duty, versus just 10.3 percent for the finished good.[510] One industry representative reported that the cost of sourcing goods locally has been 15–23 percent higher than if they had been imported.[511] This same firm reported that although the public sector is an important market for ICT firms, the costs of doing business in the country make government a less viable target for more manufacturing, especially given that only 15 percent of government operations rely on computers.

Telecommunications License Amendments and the ICT Sector

Since 2009, India's Ministry of Communications and Information Technology (MCIT) has issued three amendments to the rules governing India's telecommunications licenses, all of which have introduced LCRs. The initial amendment applied to all telecommunications licenses and required 30 percent of the value of associated ICT goods sold to be locally produced.[512] In 2010, the MCIT issued a second amendment regarding the approval of telecommunications licenses. This amendment, among other requirements, forced foreign manufacturers of ICT equipment and software to transfer sensitive source codes and technologies to local Indian companies.[513] The following year, in response to pressure from U.S. industry groups, the MCIT revised the amendment to replace the forced technological transfer provisions with mandatory local-

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[507] McClain, "India," April 15, 2013; IceGate, "Structure of Duty," n.d. (accessed October 2, 2014). As a signatory to the Information Technology Agreement (ITA), India exempts 217 ICT-related tariff lines, such as laptops, personal computers, and cellphones, from basic duties. However, the country assesses "other duties," which raise the effective rate of duty assessed to various ICT products. For more information on India's tariff structure, see chapter 4 of this report.
[508] *Fortune*, "How Dell Conquered India," February 10, 2011.
[509] Chawla, "Components," June 18, 2013; McClain, "India," April 15, 2013; Parbat, "Cisco: No Plans to Manufacture in India," December 9, 2013; Arora, "Dell Emerges as the New Leader," August 20, 2010.
[510] Patra, "Encouraging Manufacturing," March 13, 2012.
[511] Industry representative, interview by USITC staff, New Delhi, India, June 27, 2014.
[512] Industry representative, interview by USITC staff, January 16, 2014. The Telecommunications Regulatory Authority of India issues Telecommunications Licenses, which governs the sale of ICT goods and services within the country. TRAI, "Converged Licensing," 2012.
[513] EC, "Trade," November 26, 2013.

testing requirements for imported ICT equipment that is deemed to have security implications.[514] The policy became effective as of July 2014 after several delays. This requirement differs from internationally accepted procedures, which accept ICT goods that have been tested in internationally accredited labs, regardless of the location.[515] As was the case with the PMA, these amendments likely reflect, in part, the Indian government's security concerns regarding foreign manufactured ICT hardware, as well as the government's desire to build up the local industry.[516]

U.S. ICT manufacturers have expressed concerns over the local-testing requirements, as the Bureau of Indian Standards—the approval board that tests and certifies ICT goods for sale—is perceived to lack the capacity to manage the volume of ICT hardware that enters the market, which results in significant delays.[517] Moreover, this body may not have the resources to test highly sophisticated ICT goods, such as routers.[518]

USITC Survey Findings on the Effects of LCRs in the ICT Industry

The Commission's survey suggests that, to date, India's imposition of LCRs have had a limited effect (table 6.4). The implementation of LCRs in 2011 and 2012 did not generate additional adverse effects for ICT goods exporters, but did have an effect on ICT companies with affiliates in India. Less than 5 percent of ICT exporters or affiliates were substantially affected by LCRs, however.[519] These findings suggest that the Preferential Market Access policy has not had a significant effect on most U.S. firms' sales of ICT goods to India, whether through exporting goods or selling through their affiliates.

[514] EC, "Security," November 26, 2014; Industry representative, telephone interview by USITC staff, September 30, 2014.
[515] Industry representative, telephone interview by USITC staff, September 30, 2014.
[516] USTR, *2013 National Trade Estimate*, 2013.
[517] Industry representative, interview by USITC staff, Washington, DC, January 16, 2014.
[518] Industry representative, interview by USITC staff, Washington, DC, January 16, 2014.
[519] Survey respondents were asked to rate the effect of the barriers they encountered in India on a scale of 1 to 5. Responses between 3 and 5 were regarded as "substantial." Note that both of these shares are low-precision estimates, however, indicating substantial variability in responses within these groups.

Table 6.4: Effects of LCRs on U.S. companies that export goods to India, by sector, 2007–13

	Share of companies (%)		Mean effect[a]		
Sector	**Facing the issue[b]**	**Substantially affected[c]**	**2007**	**2010**	**2013**
ICT companies with exports to India	5.2	4.2[d]	2.3	2.4	2.4
ICT companies with affiliates in India	6.5[d]	4.7[d]	1.6	1.3[d]	2.1

Source: USITC calculations of weighted responses to the Commission questionnaire (question 3.2 and 4.2).

[a] On a scale from 0 (did not face the barrier) to 5 (prohibitive effect on activities).

[b] Share of companies reporting an effect ranging from 1 (faced the policy but it had no effect on activities) to 5 (prohibitive effect) in 2007, 2010, or 2013.

[c] Share of companies reporting an effect of 3–5, indicating the policy had a moderate, severe, or prohibitive effect on activities in 2007, 2010, or 2013.

[d] Low-precision estimate, with an RSE above 50 percent.

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Chapter 7
Barriers to Foreign Direct Investment in India

Introduction

Foreign direct investment (FDI) in India has expanded rapidly in recent years. Total FDI equity flows into India during the five fiscal years 2006 through 2010 were almost seven times the total from the preceding five fiscal years.[520] The stock of U.S. investment[521] in India rose by a factor of almost six from 2001 to 2007, and nearly doubled again by 2012.[522] At the same time, however, many investors have identified certain Indian barriers to or restrictions on FDI that prevent or inhibit them from investing in India. These measures include both "horizontal" restrictions, which apply to investors in all industries, and restrictions that apply to investment in particular industries.

Table 7.1 describes the major Indian FDI policies and the U.S. industries that are most affected by them. The survey found that the FDI barrier faced by the largest share of firms engaged in both goods and services industries in India was difficulty getting required permits, approvals, or licenses for investment. For firms in certain industries, particularly financial services, equity limits were particularly important. Most of India's barriers to foreign investment apply to the services sector and to defense and aerospace, which have experienced some liberalization in recent years.

This chapter reviews India's FDI restrictions and policies that apply to investment in all industries; identify changes over time with respect to the investment climate in particular

[520] Government of India, MOCI, DIPP, Fact Sheet on FDI, August 2014. India reports FDI data in fiscal years that run from April to the following March.

[521] Foreign direct investment is defined as ownership or control by a foreign resident, directly or indirectly, of at least 10 percent of an Indian business enterprise. The FDI stock, or position, is the value of direct investors' equity in, and net outstanding loans to, their affiliates. The direct investment position may be viewed as the direct investors' net financial claims on their affiliates. USDOC, BEA, "U.S. International Economic Accounts: Concepts and Methods," G-4, http://www.bea.gov/international/pdf/concepts-methods/Glossary.pdf (accessed October 27, 2014).

[522] The U.S. stock of overseas investment in India was $2.5 billion in 2001, $14.6 billion in 2007, and $27.4 billion by 2012. Later years not available. USDOC, BEA, Annual Data: Position on a Historical Cost Basis 2000–2012 (accessed April 7, 2014).

Table 7.1: Indian FDI restrictions and the U.S. industries most affected

Policy	Description of the barrier	U.S. industries most affected
FDI equity limits	For certain industries, India limits the total equity stake that foreign investors can hold in an Indian firm, and/or limits the aggregate share that all foreign investors can hold.	Retail, insurance, defense and aerospace, telecommunications, banking, publishing, broadcasting, aviation
Foreign investment authorization process	Investment proposals in certain industries and in certain circumstances are subject to pre-authorization by India's Foreign Investment Promotion Board.	Applies to industries that face equity limits (retail, insurance, defense and aerospace, telecommunications, banking, publishing, broadcasting, aviation), and to other investment proposals in specific circumstances
Restrictions on the form of establishment	The choice of FDI through a branch or an affiliate is restricted.	Insurance, banking
Prohibition on FDI in certain industries	Foreigners are not permitted to invest in certain industries in India.	Legal services, gambling and casinos, tobacco manufacturing

Source: Compiled by USITC.

industries; and describes the industry-specific barriers as they exist in 2014.[523] The chapter then presents the results of the Commission's survey of U.S. firms on barriers to FDI.[524]

India's FDI policies can be compared to those of other countries using multicountry indices, compiled by the Organisation for Economic Co-operation and Development (OECD) and the Heritage Foundation, that compare overall FDI restrictiveness. According to the OECD's FDI Regulatory Restrictiveness Index for 2013 (the latest available), India ranks 53rd out of 58 countries listed, with a ranking of 1 being the least restrictive. Many countries on the list are OECD members, whose GDPs per capita are much higher than that of India. India is, however, ranked as less restrictive than both Indonesia and China, two other countries whose GDPs per capita are lower than those of most OECD members.[525]

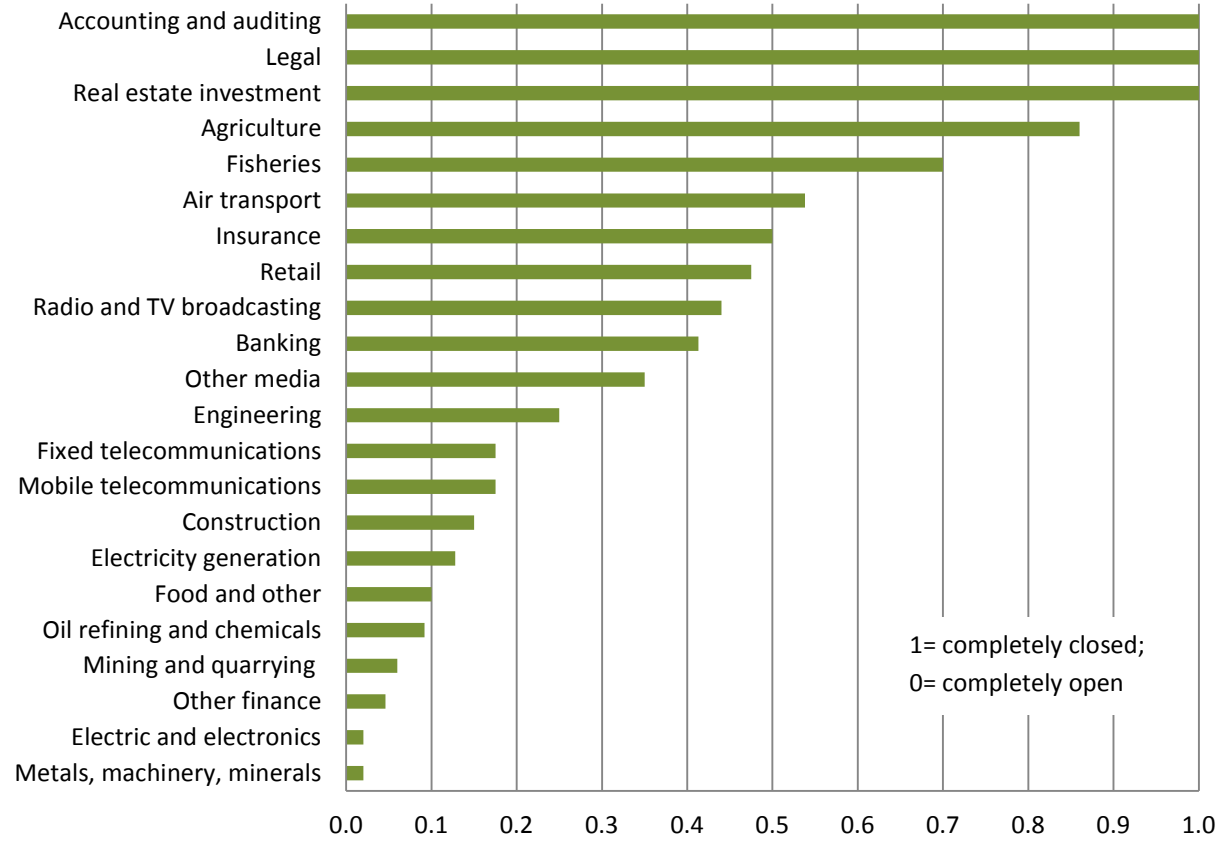
In India, as in most countries, restrictiveness varies by sector. Accounting and audit services, legal services, and real estate investment are subject to the most restrictive FDI regulations, as measured by the OECD (figure 7.1).

[523] Discussions on a potential U.S.-India bilateral investment treaty (BIT) began in 2008, with the last round held in June 2012. The conclusion of a BIT could change or eliminate some of India's FDI barriers, as identified in this chapter. As of December 2014, however, there were no reports that the negotiations were close to a conclusion. USDOS, Press release, "U.S.-India Joint Fact Sheet: Economic Collaboration," June 24, 2013.

[524] Results from the Commission's CGE analysis on the effects of India's FDI restrictions on the U.S. economy are presented in chapter 3.

[525] Higher scores indicate sectors that have more restrictions. OECD, FDI Regulatory Restrictiveness Index (accessed November 10, 2014). Note that China and Indonesia are also not members of the OECD.

Figure 7.1: OECD FDI Regulatory Restrictiveness Index for India, by sector, 2013



Source: OECD, FDI Regulatory Restrictiveness Index (accessed May 15, 2014).
Note: Forestry, transport equipment, electricity distribution, wholesale, surface and maritime transport, hotels and restaurants, and architecture are listed as open to FDI, with scores of 0 on the index. See appendix Table I.31 for underlying data for this figure.

The Heritage Foundation publishes an Index of Economic Freedom, which ranks 186 countries on various aspects of economic freedom, including freedom to invest. With regard to investment freedom specifically, India ranks 146th out of 184 countries. When compared to its peer group of 47 lower-middle-income countries (as defined by the World Bank), India is ranked 32nd.[526]

Limits on the share of foreign investment in a domestic firm's equity serve as the main conduit through which India imposes FDI restrictions.[527] For most industries in India, caps on foreign investment have remained unchanged over the most recent five-year period (see appendix table H.3). Where equity limits have changed, however, the changes have been in the direction

[526] Higher numbers indicate more restrictions. The 2014 Index relies on data from 2013. Heritage Foundation, 2014 Index of Economic Freedom, "Country Rankings," and "Explore the Data," accessed August 11, 2014.
[527] These caps, however, are not necessarily the most burdensome investment restrictions for U.S. companies. The survey results section describes the relative burden imposed by various investment restrictions in greater detail.

of additional liberalization. In September 2012, the Indian government raised equity caps on FDI in multibrand and single-brand retail, aviation, broadcasting, and power exchanges in order to attract more foreign investment. In September 2013, India eased investment (and procurement) requirements further: it removed the FDI cap in telecommunications, raised the limit in the defense industry to 49 percent (on a case-by-case basis), allowed investors in the oil and natural gas and the courier services sectors to invest through the automatic route,[528] and loosened restrictions on FDI in tea plantations.[529] In August 2014, the government issued new regulations permitting FDI in India's defense industry up to a 49 percent equity cap through the standard government route. Higher equity levels in the defense industry are subject to approval on a case-by-case basis, "wherever it is likely to result in access to modern and 'state-of-art' technology in the country."[530]

Further liberalization may be coming soon. Interviews with industry representatives in India in June and July 2014, shortly following the national election, indicated a widespread belief that the newly elected Modi government would likely raise or eliminate the FDI equity cap in the insurance industry in coming months.[531]

U.S. industry representatives have noted other positive changes to India's investment rules. Aside from the liberalization of FDI equity caps, changes to banking rules have been favorably received by international investors; the changes are expected to facilitate new capital formation. However, not all sectors have benefited by improved FDI rules, even those in which conditions would appear to encourage new investment. For example, rising natural gas and petroleum prices have encouraged new foreign investment in domestic energy exploration and production, creating opportunities both for foreign energy companies and for foreign companies that provide related services. For example, Baker Hughes, Halliburton, Schlumberger, and Transocean are all active in the Indian hydrocarbons industry.[532] However, according to another industry representative, most global major petroleum companies have not pursued large investment projects in India, even though they do not face equity limits. Their concerns include unfavorable or unclear contract terms for upstream oil exploration, and government-controlled prices for downstream petroleum products.[533]

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[528] See the section on India's FDI approval process for a discussion of India's automatic vs. government routes to foreign investment.
[529] Government of India, MOCI, DIPP, "Review of the Policy on Foreign Direct Investment," August 22, 2013; World Bank, "India Development Update," October 2013, 11.
[530] Government of India, MOCI, DIPP, "Review of the Policy of Foreign Direct Investment (FDI) in Defence Sector," August 26, 2014.
[531] Industry representatives, interviews with USITC staff, Mumbai, June 24, 2014, and Bangalore, June 18–20, 2014.
[532] Somers, written testimony to the USITC, February 25, 2014, 7.
[533] Industry representative, interview with USITC staff, Bangalore, June 18, 2014.

Barriers That Apply Across All Industries

A number of limits on FDI in India apply to investors in all industries. These include India's foreign investment approval process; equity limits on foreign ownership by individual companies and on aggregate foreign ownership in Indian public firms; and other limits on the activities of foreign investors.[534]

India's FDI Approval Process

In India, FDI takes place through either the "automatic route" or the "government route." Most investment occurs through the automatic route, under which investors must notify the Reserve Bank of India of new investments within 30 days, but are not required to obtain explicit approval ahead of time. The share of incoming FDI inflows that required explicit government approval dropped from 62 percent in 2001 to 14 percent in 2010, while the proportion entering India through the automatic route increased from 22 percent to 74 percent.[535]

Even when an investment need not be authorized in advance, foreign investors remain responsible for securing any required operating licenses from state and national authorities, and this can be a burdensome process.[536] Investors must obtain seven basic "No Objection Certificates" from Indian government agencies for almost all new investment projects, with others potentially required depending on the project.[537] In December 2012, the Indian government established a special fast-track approval body, called the Cabinet Committee on Investment and led by the Prime Minister, for investments valued at more than $200 million.[538]

Under the government route, for investment in certain defined industries, investors are required to get prior approval from the principal relevant ministry and/or the Foreign Investment Promotion Board (FIPB). The regulations for approval vary by industry, and the approving government agency is either the FIPB (part of the Department of Economic Affairs in the Ministry of Finance) or the Ministry of Commerce and Industry (MOCI), depending on the applicant and the industry.[539]

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[534] Details are presented in appendix table H.2.
[535] Heritage Foundation, "Unleashing the Market in the India," January 2013, 7.
[536] Government of India, MOCI, DIPP, *Consolidated FDI Policy*, April 17, 2014; U.S. Department of State, "2013 Investment Climate Statement—India," February 2013.
[537] The seven agencies are the Tree Authority, Storm Water and Drain Department, Sewerage Department, Hydraulic Department, Environmental Department (concerned with debris management), Traffic and Coordination Department, and CFO (fire department clearance). U.S. Department of State, "2013 Investment Climate Statement—India," February 2013.
[538] U.S. Department of State, "2013 Investment Climate Statement—India," February 2013.
[539] Government of India, MOCI, DIPP, *Consolidated FDI Policy*, April 5, 2013, 8 and 29.

Which department of MOCI will approve an investment depends on the type of investment it is. MOCI's Department of Industrial Policy and Promotion (DIPP) oversees investment decisions for FDI in single-brand retail and FDI proposals by nonresident Indians. MOCI's Department of Commerce approves FDI proposals from industrial companies that intend to participate in a Special Economic Zone, which, in exchange for certain tax incentives, requires them to export their entire production of goods and services from India. Most other FDI proposals are approved directly by the FIPB, which is staffed jointly by MOCI and the Ministry of Finance.[540]

Foreign investors may select the location of their projects, but some investors have noted that existing land acquisition laws and zoning regulations have prevented them from setting up factories in their preferred locations.[541] In an effort to address this concern, MOCI has set aside land for 14 national investment and manufacturing zones—integrated industrial townships that offer investors a one-stop approval process for investment, improved infrastructure, prezoned land for industrial use, and other tax benefits.[542]

In discussions with Commission staff, industry representatives stated that the foreign investment approval process through the government route does not usually pose a significant barrier to new investment. Most applications are approved and the process is generally viewed as transparent.[543] However, even though approval is generally granted, delays in the approval process have caused certain problems, particularly in the case of time-sensitive deals relating to the acquisitions of Indian companies, leading some deals to fall through that might otherwise have been completed.[544]

Equity Limits

India imposes foreign investment equity limits (or caps) on foreign investment in a number of specific industries, including retail distribution, defense and aerospace, and insurance. In all sectors for which equity limits apply, there are three cases in which government approval by the FIPB is required: (1) when an Indian company is being established with foreign investment and is not owned by a resident entity; (2) when an Indian company is being established with foreign investment and is not controlled by a resident entity; and/or (3) when the control of an existing Indian company will be transferred to a nonresident entity. The approval requirement applies to FDI, portfolio investment, and other types of foreign investment.[545]

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[540] Government of India, MOCI, DIPP, *Consolidated FDI Policy*, April 5, 2013, 29.
[541] According to Indian industry representatives, difficulties acquiring land present a significant problem for both domestic and foreign investors. Industry representative, interview with USITC staff, Bangalore, June 20, 2014.
[542] U.S. Department of State, "2013 Investment Climate Statement—India," February 2013.
[543] Industry representative, interview with USITC staff, Bangalore, June 19, 2014.
[544] Industry representative, interview with USITC staff, Mumbai, June 24, 2014.
[545] Government of India, MOCI, DIPP, *Consolidated FDI Policy*, April 17, 2014.

Individual foreign portfolio and stock exchange investors are limited to holding less than 10 percent of the capital of an Indian company, with an aggregate limit of 24 percent for all foreign investors. Under certain conditions, the aggregate limit may be raised to the statutory equity cap for the particular industry.[546] FDI in trusts is not permitted. FDI in limited liability partnerships (LLPs) is permitted under certain conditions, in industries where there is no FDI equity cap.[547]

Uncertainty and Lack of Transparency

While U.S. industry representatives report that India is considered an attractive market due to its large population and growing economy, uncertainty and lack of regulatory transparency act as disincentives to investors.[548] In its submission to the Commission, the U.S. pharmaceutical industry stated that the lack of a strong system to protect intellectual property has discouraged FDI into India and will continue to do so, particularly in technologically advanced areas such as research and development (R&D).[549]

Industry representatives have also expressed concern that Indian regulators often do not give industry enough time to comment before carrying out changes to regulations. As one example, the American Insurance Association noted in its submission to the Commission that a popular life insurance product (unit-linked insurance plans) had to be pulled from the market, causing significant confusion and difficulties for consumers, after regulators changed the rules affecting sales of the product. While not necessarily disagreeing with the goals of the new regulations, the submission states that increased notice to industry, and an opportunity to comment before the rules were changed, would have allowed an easier transition with less impact on consumers.[550]

Currency Conversion and Transfer

Access to foreign currency is a key consideration for foreign investors in India. The Indian rupee is fully convertible for current-account transactions,[551] but prior approval from the Reserve Bank of India (RBI) is required to acquire foreign currency above certain limits for specific purposes, including foreign travel, consulting services, and foreign studies. As reported by the U.S. Department of State, other restrictions on currency conversion include the following:

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[546] Government of India, MOCI, DIPP, *Consolidated FDI Policy*, April 17, 2014.
[547] Government of India, MOCI, DIPP, *Consolidated FDI Policy*, April 17, 2014, 14–17.
[548] Industry representatives, interviews with USITC staff, Bangalore, June 17 and 19, 2014.
[549] Hunter, written testimony to the USITC, February 25, 2014, 5–6. See chapter 5 for an in-depth discussion of the pharmaceutical industry's intellectual property concerns in India.
[550] Simchak, written testimony to the USITC, February 25, 2014, 6–7.
[551] Current-account transactions include, for example, transactions for the purpose of trade and remittances of profits and dividends.

- Investment by nonresident Indians in real estate may be subject to a "lock-in" period. In addition, investors may not use the proceeds from global depository receipts and American depository receipts abroad for investment in real estate and stock markets. FIPB approval is required in some cases.[552]
- RBI approval is needed to remit the proceeds of sales of assets and to clear payment of income taxes.[553]

Industry representatives interviewed in India generally agreed that such currency restrictions do not pose significant barriers to U.S. firms doing business in India.[554] One foreign exchange control that has been relaxed in recent years allows individuals to transfer up to $200,000 per year abroad for any purpose without approval.[555]

Barriers That Apply to Specific Industries

A number of industry-specific Indian policies act as barriers to U.S. investment. Most prominent among these are equity caps, which particularly affect FDI in the insurance, defense and aerospace, multibrand retail, and telecommunications industries; equity limits in several industries have been decreased over time.[556] In addition, FDI is completely prohibited for certain industries, and other types of restrictions that apply to particular industries may also make FDI more difficult for U.S. investors. Examples include restrictions on the form of establishment in which foreign-owned firms may invest (i.e., branch or affiliate); tax problems, including retroactive taxation and different tax rates in different states; difficulty obtaining a business license; and difficulty acquiring land for business operations. Some of these measures vary by state, as do some of the incentives geared to attracting FDI in particular industries.

Although there is little indication that U.S. investors consider these prohibitions to significantly undermine their business interest, FDI is prohibited in the following industries in India:

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[552] An American Depository Receipt (ADR) is a negotiable certificate issued by a U.S. bank representing a specified number of shares (or one share) in a foreign stock that is traded on a U.S. exchange, denominated in U.S. dollars. The underlying security is held by a U.S. financial institution overseas. ADRs make it easier for foreign investors to trade shares of U.S. companies. Similarly, a Global Depository Receipt (GDR) is a bank certificate issued in more than one country for shares in a foreign company. The shares are held by a foreign branch of an international bank. The shares trade as domestic shares, but are offered for sale globally through the various bank branches. GDRs may be denominated in either U.S. dollars or euros. Investopedia, http://www.investopedia.com/ (accessed December 8, 2014).
[553] U.S. Department of State, "2013 Investment Climate Statement—India," February 2013.
[554] Industry representatives, interviews with USITC staff, Bangalore, June 20, 2014; Mumbai, June 24 and 26, 2014.
[555] U.S. Department of State, "2013 Investment Climate Statement—India," February 2013.
[556] Additional detail regarding equity caps in specific industries from 2010 to 2014 is presented in appendix table H.3.

- Lottery businesses, including government and private lotteries and online lotteries;
- Gambling and betting, including casinos;
- Chit funds;[557]
- Nidhi companies;[558]
- Trading in transferable development rights;
- Real estate or construction of farmhouses; and
- Manufacturing of cigars, cheroots, cigarillos and cigarettes, of tobacco or of tobacco substitutes.[559]

Certain activities and sectors in India have been closed to investment by both Indian private sector firms and foreign investors. In the past, these sectors included atomic energy and railway transport (other than mass rapid transport systems).[560] In August 2014, however, the government of India amended its FDI regulations to permit both domestic and foreign investment in certain segments of the railway industry.[561] The following sections present additional detail for measures that inhibit FDI in particular industries.

Manufacturing

There are few barriers to investment in India's manufacturing sector. Industry representatives indicate that the Indian government has a strong interest in attracting FDI in the sector, with a focus on increasing employment.[562] The Indian government permits 100 percent FDI equity ownership in most sub-categories of the manufacturing sector. However, wishing to encourage small-scale businesses, the government reserves certain manufacturing sectors for micro and

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[557] Chit funds are non-standardized savings institutions made up of members that make regular contributions into a pool of funds. The pool is periodically distributed to one of the members, who are selected on the basis of previously agreed criteria. These funds are regulated under the Chit Funds Act of 1982 and associated state government regulations. Arthapedia, http://www.arthapedia.in/index.php?title=Chit_Funds_/_Chitty_/_Kuri/_Miscellaneous_Non-banking_Company (accessed August 20, 2014).

[558] A nidhi company is a mutual benefit finance company that lends money to members, primarily using the pooled funds of its members as lending capital. Nidhis are registered under the Companies Act of 1956 and regulated by India's Ministry of Corporate Affairs. Nidhis are also included in the definition of non-banking financial companies (NBFCs) as included in the Consolidated Investment Policy. Arthapedia, http://www.arthapedia.in/index.php?title=Nidhi(Mutual_Benefit_Society (accessed August 20, 2014).

[559] Government of India, *Consolidated FDI Policy*, April 2014, 39.

[560] Ibid.

[561] FDI will be permitted up to 100 percent equity through the automatic route in construction, operation, and maintenance of railway infrastructure, including passenger and freight railway lines, rolling stock, railway electrification and signaling, rail terminals, and related infrastructure. Under previous rules, FDI was permitted in mass rapid-transport systems, and that industry segment remains open. Proposals involving FDI greater than 49 percent in security-sensitive areas will be approved by the Ministry of Railways on a case-by-case basis. Government of India, "Policy for Private Investment in Rail Infrastructure," August 27, 2014.

[562] Industry representatives, interviews with USITC staff, Bangalore, June 20, 2014; Mumbai, June 25, 2014; and New Delhi, June 23, 2014.

small enterprises (MSEs), defined as companies with less than $1 million in plant and machinery. FDI by investors that do not qualify as MSEs and wish to manufacture items reserved for the MSE sector must be authorized by the FIPB via the government investment route if the foreign equity share will be over 24 percent. At its peak in the late 1990s, more than 800 industry categories were protected under the small-scale industry policy.[563] Since 1997, the number of protected categories has steadily decreased.[564]

Defense and Civil Aerospace

Until October 2013, India imposed a 26 percent equity limit on FDI in the defense and aerospace industries. In 2013, the government announced that it would raise the equity limit to 49 percent, subject to approval on a case-by-case basis. As of July 2014, however, no foreign investor had applied to invest at the higher level. According to industry representatives, defense companies are particularly concerned about safeguarding their intellectual property, and most are not interested in investing in India or elsewhere if they can have only a minority equity share. The number of potential joint venture partners among Indian firms is also limited, partly due to the financial requirements of a 74 percent equity stake.[565]

Industry representatives speculate that raising the equity limit would expand the number of potential partners.[566] In addition, industry sources note that new aviation platforms generally require a global customer base to justify their costs, so investors producing in India would need to be able to export to justify the business case.[567] As of June 2014, many observers expected that the equity cap would soon be lifted, either entirely or to the point that foreign investors could hold a majority share in their investments.[568]

Aside from the equity limit, the defense industry barrier most frequently cited by industry representatives is the Defence Offset Policy. This policy was formalized as part of India's Defence Procurement Procedure beginning in 2005, but existed informally before that time.[569] The offset program, which applies to both defense and civil aerospace contracts, is an effort by the Indian government to promote local production in the industry. Under the policy, 30–50 percent of major defense contracts must be offset through local production.

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[563] As of 2010 (latest available), the list included 20 specific industries within food processing, wood and paper processing, chemicals, glass and ceramics, and mechanically engineered items. The list is available at http://www.dcmsme.gov.in/publications/reserveditems/reserved2010.pdf.
[564] U.S. Department of State, "2013 Investment Climate Statement—India," February 2013.
[565] Industry representative, interview with USITC staff, Bangalore, June 17, 2014.
[566] Industry representatives, interviews with USITC staff, Bangalore, June 17 and 19, 2014.
[567] AmCham India, "Addressing Key Challenges," April 2014, 32.
[568] Industry representatives, interviews with USITC staff, Bangalore, June 17 and 19, 2014, and Mumbai, June 24, 2014.
[569] Industry representative, interview with USITC staff, Bangalore, June 17, 2014.

Foreign companies can choose one of the following routes to fulfill offset obligations:

- Direct purchase of eligible products, components, or services from Indian industries;
- FDI in Indian defense industries, including joint ventures and co-production of defense products and components. Investments into small and medium enterprises count for one and one-half times as much as FDI in larger companies. Beginning in 2012, technology transfers to a local partner were added to the FDI list, with a potential 10 percent offset multiplier available on them;
- FDI in government-approved research and development projects (recently expanded beyond defense R&D only).[570]

A recent example of the application of the offset policy is India's Medium Multi-role Combat Aircraft project, under which India will purchase 126 fighter aircraft from Dassault (France). According to different sources, Dassault will build either the first 10 or the first 16 aircraft in France, and the remainder will be produced in India in a joint venture with Hindustan Aeronautics Ltd. (HAL), India's government-owned defense company.[571]

As of January 2013, India requires a 30 percent offset on any deal over Rs 3 billion (about $55 million). Large procurements carry larger offset obligations, up to 50 percent.[572] Observers cite numerous problems with the offset policy, including conflicting government policies, regulatory procedures that are unclear or contradictory, an inefficient managing body, and poor execution. Others have noted that long delays in completing many defense projects have at times led to unworkable offset contracts; when foreign companies were unable to fulfill offset requirements due to changing conditions, they had to conduct lengthy contract renegotiations.[573] A 2012 Indian government audit of the defense offset program largely substantiated many of these concerns.[574] However, according to Boeing's 2014 submission to the Commission, India's efforts at defense indigenization have not had a significant effect on Boeing's business there, although the company continues to closely monitor developments.[575]

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[570] Spear, "The Implementation of India's Defense Offset Policy," January 31, 2013; industry representative, interview with USITC staff, Bangalore, June 17, 2014.
[571] AmCham India, "Addressing Key Challenges," April 2014, 30; industry representative, interview with USITC staff, Mumbai, June 24, 2014.
[572] Spear, "The Implementation of India's Defense Offset Policy," January 31, 2013; CII, "Indian Defence Offset Policy," n.d. (accessed October 27, 2014).
[573] AmCham India, "Addressing Key Challenges," April 2014, 30–31; industry representatives, interviews with USITC staff, Bangalore, June 17 and 19, 2014.
[574] The audited cases were from 2010–12. Government of India, Union Government (Defence Services) Air Force and Navy, "Report No. 17 of 2012–13," (accessed October 27, 2014).
[575] Boeing Corporation, written submission to the USITC, February 7, 2014, 3–4. Boeing participates in both the defense and the civil aerospace industries in India.

Despite these policies, India represents a particularly attractive market for defense and aerospace companies, including many firms that overlap the two industries. India accounted for 12 percent of global arms imports between 2008 and 2012, and imports about 70 percent of its defense requirements. India is also one of the few large countries expected to significantly build up its defense capacity in coming years, with anticipated spending of $100 billion on defense and aerospace by 2023, according to an estimate by the state of Karnataka.[576] According to industry representatives, many foreign defense companies believe that they cannot afford to bypass the Indian market.[577] Expansion is also likely in the civil aerospace industry. India's civil aircraft fleet is significantly smaller on a per capita basis than that of most other countries, with only about 350 aircraft, compared with about 7,000 in the United States. This disparity indicates significant room for growth as India's middle class continues to expand.[578] The state of Karnataka expects the Indian aviation market to rank among the top three markets globally by 2017.[579]

Air Transport Services

According to India's latest 2014 consolidated FDI policy report, for domestic scheduled passenger and air transport services, as well as non-scheduled air transport services, foreign equity is capped at 49 percent via the automatic route, and allowed to rise to 74 percent with government approval. Industry representatives have noted that the regulations concerning cargo versus passenger airlines are unclear, particularly in regard to foreign investment in existing Indian-owned airlines. This poses a particular challenge for international carriers who are prohibited by India's current cabotage law from shipping cargo between multiple destinations within India.[580] There are no FDI restrictions in place for helicopter and seaplane services.[581]

Telecommunications

In an effort to attract foreign investment targeted towards infrastructure improvement, in 2000 the Indian government relaxed the telecommunications equity cap for foreign firms that also

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[576] Government of Karnataka, *Karnataka Aerospace Policy, 2013–23*, January 2013, 1.
[577] India is expected to spend in the range of $150–$170 billion to upgrade its military over the next 20 years, with about $65 billion expected to go to the aerospace sector. In particular, one industry representative mentioned that big contracts for new fighter planes are expected within the next five years, and another expected a buildup of naval capacity soon after. Industry representatives, interviews with USITC staff, Bangalore, June 17, 2014, and Mumbai, June 24, 2014.
[578] Industry representative, interview with USITC staff, Bangalore, June 17, 2014.
[579] Government of Karnataka, *Karnataka Aerospace Policy, 2013–23*, January 2013, 1.
[580] The ability to invest in an existing Indian airline would allow international air freight carriers to use a domestic service provider to ship to multiple hubs within India. Industry representative, interview with USITC staff, Washington DC, August 1, 2014.
[581] Government of India, MOCI, DIPP, *Consolidated FDI Policy*, April 17, 2014.

agree to build infrastructure (laying cable for broadband Internet access or constructing cell towers for wireless).[582] Those firms are allowed to maintain 100 percent ownership of their Indian affiliates for five years before divesting a 26 percent equity stake to the Indian public, bringing their total back to 74 percent (table 7.2).[583]

Table 7.2: FDI-related policies affecting telecommunications

Sector/Activity	FDI/Equity cap	Investment route	Notes
Basic and cellular	49%/74%	Automatic/FIPB	
Internet service provider	49%/74%	Automatic/FIPB	
Infrastructure provider (dark fiber, tower, etc.)	49%/100%	Automatic/FIPB	Must divest 26% of equity in favor of Indian public
Email/voice mail	49%/100%	Automatic/FIPB	Must divest 26% of equity in favor of Indian public

Source: EIU, *India Country Commerce Report*, 2012; USTR, *2013 National Trade Estimate*, 2013.

For companies that do not build infrastructure, the government maintains equity caps of 49 percent and 74 percent for wireless telecommunications and Internet service providers under the automatic and government routes, respectively.[584] The government of India also maintains restrictions on foreign investment in direct-to-home satellite broadcasting. Foreign satellite operators are required to sell satellite capacity to the Indian Space Research Organization, which then resells that capacity to Indian firms (table 7.3).[585]

Table 7.3: Nontariff measures affecting FDI in telecommunications

Sector/Activity	Policy	Notes
Mobile/fixed telecoms	Limit on number of licenses	4 per service area
Mobile/fixed telecoms	License	Requires different licenses for international and domestic long distance services
Satellite	Restriction of service in Ku-Band[a]	
Satellite	Prohibition on provision of direct-to-home services	Must sell capacity to the Indian Space Research Organization for resale to an Indian firm

Source: USTR, Section 1377 Review, 2013; World Bank, Services Trade Restrictions Database (accessed October 27, 2014).
[a] The Ku-Band is the 12-18 GHz portion of the electromagnetic spectrum commonly used to broadcast television by satellites.

According to the trade press, the Indian telecommunications market is highly attractive, particularly for Internet service providers (ISPs) and wireless services. The telecommunications sector in India has rapidly changed—and is continuing to do so. In contrast to the more mature markets in the United States and Europe, India is still increasing tele-density and moving

[582] EIU, *2012 India Country Commerce Report*, 2012.
[583] USTR, *2013 National Trade Estimate*, 2013.
[584] EIU, *2012 India Country Commerce Report*, 2012.
[585] World Bank, Services Trade Restrictions Database (accessed October 22, 2013).

towards expanded access to broadband in more rural areas still largely reliant on dial-up Internet connections. The Indian market represents an opportunity for telecommunications providers to greatly expand their subscriber base, boost total revenue, and sharply increase the average revenue per user by introducing new, more sophisticated technologies and services.[586] However, this potential faces significant constraints related to India's network infrastructure, particularly in terms of average revenue per user. The vast majority of Indian Internet connections still operate through dial-up, and wireless networks continue to operate under GSM (Global System for Mobile Communications) standards, which cover only second-generation (2G) networks.[587]

Financial Services

Industry representatives report that the investment environment for Indian financial services is complex, but note that several U.S. banks have been providing services in India for more than 50 years.[588] While the level of foreign investment in this industry is still largely set by FDI caps, the market remains attractive to many investors. Based on the Commission survey, among U.S. financial services companies with at least a 10 percent equity stake in an Indian affiliate, only 31 percent face difficulty getting required approvals or licenses. Further, between 2007 and 2013, U.S. companies in the financial services industry, on average, encountered fewer trade issues in the Indian market than did other industries, such as the "other manufacturing" and information and communications technology (ICT) sectors. According to U.S. industry representatives, investment caps and other investment-related barriers, while cumbersome, do not substantially restrict financial services firms' long-term investment strategies in India. Examples of other investment-related barriers include restrictions on incorporating branches and priority-sector lending requirements.[589]

Insurance

Since the establishment of India's Insurance Regulatory and Development Authority (IRDA) in 2000, the share of foreign investment in the Indian life insurance and general insurance markets has been capped at 26 percent.[590] Wholly foreign-owned branches are also prohibited, so foreign insurers must enter into joint ventures with Indian firms to access the market. Reinsurers are similarly prohibited from operating branch offices in India, and the government-

[586] IBISWorld, *Global Wireless Telecommunications Carriers*, April 2014.
[587] Networks that allow more data-intensive uses, such as 3G and 4G networks, are common in developing countries.
[588] Industry representatives, interviews with USITC staff, Mumbai, June 24, 2014, and New Delhi, June 26, 2014.
[589] See table 7.5 for more information on priority-sector lending requirements. Industry representatives, interviews with USITC staff, Mumbai, June 26, 2014, and New Delhi, June 26, 2014.
[590] Before 2000, India's insurance industry was a government-owned monopoly. Government of India, IRDA, "History of Insurance in India," December 2007.

owned General Insurance Corporation (GIC Re) remains the sole reinsurer in India.[591] At the same time, the government-owned Life Insurance Corporation (LIC) maintains a domestic market share over 70 percent, according to IRDA's 2012 annual report.[592]

In 2008, legislation was introduced that proposed to raise the foreign equity limit in the insurance industry to 49 percent, and to permit foreign reinsurers to open independent branches. More recently, the Indian government has considered different types of liberalization in the sector.[593] As of September 2014, however, changes remain pending in the Indian parliament. With the installation of the Modi government in May 2014, many observers expect further liberalization in the Indian insurance sector.[594] Nonetheless, while several industry bodies are confident that the Modi government will raise the FDI cap to 49 percent within its first year,[595] the new FDI ceiling is expected to be coupled with additional restrictions on management voting rights and control.[596]

Banking

Foreign banks have operated in India since the 19th-century colonial period. Following the recommendations of the 1991 Narasimhan Committee, banking reforms launched an era of change that has opened India's banking market to new foreign entrants.[597] However, India maintains FDI limits in the banking sector, along with several other non-FDI barriers that weigh heavily on an individual firm's decision to invest. Foreign banks are subject to an equity cap of 49 percent in Indian banks through the automatic route and an equity cap of 74 percent with approval from the Reserve Bank of India (RBI). Asset reconstruction firms[598] are allowed up to 100 percent FDI. Foreign investment in commodity exchanges and finance companies that specialize in financing infrastructure projects are both capped at 49 percent, with the latter limited to 23 percent for foreign institutional investors (FIIs) and 26 percent for FDI.[599] Foreign

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[591] Simchak, written testimony to the USITC, Washington, DC, February 2, 2014.
[592] IRDA, "Annual Report 2012-13," October 2013, 21.
[593] Simchak, written testimony to the USITC, February 25, 2014, 6–7.
[594] Chatterjee and Tripathy, "India to Raise Foreign Investment Limit," July 10, 2014; industry representative, interview with USITC staff, Mumbai, June 24, 2014.
[595] Industry representatives, interviews with USITC staff, Mumbai, June 24, 2014, and June 26, 2014.
[596] Tuli & Co., "49% Foreign Direct Investment in Insurance—Finally?" July 22, 2014.
[597] Kashyap and Kumar, *Foreign Banks in India: At an Inflection*, November 2013.
[598] Asset reconstruction companies are in the business of resolving non-performing assets, such as bad loans, upon acquisition from Indian banks and financial institutions. According to an Indian asset reconstruction firm, the Indian industry has "country-specific unique features; emulating international experience is therefore not an option for Indian Asset Reconstruction Companies." Arcil website, http://www.arcil.co.in/about-us/ (accessed December 8, 2014).
[599] FIIs, which generally invest under the portfolio investment scheme, are limited to holding no more than 10 percent equity of a particular company. This barrier is an aggregate limit on equity held by such investors. Government of India, *Consolidated FDI Policy*, April 2013, 13.

banks may invest in India's state-owned banks, but that investment is capped at an aggregate of 20 percent (table 7.4).

Table 7.4: FDI limits on banking

Type of investment	Equity cap	Route	Notes
Asset reconstruction companies	100%	Government	10% or more, subject to the Securitization and Reconstruction of Financial Assets and Enforcement of Security Interest Act of 2002
Commodity exchanges	49%	Government	Limit of 23% for FIIs under the portfolio investment route Limit of 26% under the FDI route Limit of 5% for nonresident investor/entity
Infrastructure companies	49%	Government	Limit of 23% for FIIs and 26% for FDI
Banking	49%/74%	Automatic/RBI	Applications for a banking license are based on individual application assessments
Public sector bank	20%	Government	

Sources: USITC Services Nontariff Measure Database (accessed September 10, 2014).

Aside from the equity limits on bank ownership in India, the government imposes several other restrictions that may impact the decision of foreign banks to invest in the Indian market. First, like all countries, India requires banks either to obtain a banking license or to register with the RBI as a non-banking financial company (NBFC).[600] Financial firms registered as NBFCs may engage only in the particular business line for which their license was issued; for instance, corporate lending or foreign exchange services, but not both.[601]

A banking license in India is universal, giving the holder the authority to offer the full suite of banking services throughout India, as well as access to the Deposit Insurance and Credit Guarantee Corporation.[602] Most foreign banking activity in India is through the NBFC route, often with interlocking independent NBFC entities under a single corporate conglomerate. For instance, American Express Bank and Barclay's Bank both surrendered their banking licenses to focus on NBFC activities.[603] Industry representatives report that NBFC regulations are less burdensome than the service obligations required by banking regulations, even taking into account capital requirements of $500,000–$50 million that increase with the share of foreign equity ownership.

Foreign banking representatives, including U.S.-owned banks, indicate that they are not interested in expanding or maintaining their retail banking presence in India due to the burden of service obligations, which include both Priority Sector Lending (PSL) requirements and

[600] Shakya, "Regulation of Non-banking Financial Companies in India," 2014.
[601] Kashyap and Kumar, *Foreign Banks in India: At an Inflection*, November 2013.
[602] Ibid.
[603] Ibid.

service obligations to unbanked populations (table 7.5).[604] Further detail is provided in chapter 8. In 2013, India passed a new Banking Laws Bill that allows for new banking licenses that would ease some of the burdens;[605] however, as of September 2014, that legislation has yet to be implemented.[606]

Table 7.5: Non-equity cap barriers in banking with substantial FDI effects

Measure	Details
Legal form of establishment	Limited to wholly owned subsidiaries
License limitation	If a bank's assets are more than 15% of total Indian banking assets, new licenses may be denied. May limit capital infusion into or expansion of wholly owned subsidiaries if assets are more than 25% of total Indian banking assets.
Directed lending to priority sectors	For wholly owned subsidiaries: 40% of lending must go to priority sectors (18% to agriculture, 10% to other priority sectors). For branches: 32% lending must go to priority sectors (10% to small industry, 12% towards exports).
Nationality requirement for directors	A majority of a bank's board of directors should be in-country Indian nationals. All directors must meet the Reserve Bank of India's "Fit and Proper" standard.
Heavy state involvement	28 government-owned banks control roughly 72% of commercial banking assets.
Branch establishment quota	Foreign banks are limited to establishing only 12 branches in a given year, and are required to meet a $25 million capital requirement before opening their first branch.

Sources: USITC Nontariff Measures Database.

The Pension Fund Regulatory and Development Authority (PFRDA) Bill, passed by the Parliament in September 2013, allows foreigners to invest in Indian pension fund companies for the first time. The law grants statutory status to the PFRDA, which is expected to lead to improvements in the quality of available pension products and services. The National Pension Service is mandatory for all central government employees and voluntary for all other employed citizens. The law amends the existing National Pension Service system to allow up to 26 percent foreign investment in the pension sector. (This cap may rise to 49 percent, in line with the insurance threshold, if the equity limit for FDI in insurance is raised.) If higher levels of foreign equity are permitted in the pension sector, the change is expected to widen the set of available pension products, plans, and fund management companies. The law also specifies

[604] Industry representative, interview with USITC staff, Mumbai, June 26, 2014.
[605] World Bank, "India Development Update," October 2013, 9.
[606] Industry representative, interview with USITC staff, Mumbai, June 26, 2014.

rules that would allow foreign companies to invest in reinsurance[607] companies for the first time.[608]

Professional Services

In professional services, statutory restrictions that bar foreign practitioners from the domestic market, rather than equity caps on foreign investment, have a larger impact on affiliate trade in these industries. Foreign firms that provide accounting, engineering, or architectural services are not restricted by an investment ceiling in the Indian market, though they do face other barriers to their operations, as described in chapter 8.[609] In contrast, FDI is strictly prohibited in the legal industry, and foreign law firms are barred from entry under the 1961 Advocacy Act.[610] For other professional services, foreign multinationals can establish an affiliate that is distinct and operates independently from the parent, similar to a franchise.

Legal Services

The Indian legal industry remains heavily regulated by the 1961 Advocacy Act. In addition, in 2009 the Bombay High Court issued an outright ban on foreign attorneys and law firms providing affiliate litigation or consultative services in India.[611] Because foreign law firms cannot provide services in India, many establish satellite offices offshore in Dubai, Singapore, or Nepal. To deal with their clients' cross-border legal issues, these offices set up India desks that are generally staffed by a combination of foreign and Indian attorneys.[612]

Accounting Services

Since the Chartered Accountants Act became law in 1949, the Institute of Chartered Accountants of India (ICAI) has overseen and regulated the industry. This law prohibits foreign firms from providing auditing and assurance services in India without permission from the ICAI.[613] It also requires that all firms, foreign or domestic, that provide audit or assurance services be registered with the ICAI. Foreigners may establish a partnership or liaison office with an Indian firm, or they may set up a sole proprietorship. Since the 1990s, several global accounting firms (Ernst & Young, KPMG, PricewaterhouseCoopers, and Deloitte) have either

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[607] Reinsurance companies sell insurance to primary insurance companies.
[608] The FDI equity cap is found in chapter 5, section 24 of the act. Government of India, "The Pension Fund Regulatory and Development Authority Act," 2013, http://indiacode.nic.in/acts-in-pdf/232013.pdf; World Bank, "India Development Update," October 2013, 10.
[609] OECD STRI regulatory database (accessed August 11, 2014); industry representative, interviews with USITC staff, Washington, DC, May 1, 2014, and May 27, 2014.
[610] OECD STRI regulatory database (accessed August 11, 2014); industry representative, interview with USITC staff, Washington, DC, April 10, 2014.
[611] Krishnan, "Globetrotting Law Firms," 2010.
[612] Industry representative, interview with USITC staff, Washington, DC, April 10, 2014.
[613] Singh, "No Fronts for Global Accounting Firms," January 23, 2009.

established local offices or partnered with third-party service providers in India to legally offer management consultancy services.[614]

Some domestic Indian accounting firms have alleged that foreign companies have violated the Chartered Accountants Act via a liberal interpretation of management consultancy services, which have allegedly expanded into accounting, auditing, and taxation services. Their concerns were brought to the attention of the high courts in August 2012 in a public-interest litigation petition.[615] Changes introduced in the Companies Act of 2013 also may pose new compliance challenges for foreign auditors, mandating firms to rotate auditors based on a statutory term of five consecutive years and limiting the number of audits a single partner can sign.[616] However, these measures apply to foreign and domestic firms equally; as of November 2014, it was unclear as to how these new regulations were affecting foreign investment in the industry.

Education Services

India's laws governing FDI in education have significantly evolved since 2000. In that year, the government issued "Press Note 2 (2000)" permitting 100 percent foreign direct investment in this sector.[617] Existing regulations already required foreign educational institutions to set up as nonprofit entities, such as a trust or society.[618] However, according to India's consolidated FDI policy, foreign investment is prohibited in trusts that do not qualify as venture capital funds.[619] As a result, until 2013, foreign institutions chose to partner with a local university or college to offer their courses and curricula in India. However, following an executive order issued on September 10, 2013 (Opening of Campuses by Foreign Universities), foreign educational institutions will now be permitted to operate as independent branch campuses and award foreign degrees based on a new set of rules (Establishment and Operations of Campuses of Foreign Educational Institutions) proposed under the University Grants Commission Act of 1956.[620] Graduates of these institutions would still need to have their degrees recognized by

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[614] *Hindu*, "High Court Notice," August 24, 2012.
[615] Ibid.
[616] If the auditor is an audit firm, the statutory period is extended to no more than two terms of five consecutive years. EY, "India Inc.—Companies Act 2013," September 2, 2013; industry representative, interview with USITC staff, Washington, DC, May 27, 2014.
[617] Government of India, MOCI, DIPP, "Expansion of List of Industries/Activities Eligible for Automatic Route for Foreign Direct Investment (FDI), Non Resident Indian (NRI) and Overseas Corporate Body (OCB) investment," February 11, 2000; Raja et al., "PE Investment in Indian Education through the FDI Route," November 1, 2011.
[618] Marg Swarnabhoomi, "Education Scenario in India," n.d.
[619] Government of India, MOCI, DIPP, *Consolidated FDI Policy*, October 1, 2011.
[620] Government of India, Ministry of Human Resource Development, "Opening of Campuses by Foreign Universities," September 10, 2013. The press release is effectively an executive order which does not need to be approved by Parliament. An official notification of the rules will be published once the law ministry has vetted the proposal.

the Association of Indian Universities to continue on to advanced degrees or to pursue government employment.[621]

Notwithstanding the new regulation, the government of India still requires foreign education providers to register as nonprofit entities under Section 25 of the Companies Act of 1956. Under Section 25, nonprofit entities may receive FDI but are restricted from profit distribution, meaning that foreign universities cannot repatriate any money earned.[622] Opinions vary whether foreign universities, particularly for-profit institutions, will consider these remaining conditions to be a substantial deterrent to investment.[623]

Executive education programs and global research centers are a segment of the market that has yet to be regulated, making it increasingly attractive to foreign education providers. Recognizing the market potential of a growing population and the government's commitment to industrial expansion, globally recognized institutions, including the University of Chicago and Virginia Tech, have recently established research centers in New Delhi and Chennai. These facilities generally take the form of academic collaborations with local universities, which is currently a cost-effective option.[624]

Retail Trade

India has historically been a closed market for foreign retailers. The first opening to FDI occurred in 2006, when FDI of up to 51 percent was permitted in single-brand retail.[625] In November 2011, the Indian government began a new phase of significant, though restrained, liberalization of FDI restrictions in this sector. The government increased the FDI cap for single-brand retailing from 51 percent to 100 percent, requiring FIPB approval for ownership of greater than 51 percent, with the caveat that 30 percent of products must be sourced from Indian small and medium-sized enterprises (SMEs) once the investment crosses that threshold.[626]

In September 2012, the government liberalized the highly sensitive multibrand retailing sector, allowing foreign investment of up to 51 percent. However, the government attached significant conditions to any FDI in multibrand retail. A minimum investment of $100 million is required,

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[621] Mishra, "India Moves Ahead with Plans to Allow," September 25, 2013.
[622] Nanda, "Foreign Universities Open India Centres," April 7, 2014.
[623] Mishra, "India Moves Ahead with Plans to Allow," September 25, 2013.
[624] Anand, "Foreign Universities Might Not Rush to India," September 18, 2013.
[625] Chari and Madhav Raghavan, "Foreign Direct Investment in India's Retail Bazaar," 2012. Single-brand retail stores sell merchandise from only one brand, such as a single shoe manufacturer. Multibrand stores, like department stores or grocery stores in the United States, sell merchandise from many different brands.
[626] USTR, *2013 National Trade Estimate*, 2013.

with at least half dedicated to "back-end" infrastructure,[627] and stores are allowed only in cities with a population of at least 1 million people. The government also suggested that multibrand retail companies source 30 percent of their merchandise from Indian small enterprises.[628] In addition, individual Indian states must affirmatively allow investment in multibrand retailing.[629] The same policy change revised the local-sourcing requirement for FDI in single-brand retailing to include all Indian firms, not just SMEs.[630]

Additionally, the government requires retailing firms with foreign investment to seek approval before adding a new product or product category, a requirement that Indian firms need not comply with.[631] Since India opened its multibrand retail sector to FDI in 2012, Tesco (United Kingdom) has been the only international retailer to enter the market, with its purchase of a 50 percent stake in India's Trent Hypermarket Ltd.[632]

In other areas of the retail sector, India allows foreign investment in business-to-business (B2B) e-commerce, but no foreign investment in business-to-consumer (B2C) e-commerce (box 7.1). Similarly, the Indian government allows 100 percent FDI in cash-and-carry wholesale trading.[633] Foreign-owned direct selling companies, such as Amway, have faced restrictions from the Prize Chits and Money Circulation Schemes (Banning) Act of 1978. The legislation intends to prevent fraud (Ponzi schemes) but is vague; interpretation and enforcement have been left to states, which have varying interpretations. In 2006, an Indian state raided and seized property of a U.S. direct selling company that was operating in India with the approval of the FIPB.[634]

Case Study: Amazon in India—The Intersection of Retail, Wholesale, and E-Commerce

E-commerce in India is a rapidly growing sector. Increases in Internet and smartphone penetration have connected more Indians with online retailers as consumer comfort with

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[627] Back-end infrastructure investment is any capital expenditure not related to front-end units, including investment in processing, manufacturing, distribution, logistics, and storage. Government of India, "Review of the Policy on Foreign Direct Investment Allowing FDI," 2012.
[628] Small enterprises are defined as Indian firms with less than $1 million in total investment in plant and machinery. Government of India, "Review of the Policy on Foreign Direct Investment Allowing FDI," 2012.
[629] As of September 2013, multibrand retailing is allowed in the states of Andhra Pradesh, Assam, New Delhi, Haryana, Himachal Pradesh, Jammu and Kashmir, Karnataka, Maharashtra, Manipur, Rajasthan, Uttarakhand, and the Union Territories (Daman and Diu, and Dadra and Nagar Haveli). Government of India, "Review of the Policy on Foreign Direct Investment in the Multi Brand Retail," 2013.
[630] USTR, *2012 National Trade Estimate*, 2013.
[631] World Bank, Services Trade Restrictions Database.
[632] PTI, "Trent Q1 Profit Jumps 3.5-fold to Rs 61.11 cr," August 7, 2014.
[633] Government of India, "Review of the Policy on Foreign Direct Investment Allowing FDI," 2012.
[634] USTR, *2013 National Trade Estimate*, 2013.

purchasing online has increased with exposure. While significantly smaller than other regional e-commerce markets—India's e-commerce market is worth approximately $3 billion,[635] while China's is worth approximately $300 billion[636]—the market is quickly attracting significant investment and is projected to grow by an order of magnitude to over $30 billion by 2020.[637]

Indian FDI policies complicate the landscape for foreign owned e-commerce giants like Amazon.com. As mentioned in this chapter, India currently does not allow foreign investment in business-to-consumer (B2C) e-commerce, though that policy may change under the new Modi government. Foreign investment is also capped at 51 percent in multibrand retailing. However, 100 percent foreign investment is allowed in single-brand retailing and business-to-business (B2B) e-commerce.

These complex investment caps have required Amazon to structure its activities in a commensurately complex way. First, to operate in the B2C e-commerce market, Amazon's website serves as an online marketplace for other retailers to sell their wares.[638] Companies store their products in Amazon warehouses, but ownership of the actual product never transfers to Amazon; instead, the retailer pays Amazon a fee for the storage and distribution of its products and for access to Amazon's website as a selling platform.

Amazon also engages in single-brand retailing in India selling Amazon-branded products, with the Kindle being the most visible example. Amazon launched the Kindle Paperwhite in India in June 2013 by making it available for purchase in several Indian brick-and-mortar retailers, including Croma and Reliance Digital, among others.[639] In order not to violate the prohibition on B2C e-commerce, Amazon-branded e-readers offered through the Amazon.in website are actually sold by Indian retail firms[640] and fulfilled by Amazon, meaning that an Indian retailer buys a Kindle, then pays Amazon a fee to sell an Amazon product on the Amazon website, while Amazon is also responsible for the storage and distribution of the Kindle at one of its warehouses.

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[635] Srivas, "Lines in the e-Commerce Sand," August 3, 2104.
[636] Campbell, "Will Amazon.com, Inc. (AMZN)'s $2 Billion India Bet Play Out?" August 4, 2014.
[637] Bellman and Thoppil, "Amazon Ups the Ante in India," July 30, 2014.
[638] Soni and Mookerji, "E-commerce: Foreign Brands Seek Clarity on Eligibility," July 15, 2014.
[639] Saxena, "Amazon Launches Kindle Paperwhite Ebook Reader," June 13, 2013.
[640] Amazon.in, accessed by USITC staff August 5, 2014. The website indicates that an Amazon Kindle Paperwhite bought through the website is sold by Infiniti Retail, Ltd., which owns and operates Croma, one of the brick-and mortar-retailers that sells Kindles.

Difficulties aside, Amazon appears committed to the Indian market. It recently announced a $2 billion investment in India, with Amazon CEO Jeff Bezos saying: "We see huge potential in the Indian economy and for the growth of e-commerce in India."[641]

Survey Results Related to FDI Barriers

The Commission's survey of U.S. companies identified seven potential barriers that principally impact FDI (table 7.6). U.S. companies identified the barriers they faced and how severely each barrier affected the company. Companies reported on barriers separately for their affiliates that sell goods in India and for those that provide services; the structure of this part of the chapter follows that distinction.[642]

Table 7.6: FDI-related barriers identified in the Commission survey

FDI barriers
Difficulty getting required permits, approvals, or licenses for investment from the Indian government
Restrictions on the share of an investment in India that can be owned by a foreign company, or requirements to enter into a joint venture with an Indian company
Policies other than equity caps (including limits on juridical form, ability to apply for a license, limits on number of licenses) that restrict investment[b]
Requirements that a share of goods produced by an Indian affiliate be exported[a]
Requirements that investments must be of a minimum amount in order to obtain approval
Limits on geographic expansion with India[b]
Restrictions on buying or using land[a]

Source: Commission survey.
[a] Applies only to companies reporting sales of goods through Indian affiliates.
[b] Applies only to companies reporting cross-border services exports or sales of services through Indian affiliates.

Effects of Barriers on Companies with Affiliate Sales of Goods

During 2007–13, an estimated 9.3 percent of U.S. firms engaged in India sold goods through a foreign affiliate in the Indian market. The following section analyzes the effect of these barriers, as encountered by U.S. companies with affiliate sales of goods in India, and the differences by industry.[643]

[641] Bellman and Thoppil, "Amazon Ups the Ante in India," July 30, 2014 (quoting Jeff Bezos).
[642] Some companies had affiliate sales of both goods and services, so they answered both sections of the survey.
[643] In the survey, companies reported the sector that accounted for the highest percentage of revenue for their entire organization, but did not report the sector from which their individual affiliates in India predominantly derived their revenue. For this reason, companies in goods industries may report facing barriers to the provision of services, and companies primarily involved in providing services may also face barriers to goods production.

Barriers over Time

From a list of five potential barriers related to foreign investment, the FDI-related barrier most frequently faced by companies with affiliate sales of goods in India (22.4 percent) is "difficulty getting required permits, approvals, or licenses for investment" (table 7.7). According to the

Table 7.7: Effects of investment policies on U.S. companies that have foreign affiliate sales of goods in India, by policy type, 2007–13

	Share of companies (%)		Mean effect[a]		
Policy issue	**Facing the issue[b]**	**Substantially affected[c]**	**2007**	**2010**	**2013**
Difficulty getting required permits, approvals, or licenses for investment	22.4	15.5	2.2	2.5	2.9
Requirement that a share of goods produced be exported	5.9	1.6	1.4	1.5	1.5
Restrictions on share of investment (equity cap) or joint venture requirement	11.7	7.1	2.0	3.0	2.4
Requirement for minimum investment amount	3.1	0.8	1.6	1.6	1.8
Restrictions on buying or using land	9.3	5.4	1.6	2.7	2.7

Source: USITC calculations of weighted responses to the Commission questionnaire (question 4.2).

[a] On a scale from 0 (did not face the barrier) to 5 (prohibitive effect on activities).

[b] Share of companies reporting an effect from 1 (faced the policy but it had no effect on activities) to 5 (prohibitive effect) in 2007, 2010, or 2013.

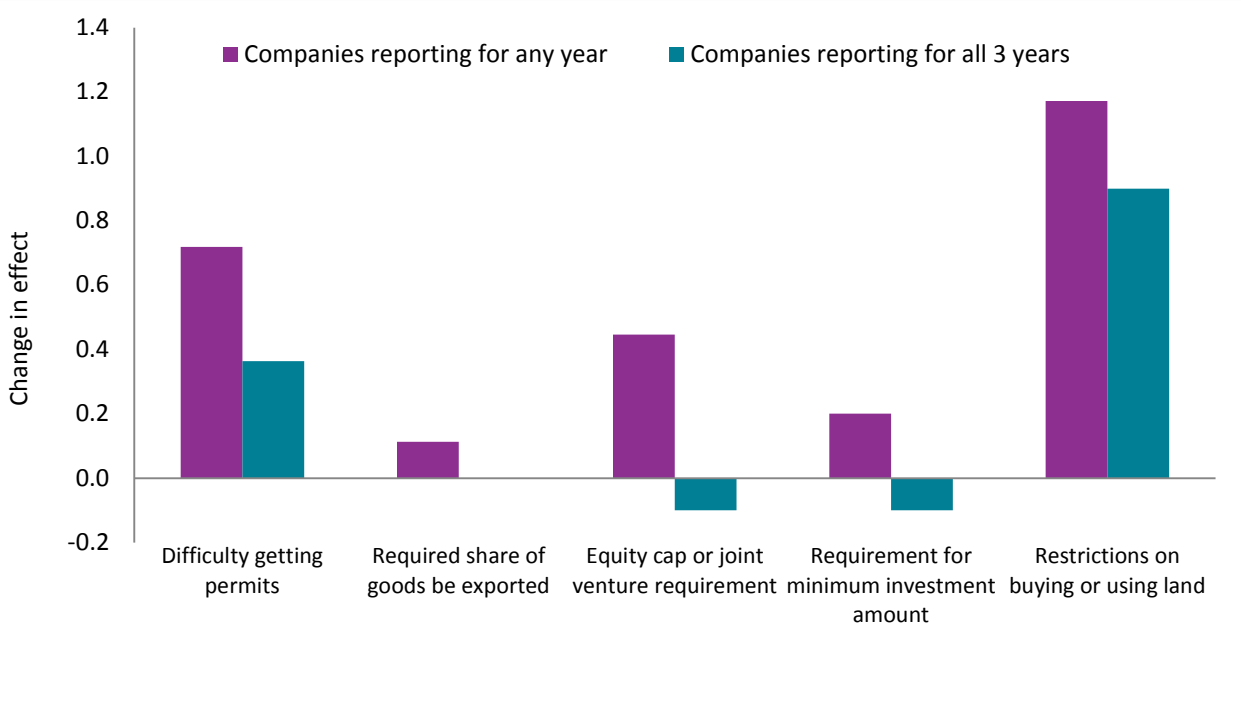
[c] Share of companies reporting an effect of 3–5, indicating the policy had a moderate, severe, or prohibitive effect on activities in 2007, 2010, or 2013.

survey, the negative effect of this barrier increased over time, rising from an average of 2.2 in 2007 (on a scale of 0 to 5) to an average of 2.9 in 2013.

Equity caps or joint venture requirements were the second most-faced FDI barrier, reported by 11.7 percent of companies overall. The negative effect increased in 2010, then declined in 2013, consistent with the Indian government's move to liberalize investment regulations in a number of industries since 2010.

However, when the Commission's analysis considered only the companies that reported on the effect of each issue for all three sample years, the average effect was lower, as was the change over time (figure 7.2). Companies more familiar with the Indian market

Figure 7.2: Change in the burden of barriers over time, 2007–13, for sales of goods



Source: USITC calculations of weighted responses to the Commission questionnaire (question 4.6).
Note: For companies reporting for all 3 years, there was no change in effect over time for "Required share of goods be exported," so the bar is at 0.0. See appendix Table I.32 for underlying data for this figure.

(i.e., those operating in India throughout the 2007–13 period) may have a different perception of existing FDI barriers than do new entrants to the market. New entrants rate the effect of these barriers higher than firms that have been in the market longer and may be more familiar with local conditions.

By Industry Group

The majority of companies with affiliate sales of goods in India in each industry group surveyed do not face barriers related to FDI. Of those that did, as noted above, companies in most industries most frequently face difficulty getting permits and investment approvals. This is particularly true in the chemicals and textiles sector, for which almost 40 percent of U.S. companies reported such problems (table 7.8). For companies involved in agriculture and food sector, restrictions on buying or using land are encountered most often.[644]

[644] Disaggregated results were not precise enough to report information for other industries.

Table 7.8: Mean share of companies reporting affiliate sales of goods that faced investment issues, by industry, percent

Sector	Difficulty getting required permits, approvals, or licenses for investment	Requirement that a share of goods produced be exported	Restrictions on share of investment (equity cap) or joint venture requirement	Requirement for minimum investment amount	Restrictions on buying or using land
Agriculture and food	17.8	4.4[a]	0	0	29.4
Chemicals and textiles	38.6	9.2[a]	6.9[a]	0	10.7[a]
Other manufacturing	25.9	10.5	19.4	8.2	13.2
All industries	22.4	5.9	11.7	3.1	9.3

Source: USITC calculations of weighted responses to the Commission questionnaire (question 4.2).
Notes: The share of companies that faced an investment issue is defined as any company that reported an effect of 1 through 5 for any year on the survey. Industry groups for which survey data were not sufficiently precise do not appear in the table.
[a] Low-precision estimate, with an RSE above 50 percent.

Effects of Barriers on Companies with Affiliate Sales of Services

The Commission estimates that during 2007–13, 36.9 percent of companies that owned affiliates in India either exported services to India, or sold services through Indian affiliates. The following section examines the reported effect of FDI-related barriers, as encountered by these U.S. companies, and reported differences by industry.[645]

Barriers over Time

The FDI-related barrier most frequently cited by companies with affiliate sales of services in India (18.7 percent) was difficulty obtaining required permits, approvals, or licenses for investment (table 7.9). As noted above, this is also the case for companies that sell goods through Indian affiliates. The negative effect of this barrier increased over time, rising from a reported average of 1.5 in 2007 to an average of 2.8 in 2013. About 11 percent of these companies face equity caps, joint venture requirements, or other policies that restrict investment. Fewer U.S. companies reported facing minimum investment requirements or limits on geographic expansion.

[645] In the survey, companies reported the sector that accounted for the highest percentage of revenue for their entire organization, but did not report the sector of individual affiliates in India. For this reason, companies in goods industries may report facing barriers to the provision of services, and companies primarily involved in providing services may also face barriers to goods production.

Table 7.9: Effects of investment policies on U.S. companies that have foreign affiliate sales of services in India, by policy type, 2007–13

	Share of companies (%)		Mean effect[a]		
Policy issue	**Facing the issue[b]**	**Substantially affected[c]**	**2007**	**2010**	**2013**
Difficulty getting required permits, approvals, or licenses for investment	18.7	12.9	1.5	2.3	2.8
Restrictions on share of investment (equity cap) or joint venture requirement	10.7	5.6	2.2	2.5	2.3
Policies other than equity caps that restrict investment	11.2	7.2[d]	1.7	1.7	2.7
Requirement for minimum investment amount	7.2	1.7	1.4	1.6	1.7
Limits on geographic expansion within India	3.2	1.8[d]	0.5	1.1	2.8

Source: USITC calculations of weighted responses to the Commission questionnaire (question 5.2).

[a] On a scale from 0 (did not face the barrier) to 5 (prohibitive effect on activities).

[b] Share of companies reporting an effect from 1 (faced the policy but it had no effect on activities) to 5 (prohibitive effect) in 2007, 2010, or 2013.

[c] Share of companies reporting an effect of 3–5, indicating the policy had a moderate, severe, or prohibitive effect on activities in 2007, 2010, or 2013.

[d] Low-precision estimate, with an RSE above 50 percent.

Geographic expansion in India was not considered a limitation by many companies. But for those companies that did face such limits, the effect grew considerably during the period: the mean effect increased from 0.5 in 2007 to 2.8 in 2013.

By Industry Group

Financial services companies with affiliate sales of services in India are most likely to face measures that restrict FDI, particularly restrictions related to equity caps (42.0 percent), consistent with India's 26 percent equity cap on FDI in insurance (table 7.10). More than one-third of financial services providers also faced requirements for minimum investment amounts. Companies providing other types of services most often face difficulty getting permits and investment approvals.

For a few specific industry groups, the data permit a deeper look into the survey results. For financial services firms, restrictions on the equity share in an investment were judged to be the most severe (figure 7.3). The negative effect of investment approval problems steadily rose between 2007 and 2013, while the effects of policies other than equity caps appeared to ease over time. Companies active in the insurance and non-insurance financial services industries face different barriers, but data do not permit separating the two groups for analysis. For example, as discussed in more detail above, insurance companies face a 26 percent FDI equity limit, while banks do not, though they do face certain restrictions on their operations.

Table 7.10: Mean share of companies reporting affiliate sales of services that faced investment issue, by industry, percent

Sector	Difficulty getting required permits, approvals, or licenses for investment	Policies other than equity caps that restrict investment	Restrictions on share of investment (equity cap) or joint venture requirement	Requirement for minimum investment amount	Limits on geographic expansion with India
Manufacturing	18.4	9.6	8.8	8.5	5.0[a]
Financial services	26.3	21.8[a]	42.0	34.3	8.4[a]
Other services	19.6	11.6	9.1	4.9	2.6
All industries	18.7	11.2	10.7	7.2	3.2

Source: USITC calculations of weighted responses to the Commission questionnaire (question 5.2).
Notes: The share of companies that faced an investment issue is defined as any company that reported an effect of 1 through 5 for any year on the survey. Industry groups for which survey data were not precise enough do not appear in the table.
[a] Low-precision estimate, with an RSE above 50 percent.

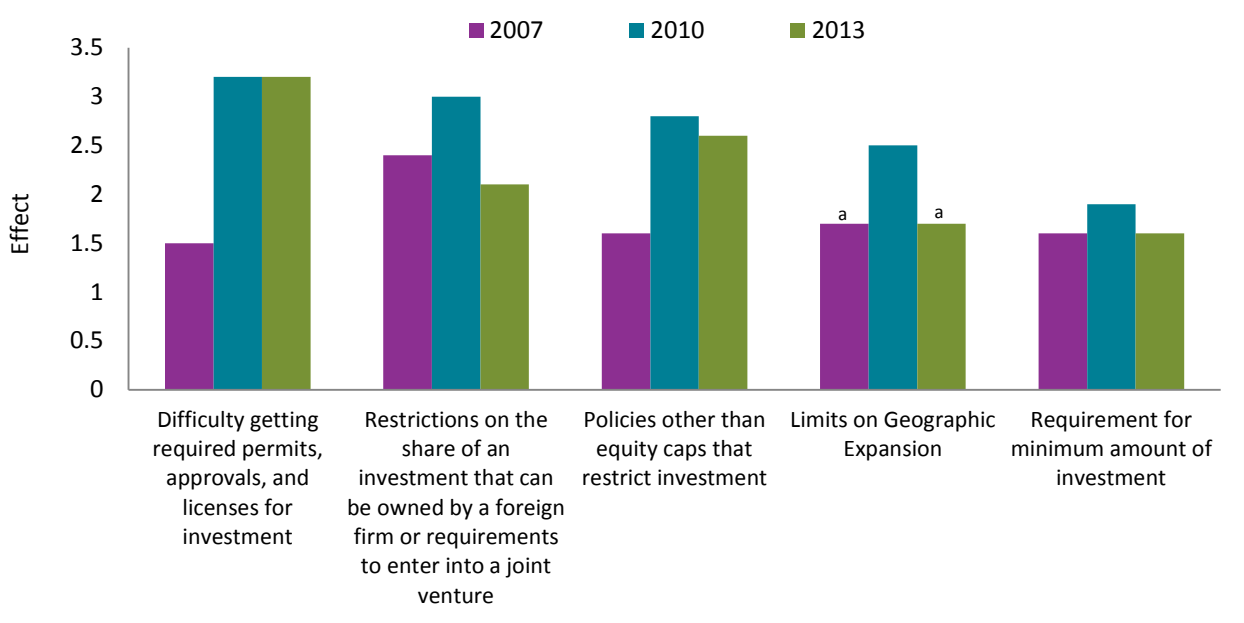
Figure 7.3: Effect of FDI barriers faced by financial services companies with an Indian affiliate

Source: USITC calculations of weighted responses to the Commission questionnaire (question 5.2).
Note: Results for limits on geographic expansion were not statistically precise. See appendix Table I.33 for underlying data for this figure.
[a] Low-precision estimate, with an RSE greater than 50 percent.

For ICT companies, the negative effect of most FDI-related barriers increased between 2007 and 2010, then stayed stable or declined from 2010 to 2013 (figure 7.4). Other services

companies experienced a steady increase in the effect from difficulty getting required permits, licenses, and investment approvals, from about 1.5 in 2007 to about 2.5 in 2013.[646]

Figure 7.4: Effect of FDI barriers faced by ICT companies with an Indian affiliate



Source: USITC calculations of weighted responses to the Commission questionnaire (question 5.2). See appendix Table I.34 for underlying data for this figure.

[a] Low-precision estimate, with RSE greater than 50 percent.

Effects of Barriers by State

According to the U.S.-India Business Council (USIBC), the bulk of U.S. investment in India is in the states of Gujarat, Maharashtra, Karnataka, Andhra Pradesh, Tamil Nadu, Haryana, Punjab, Rajasthan, New Delhi/New Okhla Industrial Development Authority, and Madhya Pradesh/Chhattisgarh, which are seen as having the most "progressive" and investor-friendly policies. The USIBC stated that the success of these states in attracting FDI has served as a model of progress and development for India's other states.[647] Based on the Commission survey, for companies whose affiliates sold goods, services, or both, the leading FDI destination was Maharashtra, home to both Mumbai and Pune.[648]

Prohibitive Barriers to Investment

The Commission survey defined certain barriers to investment as "prohibitive," meaning that the barriers prevented foreign companies either from entering the market or from bringing

[646] USITC calculations of weighted responses to the Commission questionnaire (question 5.2).
[647] Somers, written testimony to the USITC, February 25, 2014, 3.
[648] USITC calculations of weighted responses to the Commission questionnaire (question 2.6).

certain products or services into the market. Two types of FDI-related barriers were cited most often by U.S. firms as prohibitive: difficulties getting required approvals and permits for new investment, and restrictions on the foreign firm's share of an investment, in the form of equity caps or joint venture requirements (table 7.11). Companies in the content and media information and ICT sectors were most likely to experience difficulty with investment approvals as a prohibitive barrier, along with companies in the "other manufacturing" sector. Equity caps and joint venture requirements were most likely to be viewed as prohibitive by companies in financial services and other services, because foreign insurance companies are limited to a 26 percent equity share in Indian insurers. Equity caps and joint ventures are also encountered by 26 percent of retail and wholesale companies and by 21 percent of ICT companies.

Table 7.11: Share of U.S. companies for which FDI issues were deemed prohibitive, by industry, percent

Sector	Difficulty getting required permits, approvals, or licenses for investment	Restrictions on share of investment (equity cap) or joint venture requirement	Policies other than equity caps that restrict investment[a]	Limits on geographic expansion within India
Agriculture and food	17.2	2.8	0.0	0.0
Natural resources	0.0	3.5	0.0	0.0
Chemicals and textiles	9.5[b]	1.2	1.2[b]	0.0
Other manufacturing	28.9	10.8	1.6[b]	2.2
Retail and wholesale	9.6[b]	25.5	8.0[b]	0.0
Financial services	17.9[b]	49.2	27.1[b]	0.0
Content and media	47.8	11.9	0.0	0.0
ICT	45.4	21.4	17.5	3.9[a]
Other services	10.2[b]	34	5.2[b]	4.2[b]

Source: USITC calculations of weighted responses to the Commission questionnaire (question 7.5).
Note: Some issues not included due to lack of statistically precise data.
[a] Investment policies other than equity caps include, but are not limited to, limitations on juridical form, restrictions on repatriation of profits, and lack of regulatory transparency.
[b] Low-precision estimate, with an RSE above 50 percent.

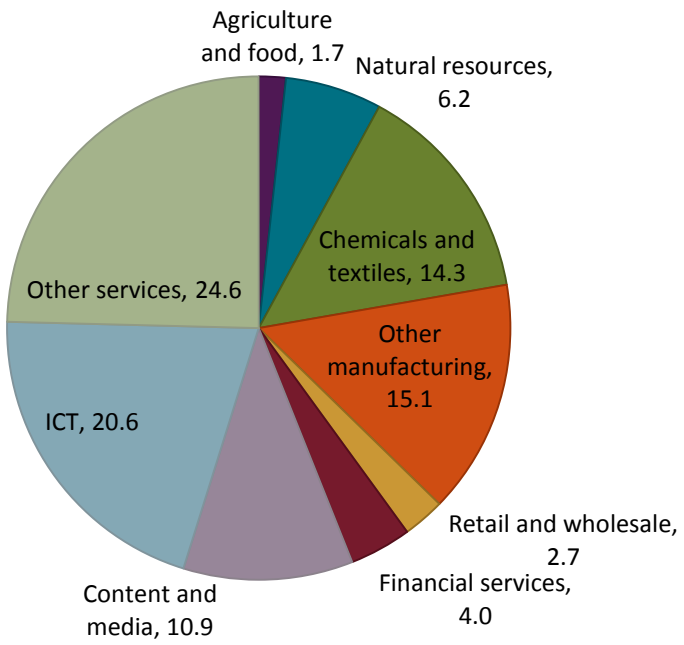
Companies Invested in India with No Sales in India

The Commission survey asked U.S. companies to report their perceptions of barriers to trade and investment according to whether they exported goods or services to India, or sold goods or services in India through their local affiliates in the market. However, the Commission estimates that 44.8 percent of U.S. companies have a 10 percent or greater stake in an Indian affiliate but do not report any sales of goods or services in India by those affiliates. These companies also represent 14 percent of all U.S. companies engaged in India from 2007–13. Consequently, many of these companies did not respond to questions about barriers that they encounter in India. "Parents" of these affiliates—that is, the U.S. firms that own a 10 percent or greater share of them—are active in a wide variety of industrial sectors, though the two largest sectors ("other

services" and ICT) account for 45.2 percent of the total (figure 7.5).[649] Most of the affiliates engaged in these two activities perform functions that are internal to the company, such as internal accounting and human resource functions, so they do not generate sales in India.

While parents of these affiliates account for a large share of the number of U.S. companies with affiliates in India, they account for only a minor share of total investment. However, the share of U.S. investment in affiliates with no local sales is growing: it was 4 percent of total U.S. FDI in India in 2007, 6 percent in 2010 and 14 percent in 2013.[650]

Figure 7.5: Companies with Indian affiliates but no affiliate sales, by industry of parent, percent



Source: USITC calculations of weighted responses to the Commission questionnaire (questions 1.6 and 2.5).
Note: See appendix Table I.35 for underlying data for this figure.

There are two principal reasons that U.S.-owned affiliates may not report any sales in India. First, India is well known as a location for offshoring of software-intensive, back-office operations such as internal accounting, human resources, and tax functions, and also for R&D operations. Companies active in all types of industries have turned to India to locate these functions, both to take advantage of lower wage rates than in the United States, and to access India's abundant labor pool of software engineers. In interviews, companies in industries as diverse as retail distribution, financial services, heavy manufacturing, and high-tech manufacturing stated that they have established large workforces in India focused on these

[649] Companies self-reported the activity that generated the largest share of their revenues.
[650] Low-precision estimates, with an RSE of 65.8% for 2007, 51.4% for 2010, and 47.9% for 2013.

back-office functions.[651] The Indian government has successfully established a number of software technology parks to attract such FDI, with access to transportation and dedicated infrastructure.[652]

Second, the affiliate may be located in India's extensive network of Special Economic Zones, dedicated to attracting investment from foreign manufacturing companies. Companies that invest in these zones are granted favorable tax rates and access to dedicated infrastructure, but all of the goods manufactured in the zones must be exported.[653] Consequently, U.S. investors may well have substantial investments in India that do not generate local sales. However, survey respondents were not asked whether they were engaged in back-office, software-related functions, manufacturing for export, or other activities.

[651] Industry representatives, interviews with USITC staff, Mumbai, June 24, 2014; Bangalore, June 18, 2014; Chennai, June 30 and July 1, 2014; and New Delhi, June 27, 2014.
[652] Industry representatives, interviews with USITC staff, Bangalore, June 18 and 20, 2014.
[653] If the goods are sold in the local market, company income taxes must be paid at standard rates.

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Chapter 8
Other Policies Affecting the Supply of U.S. Goods and Services to India

This chapter identifies and describes certain barriers to U.S. sales of goods and services in India that have not been addressed in the preceding chapters of this report. The wide variety of measures addressed in this chapter elude a single grouping, and are likely used by the Indian government for a number of different reasons. The main types of policies presented in the chapter are listed below, along with the industries affected (table 8.1). Industry input and survey results suggest that few firms are substantially affected by the measures covered in this chapter. For example, the survey indicates that corruption, taxes, and regulatory uncertainty each have a substantial effect on no more than 12.1 percent of all U.S. companies participating in the Indian market. No single nontariff factor related to the sale of goods (such as standards and labeling requirements) substantially affects more than 3.8 percent of all U.S. companies that export goods to India.

Table 8.1: Various Indian policies and industries affected

Policy	Description	U.S. industries most affected
Regulatory and legal uncertainty	Some regulations change often, making planning difficult. Implementation of regulations by government officials is subject to discretion. Legal liability is sometimes unclear.	Agricultural industries, financial services, chemicals manufacturers, clinical research organizations
Taxes and financial rules	High tax rates; retroactive taxation; disputes over transfer pricing for tax purposes; financial requirements that limit what foreign firms may do with profits.	Chemicals manufacturers, ICT services providers, content and media providers, agricultural industries
Standards	Regulations, including SPS measures, technical barriers to trade, labeling laws, and financial reporting guidelines, many of which differ from international norms.	Agricultural industries, consumer goods, ICT goods
Assistance to domestic Indian competitors	The Indian government provides assistance to domestic industries in many forms, some of which may make the market more difficult for foreign firms to enter and compete in.	Agricultural industries, retail services, telecommunications, transportation services
Bans on the provision of certain cross-border services	Certain services may only be provided by companies that establish a presence in India.	Broadcasting, certain segments of the banking industry
Requirements that certain positions be filled by Indian nationals	In some service industries, Indian law requires that certain senior managers and/or a certain share of board members be Indian citizens or nationals or residents of particular Indian states.	Audiovisual services, banking, education, telecommunications, transportation services

Policy	Description	U.S. industries most affected
Limits on practice by foreign professionals	Foreign professionals in certain fields are not permitted to practice in India, or there are significant restrictions on licensing.	Health care, legal services, accounting, architecture

Source: Compiled by the Commission.

However, the survey shows that relatively high shares of firms in certain industries are substantially affected by particular Indian measures. For example, more than 23 percent of agricultural firms are substantially affected by regulatory uncertainty in the Indian market, and more than 24 percent of such firms find it difficult to comply with Indian standards. In the services sector, Indian measures have a more limited impact, with no more than 9.2 percent of firms being substantially affected by any one of the measures covered in this chapter.

The chapter is divided into three sections. The first section of this chapter addresses issues that affect both goods and services industries, such as taxes and regulatory uncertainty; the second addresses other policies affecting U.S. goods exports to and foreign affiliate sales of goods in India; and the third addresses other policies affecting cross-border services trade and the operation of service sector affiliates.

Factors That Impact Both Goods and Services

Firms operating in the Indian market face some policy barriers that do not apply specifically to one particular industry, but rather affect a wide variety of companies doing business in India. Most notable among these are taxation, regulatory uncertainty, and corruption.

Taxation and regulatory uncertainty affect U.S. companies across all sectors, according to the Commission survey (table 8.2). Uncertainty or inconsistency in the implementation of Indian regulations have a substantial effect on the exports or investments of 12.1 percent of U.S. companies engaged in India. High taxes also have a substantial effect on 12.1 percent of these companies. In general, a larger share of companies primarily involved in producing goods reported being substantially affected by uncertain or inconsistent regulations, while the effect of high taxes is roughly the same across both goods and service sectors. The effects of uncertain or inconsistent regulations are of particular concern to the agriculture and chemical manufacturing sectors, with 23.4 percent and 18.5 percent of companies reporting a substantial effect from this barrier, respectively.

Inconsistent, variable, or nontransparent taxes were another barrier that U.S. companies in both the goods and the services sectors faced. In total, 10.4 percent of U.S. companies were substantially affected by this barrier. This likely reflects the complex nature of India's tax system, which is discussed in the next section.

Table 8.2: Share of companies engaged in India affected by barriers relevant to both goods and services

Measure	Total	Agriculture and food	Chemicals and textiles	Other manu-facturing	ICT goods	ICT services	Financial services	Content and media	Other services
Uncertainty or inconsistency of implementation of current or draft Indian regulations									
Facing the issue[a]	16.5	23.7	20.5	21.8	12.5[b]	9.7	40.2	17.8	10.7
Substantially affected[c]	12.1	23.4	18.5	12.8	4.2	7.9	20.3	7.5	8.5
High taxes (excludes duties)									
Facing the issuea	16.4	14.4	18.6	15.8	16.9	16.7	32.6	30.3	13.7
Substantially affected[c]	12.1	11.0	16.3[b]	12.3	8.3	15.0	11.5[b]	13.2	10.0
Inconsistent, variable, or non-transparent duties or taxes									
Facing the issue[a]	14.4	13.8	18.4	14.5	17.0	9.3	28.2	21.5	12.8
Substantially affected[c]	10.4	11.6	17.3[b]	12.0	9.3	7.5	13.2[b]	6.8	6.2

Source: USITC calculations of weighted responses to the Commission questionnaire (questions 3.3, 4.2, and 5.2).

[a] Share of companies reporting an effect from 1 (faced the policy but it had no effect on activities) to 5 (prohibitive effect) in 2007, 2010, or 2013.

[b] Low-precision estimate, with an RSE above 50 percent.

[c] Share of companies reporting an effect of 3–5, indicating the policy had a moderate, severe, or prohibitive effect on activities in 2007, 2010, or 2013.

Taxation

The complexity of the Indian tax system presents challenges for foreign firms. Among the major areas of concern identified by U.S. exporters and investors are retroactive taxation; transfer pricing problems; judicial and administrative bias and delays in the tax dispute resolution system; and uncertainty about the application of India's new General Anti-Avoidance Rule (GAAR), aimed at discouraging tax avoidance and evasion in India. One multinational firm that does business in India reported that the existence of different tax structures in different states was a significant cost to its India operations, and one reason why many large multinational corporations have only small investments in India. In the words of this firm, "India needs an FTA with itself."[654] This section gives a very brief background on the Indian tax system before providing examples of how each of these issues has emerged as concerns in recent years.

The basic framework for the tax system in India is a constitutional allocation of tax powers between the central and state governments. Taxes on non-agricultural incomes and wealth, corporation income tax, customs duties, and excise duties on manufactured products are assigned to the central government. Over the years, excise duties have evolved into a manufacturers' value-added tax (VAT) on goods, and in 2003, the power to tax services was also assigned to the central government.[655] In addition, tax policy has evolved to play a vital role in

[654] Industry representative, interview by USITC staff, Mumbai June 26, 2014. (FTA means "free trade agreement.").

[655] State taxes can include any taxes on agricultural incomes and wealth, sales taxes, excise taxes on alcoholic products, stamp duties, and registration fees on transfer of property, and taxes and duties on electricity. States

the government's planned development strategy; in India, tax policy is the principal instrument for transferring private savings into public consumption and investment.[656] This is somewhat different from tax policy in the United States, where savings rates are generally lower and capital markets more robust.

The current form of Indian tax policy has negative side effects for the Indian economy, as well as for U.S. exporters and investors. The complexity of the system, based on licenses, quotas, and restrictions, provides ample opportunity to avoid or evade taxes. Another side effect is business uncertainty, because tax rates are often differentiated based on the discretion of government officials to implement tax policy and administer regulations. In turn, special-interest groups focus on government discretion to influence tax administration in their favor.[657]

The Indian government recently amended its tax law and initiated administrative actions to collect taxes from previous years in which multinationals had transferred stock from Indian subsidiaries to non-Indian subsidiaries. This approach, known as retroactive taxation, is an emerging concern for foreign companies operating in India and contributes to the prevailing environment of uncertainty in the business climate. A well-publicized example of retroactive taxation stems from the multinational Vodafone Group's acquisition of CGP Investments Ltd. from another multinational, Hutchison Telecommunications International Ltd., in 2007.[658] CGP controlled a 67 percent stake in the Indian company Hutchison Essar Limited, which was a joint venture between the Hutchison and Essar Groups and had licenses to provide cellphone services in India.[659] Since the acquisition occurred outside of India, no taxes were paid to the Indian government. However, tax authorities in India contended that Vodafone's intent in the $11 billion transaction was to acquire the underlying Indian firm, and should therefore be subject to a tax of $2.5 billion.[660] India's Supreme Court ruled that since the sale consisted of a share transfer and not a transfer of capital assets, it was not subject to taxation. The government in New Delhi attempted to overrule the Court's decision by introducing retroactive taxation related to the Vodafone purchase in the 2012 budget.[661] The legal dispute between Vodafone and the Indian government continues, with Vodafone seeking international arbitration.

India's tax authorities have also been criticized by the Indian courts for their administration of the country's transfer pricing laws. A transfer pricing dispute arises when national tax

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also have power to levy taxes on entertainment and the professions, but certain states have assigned these taxes to local authorities. Rao and Rao, *Trends and Issues in Tax Policy and Reform,* 2013, 11–12.

[656] Rao and Rao, *Trends and Issues in Tax Policy and Reform*, 2013, 12.

[657] Ibid.

[658] Kinetz, "Foreign Investors Warn India over Retroactive Tax," 2012.

[659] Varman, "What's Really at Stake in the Vodafone," 2012.

[660] Ibid.

[661] Kinetz, "Foreign Investors Warn India over Retroactive Tax," 2012.

authorities assert that prices applied to sales between subsidiaries of multinational companies across international borders result in lower tax bills being paid by the subsidiary that is subject to tax (box 8.1). In 2011, India's tax authorities were engaged in over 1,500 transfer pricing disputes with multinational companies operating in India.[662] Experts in Indian transfer pricing laws complain that the erratic administration of these laws by India's tax authority is a function not only of aggressive tax collection practices, but also of the tax authority staff's poor understanding of the relevant issues.[663]

The GAAR proposed under the Finance Act of 2012 could also impact foreign providers of goods and services in India.[664] While statutory anti-avoidance rules are accepted worldwide, India's GAAR appears to deviate from international norms. In particular, the GAAR targets any arrangement or transaction with tax liability implications, instead of only those whose primary purpose is to reduce tax liability. As a result, foreign institutional investors and multinational enterprises are concerned that Indian tax authorities might invoke GAAR arbitrarily, leading to taxpayer persecution. Critics allege that GAAR provisions lack clarity and leave broad latitude for interpretation, potentially leading to increased litigation. Foreign institutional investors and multinational enterprises are also concerned that the revised GAAR is intended to overturn existing tax treaties, affecting existing investment and corporate structures.[665] The implementation of GAAR by the Indian government has been delayed until April 1, 2015.

These recent developments, which have contributed to the perception of an uncertain and increasingly risky tax climate in India, are consistent with results from the Commission survey, in which investors in most sectors reported increased effects from high taxes between 2007 and 2013. For investors in the agriculture and food, financial services, other services, and information and communications technology (ICT) sectors, the effects of taxes were below the "moderate" level (3.0) in 2007, but had surpassed the moderate level by 2013. In interviews, however, many industry representatives expressed optimism about the prospects for tax reform under the new Modi government.

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[662] Dhume et al., "Falling Short: How Bad Economic Choices Threaten," 2013.
[663] Industry representative, interview by USITC staff, Mumbai, June 26, 2014.
[664] Singh and Nagpal, *India's Investment Climate: Addressing Concerns*, 2014.
[665] Ibid.

Box 8.1: Transfer pricing disputes in India

An example of a transfer pricing dispute is Vodafone's equity transfer of shares from one subsidiary to another in August 2008.[a] In that transaction, Vodafone India issued shares to its Mauritius-based holding company, Vodafone TeleServices (India) Holdings Ltd., for a total consideration of Rs 2.46 billion ($39.5 million). When Vodafone India filed its tax return with the central government in September 2009, it reported the arrangement as an international transaction, claiming that transfer pricing provisions under India's Income Tax Act of 1961 did not apply because the transaction did not give rise to income.

In response, the transfer pricing officer for the tax department determined that Vodafone India had undervalued the shares and reassessed the arm's-length price, resulting in an tax increase of Rs 13 billion (about $209 million). In response to Vodafone's appeal of this determination, the Bombay High Court directed Vodafone to submit its objections about the transfer pricing adjustment to the tax department's dispute resolution panel and strongly criticized the tax authority's handling of the case.

The Bombay High Court's decision admonished the government in several respects, each relevant to the issues of government discretion and business uncertainty. One of the court's observations was that if a taxpayer (in this case Vodafone) objects to the applicability of transfer pricing laws to a transaction, the assessing officer should give the taxpayer an opportunity to make its case before referring the matter to superiors for assessment. Secondly, the court strongly criticized the tax department in general, saying that no government has the right to harass the taxpayer in the course of collecting taxes.[b]

It has been suggested that the admonishment of the tax department by the Bombay High Court may have implications for other Indian transfer pricing disputes, such as that of Shell India. The Royal Dutch Shell Plc subsidiary received a transfer pricing adjustment of Rs 152 billion (about $2.44 billion) in February 2013 from the tax authority, which alleged that the company undervalued an equity share transfer to its Dutch parent.[c] In this case, Shell India, the Indian arm of Royal Dutch Shell Plc, sold 870 million shares to Shell Gas BV at a value of 10 Rs per share in 2008. Indian tax authorities claimed that the transfer undervalued Shell India and that the fair market value of the shares was 180 Rs per share.[d] The dispute is ongoing.

[a] Tax Analysts, "Indian Court Sends Vodafone Transfer Pricing Case," 2013 (accessed September 8, 2014).
[b] Ibid.
[c] Ibid.
[d] Bhaskar, Remya, and Raj, "Shell India Accused of Tax Evasion," February 1, 2013.

Regulatory Uncertainty

Uncertain or inconsistent regulations had a substantial effect on a significant minority of firms doing business in India, according to the Commission survey. The survey shows that the effect of this barrier increased between 2007 and 2013. In 2007, goods investors reported that the average effect of uncertain or inconsistent regulations was 2.3 (between minimal and moderate). By 2013, the average effect was 3.0 (moderate). Similarly, services companies reported that the average effect was 1.7 (minimal) in 2007 and had increased to 2.8 in 2013. An increase in severity was observed even when only companies active in India during the entire period covered by the survey were included.

Outside sources also suggest a recent increase in the effect of regulatory uncertainty on companies doing business in India. For example, an International Monetary Fund working paper found that economic policy uncertainty accounted for some of the slowdown in investment in India in 2012 and 2013. This analysis focused mostly on uncertain macroeconomic policies, such as monetary policy, but also highlighted other areas of uncertainty, such as those related to tax policy and the process of obtaining permits.[666] Similarly, on the World Bank's measures of "regulatory quality," or the government's ability to devise and implement sound regulations, India dropped 10 places in the rankings between 2007 and 2012.[667] Observers remarked in 2013 that a lack of stability and predictability in the regulatory environment was hampering foreign direct investment (FDI).[668] It is likely that the 2014 Indian elections also contributed to the perception of uncertainty among investors, according to a survey conducted by an Indian business association.[669]

Interviews with U.S. industry representatives also confirmed regulatory uncertainty to be a serious concern for a number of companies. Characterizations ranged from "challenging"[670] to difficult to the point of discouraging FDI.[671] Generally speaking, industry representatives called for greater specificity, uniformity, and consistency in regulations.[672] One industry where this seemed to be less applicable, however, was banking services. U.S. banking industry representatives stated that the various financial regulators were clear and communicative, and willing to discuss regulatory issues in an open dialogue.[673]

Regulatory uncertainty and lack of transparency are reportedly especially problematic in the Indian insurance market. Insurance industry representatives have voiced concerns that Indian regulators frequently do not allow adequate time for industry comment or consultations before implementing changes to regulations. As one example, the American Insurance Association noted in its submission to the Commission that a popular life insurance product had to be pulled from the market, creating significant confusion and difficulties for consumers, after regulators changed the rules on sales of the product.[674] Uncertainty and frequent regulatory change continue in this industry; according to an industry representative, 64 regulation changes have been proposed for the insurance industry in the last year.[675]

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[666] Anand and Tulin, "Disentangling India's Investment Slowdown," 2014.
[667] World Bank, Worldwide Governance Indicators database (accessed September 8, 2014).
[668] Braude, "Foreign M&A Investors Shun India," 2013.
[669] *CommodityOnline*, "India General Elections: Investors Put New Projects on Hold," January 31, 2014.
[670] Industry representative, interview by USITC staff, Washington, DC, May 1, 2014.
[671] Industry representative, interview by USITC staff, Bangalore, June 17, 2014.
[672] Industry representative, interview by USITC staff, New Delhi, June 24, 2014.
[673] Industry representative, interview by USITC staff, New Delhi, June 26, 2014.
[674] AIA, written testimony to the USITC, February 26, 2014, 6–7.
[675] Industry representative, interview with USITC staff, New Delhi, June 27, 2014.

Corruption

Corruption in India is not a universal concern, according to the Commission's survey results. However, individual firms' experiences with corruption in India are highly variable. In 2010 and 2013, U.S. firms in the agriculture and natural resources sectors reported more severe effects of corruption on either their affiliate sales or their exports than did U.S. firms in the chemicals manufacturing, retail/wholesale, and content information sectors (table 8.3). Similarly, large firms reported more severe effects from corruption in 2007–10 than did medium-sized firms. In most sectors, the effects of corruption became more severe between 2007 and 2013.

Table 8.3: Effects of corruption on U.S. companies engaged in India, by sector, 2007–13

	Share of companies (%)		Mean effect[a]		
Sector	**Facing the issue[b]**	**Substantially affected[c]**	**2007**	**2010**	**2013**
Agriculture and food	5.9	5.6	3.0	3.4	3.6
Natural resources	2.7	2.1[d]	1.9	3.6	3.5
Chemicals and textiles	8.6[d]	2.2	1.4	1.4	2.3
Other manufacturing	8.1	4.9	2.5	2.7	2.5
Retail and wholesale	1.7[d]	0.8[d]	2.9	2.5	2.5
Financial services	8.7[d]	3.6[d]	1.3[d]	2.2	2.4
Content and media	11.0[d]	1.7[d]	0.5[d]	1.4	2.3
ICT	2.4	0.7[d]	2.1	1.9	2.1
Other services	6.0	1.5	2.2	1.4	2.3
All sectors	6.5	2.4	1.8	1.9	2.4

Source: USITC calculations of weighted responses to the Commission questionnaire (question 6.7).

[a] On a scale from 0 (did not face the barrier) to 5 (prohibitive effect on activities).

[b] Share of companies reporting an effect from 1 (faced the policy but it had no effect on activities) to 5 (prohibitive effect) in 2007, 2010, or 2013.

[c] Share of companies reporting an effect of 3–5, indicating the policy had a moderate, severe, or prohibitive effect on activities in 2007, 2010, or 2013.

[d] Low-precision estimate, with an RSE above 50 percent.

Discussions with industry representatives also provided a mixed view of corruption in India. Some firms reported widespread corruption, with Indian partners preferring to work with other international firms not bound by the U.S. Foreign Corrupt Practices Act.[676] Other industry representatives stated that firms find corruption most prevalent when engaging in transactional dealings with lower-ranking officials.[677] The prevailing view seems to be that corruption in India does not diverge significantly from experiences in other developing countries, with one industry representative remarking that "clerks are clerks, the world over."[678]

[676] Industry representative, interview by USITC staff, New Delhi, June 26, 2014; industry representative, interview by USITC staff, Bangalore, June 17, 2014.

[677] Industry representative, interview by USITC staff, Mumbai, June 24, 2014; industry representative, interview by USITC staff, Chennai, June 30, 2014.

[678] Industry representative, interview by USITC staff, Chennai, July 2, 2014.

Several industry representatives indicated that India's Companies Act of 2013 prioritized reducing corruption in India, as has the new Modi government of India.[679] This Act aims to modernize corporate governance procedures and rules, which previously were governed by the 1956 Companies Act.[680] The 2013 act is broad in scope and has the potential to greatly reduce the extent of informality in Indian business transactions. For instance, it requires consolidated financial statements for all corporate entities, including subsidiaries and joint ventures, bringing Indian financial reporting guidelines in line with international standards. The Act also introduces a definition of fraud and places a criminal burden on it. Additionally, section 138 of the Act requires the appointment of an internal auditor and an annual audit for all listed companies, stating that a company's chief financial officer would be liable for fraudulent reporting.[681] Reportedly, this is a large, complicated piece of legislation that for its effect will rely heavily on the promulgation and enforcement of effective rules.[682]

Measures Affecting Trade in Goods

The survey indicates that a number of other measures affect goods trade with India.[683] Examples include sanitary and phytosanitary (SPS) measures that effectively ban U.S. products or increase compliance costs; burdensome certification and license costs; and labeling requirements that differ from those of other countries and that may also differ by state.[684] Many measures appear to have the goal of encouraging domestic production. One company reported that the general regulatory environment it faced in India improved when the firm made the decision to locally source more of its product sold in India.[685]

The most recent WTO trade policy report on India notes:

> In practice, India links the use of import restrictions and licensing, and other non-tariff measures (NTMs) to domestic policies, for example, by relaxing NTMs when imports are required to alleviate inflation or shortages. The use of NTMs raises the cost of exporting to India and, in some cases, may be equivalent to an import prohibition.

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[679] Industry representative, interview by USITC staff, Mumbai, June 24, 2014; industry representative, interview by USITC staff, Bangalore, June 19, 2014.
[680] KPMG in India, "Companies Act 2013," 2013.
[681] Ibid.
[682] Ibid.
[683] Measures that affect U.S. investment in India are covered in chapter 7.
[684] Additional measures include requirements that some products be imported through state trading enterprises; production subsidies for domestic producers of some goods (sometimes restricted to production for export); consumer subsidies for some products; direct price control of some products; and compulsory licensing (or the threat of compulsory licensing).
[685] Industry representative, interview by USITC staff, Mumbai, June 23, 2014.

In a survey of U.S. firms, however, the vast majority of firms with affiliates or foreign sales reported that India's policies did not deter or prevent sales or investment in India. Firms in the agriculture and food sector and those in the chemicals and textiles manufacturing sector were only slightly more likely to report that India's policies did so (6 percent and 5 percent, respectively, of firms in the sector).

For firms that export goods to India, survey responses indicate that the most widespread problems are with tariffs and customs administration (discussed in chapter 4) and uncertainty or inconsistency of implementation of taxes or regulations (discussed above). Relatively few firms that exported to India are significantly impacted by the need to comply with Indian standards, but this was the factor reported as significant by the greatest number of firms in the agriculture and food sector. Difficulty complying with Indian standards substantially affects a larger share of firms in the agriculture and food sector than any other factor reported by firms in any sector (table 8.4).

Table 8.4: Share of U.S. goods-producing firms that reported measures had an effect on exports, percent

Measure	Total	Agriculture and food	Chemicals and textiles	Other manufacturing	ICT goods
Subsidies, price supports, and other assistance given to Indian competitors by the Indian government					
Facing the issue[a]	3.1	4.1	2.2	6.8	1.7[b]
Substantially affected[c]	1.7	2.8	1.5	2.4	1.7[b]
Difficulty complying with Indian standards					
Facing the issue[a]	5.2	26.8	2.5	8.9	9.0[b]
Substantially affected[c]	3.8	24.6	1.6	4.8	8.0[b]
Difficulty complying with consumer labeling requirements					
Facing the issue[a]	2.3	13.9	1.6	3.3	9.3[b]
Substantially affected[c]	1.4	12.7	1.1	1.5	2.3[b]

Source: USITC calculations of weighted responses to the Commission questionnaire (question 3.3).

[a] Share of companies reporting an effect from 1 (faced the policy but it had no effect on activities) to 5 (prohibitive effect) in 2007, 2010, or 2013.

[b] Low-precision estimate, with an RSE above 50 percent.

[c] Share of companies reporting an effect of 3–5, indicating the policy had a moderate, severe, or prohibitive effect on activities in 2007, 2010, or 2013.

Essential Commodities Act

The Essential Commodities Act of 1955 (ECA) provides the authority for many of India's regulations on trade in a variety of goods. It grants the central government the power to control the price of an essential commodity and regulate the manufacture, distribution, and use of any essential commodity, including requiring sale to a government entity. Essential commodities are broadly defined, and the schedule of essential commodities may be amended

by notification in the state-issued *Official Gazette*.[686] The ECA provides the authority for the Drugs (Prices Control) Order of 2013, as described in chapter 5 of this report; the setting of minimum support prices (MSPs) for agricultural products; and the public distribution system, which provides food grains and other commodities at subsidized prices to the majority of India's population.[687]

Measures That Affect Multiple Sectors

Some measures potentially impact trade in a variety of goods sectors, including state-level labeling and tax provisions, price controls, quotas, assistance to domestic competitors, end-use certificates, and licensing procedures, among others.

Pricing Measures

India maintains price controls on wheat, rice, sugar, edible oils, and pharmaceuticals. India also requires that the final retail price appear on a wide variety of retail products. Including the price on retail packaging causes problems for traders because of fluctuating exchange rates coupled with long delivery times; tax structures that can differ by state; and the fact that some products that would not be purchased by the average consumer have been classified as retail products. One importer noted that if the rupee depreciates, an importer may be losing money on every sale because the retail price is almost always already printed on the product.[688]

Quotas and Tariff-Rate Quotas

India maintains four tariff-rate quotas (TRQs) that cover six products: milk powders, corn, sunflower or safflower oil, and rapeseed (canola) or mustard seed oil.[689] Imports of these products, if any, are generally carried out by state trading enterprises. India also maintains quotas on marble and similar stones, and on sandalwood. Additionally, India's imports of sensitive items (415 products in 2011) are monitored by India's Department of Commerce, and certain items must be imported through specific ports.[690]

Subsidies and Other Assistance to Domestic Industries

Technical assistance, training, and other support are given to firms in targeted industries, such as textiles, agriculture and fisheries, and leather production. Exporters in priority sectors

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[686] Essential commodities include staple foods; animal feed; coal and its derivatives; automobile parts; cotton; cotton and woolen textiles; iron and steel, and iron and steel products; paper and paper products; petroleum and petroleum products; drugs; and raw jute. The *Official Gazette* is similar to the U.S. *Federal Register*.
[687] Essential Commodities Act (1955); Bhayani and Jha, "FAQ on the Essential Commodities Act," 2014.
[688] Industry representative, interview by USITC staff, New Delhi, June 27, 2014.
[689] A tariff-rate quota is usually a two-tier tariff system in which imports within the quota enter at a lower tariff rate, and imports above the quota enter at a higher rate. TRQ volumes are published in advance. India's latest WTO notification on within-quota imports was in March 2011 and covered the period from 2003 to 2010. WTO, "Notification," G/AG/N/IND/5, March 7, 2011.
[690] WTO, *Trade Policy Review: India*, 2011, 57–8.

receive subsidized loans and duty drawbacks on imported capital equipment and other assistance based on the value of exports.[691] In addition, agricultural producers, particularly rice and wheat growers, benefit from minimum support prices (MSPs) for these products.[692] However, very few firms with goods exports to India reported that India's assistance to domestic competitors was a substantial barrier to exports (see table 8.4).[693]

Import Licenses

Obtaining import licenses, which are required for products listed as "restricted" on India's import policy schedule, is complex.[694] For instance, imports of some products are "restricted with conditions" and require import permits of various types. In 2011, imports of products listed under 147 tariff lines were restricted with conditions.[695] For example, importing bovine genetic material requires a sanitary certificate that, in addition to health requirements, includes quality criteria laid out by India's Department of Animal Husbandry, Dairying, and Fisheries. It also requires a "No Objection Certificate" (NOC) from the appropriate state government. The criteria for the NOC may differ by state. Obtaining a license to import bovine genetic material is estimated to take four to six months if the data are available and if an NOC is granted.[696] Apparel goods may be imported only through one specific port.[697] Import certifications for pork are valid for only six months and are required for each lot; license procedures are reportedly vague and inconsistent with international standards.[698] Imports of boric acid are subject to a complicated import licensing system (box 8.2).

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[691] Government of India, Ministry of Commerce and Industry, Department of Commerce, *Annual Report 2012–2013,* 2, 78. A duty drawback is a refund of import duty on goods used in producing products for export.
[692] Department of Food and Public Distribution website, "Procurement Policy," May 11, 2014, http://dfpd.nic.in/?q=node/9.
[693] However, it should be noted that support to Indian domestic competitors may keep some U.S. firms out of the Indian market altogether. Policies that promote Indian self-sufficiency will necessarily be at the expense of imports.
[694] Licenses are issued to end users of the product, and the material may not be resold. WTO, *Trade Policy Review: India*, 2011, 55. In 2011, imports of products falling under 422 tariff lines at the HS 8-digit level required an import license.
[695] WTO, *Trade Policy Review: India*, 2011, 55.
[696] Quality criteria necessary to obtain a health certificate have no impact on human or animal health and require production information that is not often used by U.S. producers and is not validated by the U.S. Department of Agriculture (USDA). Additionally, India does not allow importation of one type of bovine genetic material (in-vitro embryos) that is increasingly used by dairy producers in the United States and elsewhere. Government official, email correspondence with USITC staff, December 10, 2013.
[697] USDOC, "Market Report: India," 2012.
[698] USTR, *2014 Report on Sanitary and Phytosanitary Measures*, 2014, 57.

Box 8.2: Boric acid import license procedures as a barrier to U.S. exports

Boric acid imports are subject to complex licensing rules. Boric acid is used as a raw material in the production of a wide variety of products, including glass products, ceramic glazes, and fertilizer; it can also be used as an insecticide. Boric acid is produced from mineral borax. India has no significant production of borax, but some Indian firms produce boric acid from imported borax. India's imports of boric acid are restricted, while imports of borax are not. The net effect of the restriction is to shift the value added in processing from the exporting country to India. India does import some boric acid, but imports about four times as much refined borax.[a]

License requirements for the importation of boric acid vary by end use. When imported for insecticidal uses, products covered by India's Insecticides Act of 1968, including boric acid, must obtain a certificate of registration and an import permit from the Registration Committee of the Central Insecticides Board under the Department of Agriculture and Commerce.[b] Imports of boric acid for non-insecticidal purposes are exempt from the requirement that they be registered as an insecticide, but importers are required to obtain a certificate attesting to the non-insecticidal use from the relevant ministry or department, and then obtain an import permit from the Registration Committee.[c]

Some traders attempting to import boric acid for non-insecticidal purposes have been blocked by administrative problems. Traders were advised to apply for a Non-Objection Certificate (NOC) from the Indian Department of Commerce. However, the Department of Commerce reportedly did not receive the authority from the Registration Committee to issue an NOC, and therefore traders were unable to receive an import permit for boric acid.

Currently, only an end user of boric acid may apply for an import permit, not a wholesaler or trader.[d] This means that foreign producers of boric acid must have an order in hand, for a specific volume, before importation. Traders cannot stock and warehouse boric acid for sale to end-use customers, unlike Indian domestic producers. Indian domestic producers of boric acid from borax must maintain production and sales records to assure that the boric acid is not used for insecticidal purposes, but are not required to obtain a permit from the Registration Committee. The Office of the United States Trade Representative considers this to be a technical barrier to trade, as wholesalers of boric acid are effectively barred from importing the product, while domestic manufacturers are "able to produce and sell boric acid for non-insecticidal use subject only to a requirement to maintain records showing they are not selling to end users who will use the product as an insecticide."[e]

U.S. negotiators at the WTO first raised objections to India's boric acid import license requirements for non-insecticidal uses in 2008, but have so far not been able to have the requirement for an import permit waived. In 2012, the High Court of Kerala found that the requirement that an import permit be issued by the Registration Board when the product is for non-insecticidal use to be "arbitrary and unreasonable," ruling that the requirement should be quashed.[f] Following this ruling, the Registration Committee informed the Department of Agriculture and Commerce of the details of the decision, but did not change the import requirement.[g]

[a] Industry representative, interview with USITC staff, Washington, DC, March 24, 2014.
[b] Insecticides Act of 1968. Act no. 46 of 1968.
[c] Industry representative, interview with USITC staff, Washington, DC, March 24, 2014.
[d] WTO, "Import Licensing System of India," G/LIC/Q/IND/22, November 1, 2012.
[e] USTR, *2014 National Trade Estimate Report,* March 2014, 145.
[f] Kerala High Court, Maliakkal Industrial versus the Union of India, February 15, 2012.
[g] Central Insecticides Board, Minutes of 328th Meeting of Registration Committee, May 2, 2012.

Labeling

Complying with India's labeling requirements poses additional burdens, causing substantial time delays and restricting imports. For example, labels for products to be sold at retail must include, among other things, the final selling price—inclusive of taxes, which may vary by state.[699] Further, labels must be in English and Hindi and, in some cases, in the language of the region where the product will be sold; India has 16 official languages.

Additionally, some importers have reportedly been unable to register trademarks for products unless there is production or investment in India.[700] One importer reported that the requirement that a producer apply a separate label to packages for the India market led imports of a particular product to drop by 50 percent. Further, a 50-pound wholesale package of a product that is to be processed and repackaged before retail sale is not exempt from the requirement to be labeled as if it were for retail sale.[701]

Export Controls

India uses a variety of export controls to increase the domestic supply of raw materials and encourage value-added production. These include export taxes, minimum export prices, and bans or quotas on exports. Currently, India imposes export taxes on hides, skins, and leather; iron and chromium ores and concentrates; manganese ore; and certain iron and steel products.

Over the period of review, India has imposed export taxes on cotton as well. India also has imposed minimum export prices for some products, including on onions and basmati rice, in order to increase availability in the domestic market.[702]

At times, India also has banned the export of certain products outright. Over the period of review, India has banned the export of non-basmati rice, wheat, pulses, edible oils, and cement in order to ensure adequate domestic supply.[703] Organic wheat, organic non-basmati rice, and branded containers of edible oils for retail sale are subject to export quotas.[704] India has only recently allowed the export of value-added products made from imported pulses.[705] As of 2011, exports of 167 tariff lines (HS 8-digit level) are restricted and must obtain an export license from DGFT.[706]

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[699] Industry representatives, interviews by USITC staff, New Delhi, June 25 and 27, 2014.
[700] Foreign Exchange Management Act of 1999; Trademarks Act of 1999.
[701] Industry representative, interview by USITC staff, New Delhi, June 25, 2014.
[702] WTO, *Trade Policy Review: India*, revision, October 2011, 77–78.
[703] Pulses are the edible seeds of plants of the legume family. Examples include kidney beans, pigeon peas, and lentils.
[704] WTO, *Trade Policy Review: India*, October 2011, 78.
[705] Chandrashekhar, "Interview with Mr. Pravin Dongre," *Pulse Pod*, 2013, 2.
[706] WTO, *Trade Policy Review: India*, 2011, 79.

Barriers Specific to Trade in Agricultural Goods

India maintains a variety of measures specific to agricultural products. These include measures related to sanitary and phytosanitary (SPS) standards—including bans on imports of certain agricultural products that may differ from international norms; fumigation requirements; lack of approval for genetically modified organisms (GMOs); and insufficient comment periods for proposed SPS measures. They also include support programs for domestic agricultural producers; these programs can affect prices and limit imports.

Sanitary and Phytosanitary (SPS) Restrictions

Certain SPS regulations in India have presented problems for U.S. companies and may restrict imports of agricultural products from the United States.[707] India is a member of the WTO, and its SPS measures are covered under Article XX(b) of the General Agreement on Tariffs and Trade and the WTO Agreement on the Application of Sanitary and Phytosanitary Measures. Measures that are in accordance with recognized international standards are presumed to comply with WTO members' obligations.[708] A member may impose more stringent regulations if there is a scientific justification and/or if the member maintains a higher level of safety than the international standards would yield.[709] However, some of India's SPS measures are perceived as scientifically unwarranted, and are inconsistent with international standards (table 8.5).[710]

Table 8.5: Selected SPS measures and international standards

Product	Measure	Standard
Fresh meat of poultry and pork	Ban due to the presence of low-pathogenicity avian influenza (AI)	Poultry: OIE Terrestrial Animal Health Code Article 10.4.19. No restriction for imports from a country free from infection with high-pathogenicity AI. Pork: No restrictions due to AI.
Bovine germplasm	Guidelines for export/import of bovine germplasm (revised 2013) includes dairy production requirements for imports of semen and embryos	Dairy production of progeny or donor animals has no bearing on human or animal health and safety.
Wheat	Zero tolerance for weed seeds	Most countries allow some sort of cleaning or mitigation.[a]
Barley, corn, wheat	Zero tolerance for ergot	Most countries allow some sort of cleaning or mitigation.[a]

[707] Sanitary regulations are designed to protect the health and safety of humans and animals, as well as the economic health of the producers of animal products. Phytosanitary regulations protect plant health and the economic health of the producers of plant products.
[708] Article 3, paragraph 2 of the Agreement notes that "Sanitary or phytosanitary measures which conform to international standards, guidelines or recommendations shall be deemed to be necessary to protect human, animal or plant life or health, and presumed to be consistent with the relevant provisions of this Agreement and of GATT 1994."
[709] The standard-setting bodies specifically recognized in the SPS Agreement are the World Organization for Animal Health, known by its French acronym, OIE; the Codex Alimentarius Commission; and the Secretariat of the International Plant Protection Convention.
[710] USTR, *2014 Report on Sanitary and Phytosanitary Measures*, 2014, 18-20, 24-25, and 57-58.

Product	Measure	Standard
Dairy products	Required treatment and certification for bacteria that U.S. producers contend does not pose a health threat; contaminant residue maximums that do not conform to international standards	
Pulses	Methyl bromide fumigation: an exemption allowing fumigation at the port of arrival is subject to semiannual renewal	
Cherries, peaches	Fumigation requirements	

Source: Compiled by the Commission.
[a] Government representative, telephone interview by USITC staff, July 25, 2014.

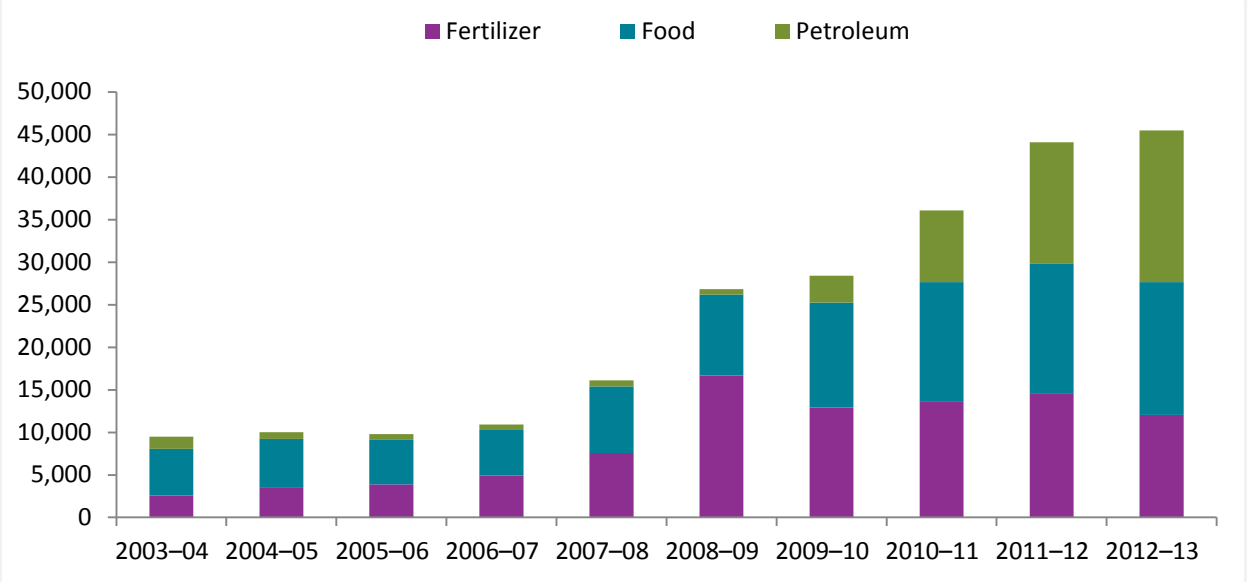
Agricultural Subsidies

The primary non-product-specific subsidies to Indian agricultural producers are for fertilizers and fuels, which result in lower production costs for Indian agricultural producers.[711] In fiscal year (FY) 2012/13, the cost of the fertilizer subsidy to the government of India was approximately $12 billion, and the cost of the fuel subsidy was $17.8 billion (figure 8.1). Additionally, as detailed below, farmers receive support through guaranteed minimum support prices (MSPs). MSPs are supported by purchases of agricultural products (primarily rice and wheat) that are then stored at government expense and distributed at subsidized prices. The total expenditures of this system are reported as the food subsidy—$15.6 billion in FY 2012/13. The combined expenditures of these three subsidies reached $45 billion in 2012/13.[712]

The food subsidy is the result of government purchases of agricultural products (primarily rice and wheat) at minimum support prices designed to provide an adequate return to India's many farmers, coupled with sale of these products at subsidized prices to the majority of consumers through the public distribution system. Subsidies that lower the costs of production for India's agricultural producers serve to restrict competing imports.

[711] Agricultural subsidies as set forth by the Indian government are noted in Government of India, *Twelfth Five Year Plan*, 2013. There is debate over the share of the fertilizer and fuel subsidies that actually accrues to agricultural producers. See, for instance, Sharma and Thaker, "Fertilizer Subsidy in India," 2009.
[712] Government of India, Expenditure Budget, Non-Plan Expenditure by Broad Categories, 2014–2015.

Figure 8.1: Budget expenditures for major subsidies, FY 2003/04 to FY 2012/13 (million $)



Source: Government of India, Expenditure Budget, Non-Plan Expenditure by Broad Categories, various years.
Note: 2003–04 to 2007–08 expenditures are revised estimated expenditures. Later data are reported actual expenditures. See appendix Table I.36 and Table I.37 for underlying data for this figure.

Minimum Support Prices (MSPs)

India establishes minimum support prices (MSPs) annually for 24 crops. To the extent that MSPs subsidize agriculture products and boost domestic production, they restrict demand for competing imports. MSPs are recommended by the Commission for Agricultural Costs and Prices, taking into account production costs, global prices, and optimal use of India's land and water. Bonuses over MSP may be paid by some states, for all or part of a year, and India-wide bonuses may be paid in some years. MSPs are supported by purchases by government agencies. Rice and wheat are purchased by the Food Corporation of India (FCI), and other products are purchased by other government agencies. Rice and wheat are the most consistently supported, with a large share of production purchased by the FCI. Rice and wheat are procured by the state governments, with expenses (including some taxes and fees) reimbursed by the central government. Products may be held in the producing state or collected at a central facility.[713]

Public Distribution System

The Public Distribution System in India (now called the Targeted Public Distribution System, or TPDS) provides basic commodities (wheat, rice, sugar, and kerosene) at subsidized prices to families that are below India's poverty line. Qualifying families can also receive a larger volume of food grains, and at lower prices, through the "Antyodaya Anna Yojana" or AYA. Families that

[713] Government of India, Commission for Agricultural Costs and Prices, *Price Policy for Rabi Crops*, 2013, xii.

qualify for AYA are eligible to receive 35 kg of food grains per month.[714] Commodities are provided by the central government to the state governments at a central issue price (CIP) for distribution through "fair price shops." The CIP is determined by the number of identified beneficiaries of different status (above or below the poverty line) accessing the TPDS in each state. Families above the poverty line may be able to receive some amount of food grains, depending on availability. Retail prices to families below the poverty line are set by the states at CIPs, with some exceptions for certain programs.[715] CIPs for rice and wheat are presented in table 8.6. They have been constant since 2002, but the quantity available at subsidized prices through the TPDS has declined. Approximately two-thirds of the population is eligible to receive 5 kg of food grains per month, which is about half the average consumption. Food grains are also distributed under other welfare schemes. Sales at subsidized prices limit the demand for competing imports. Grains may also be sold by the government of India on the open domestic market or exported.

Table 8.6: Central issue prices for rice and wheat

Commodity	APL		BPL		AAY	
	Rupees per 100 kg	Dollars per metric ton	Rupees per 100 kg	Dollars per metric ton	Rupees per 100 kg	Dollars per metric ton
Common rice	795	135.67	565	96.42	300	51.2
Grade A rice	830	141.64	(a)	(a)	(a)	(a)
Wheat	610	104.1	415	70.82	200	34.13

Source: Department of Food and Public Distribution, Government of India, *Annual Report 2012–13,* 29.
Notes: The CIP of common rice for APL families is applicable only to Jammu and Kashmir; Himachal Pradesh; the Northeastern states of Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, and Tripura; Sikkim; and Uttarakhand. Dollar values are converted at the 2013 average of Rs 58.598 per U.S. dollar.
[a] Not applicable

GMOs

Genetically modified organisms (GMOs) offer a variety of advantages to farmers, including increased insect resistance and herbicide resistance. India requires approval by the Genetic Engineering Approval Committee (GEAC) before GMOs can be imported, produced, or sold in the country. India approved the cultivation of Bt cotton (a GMO) in 2002, after domestic field trials were completed. Bt cotton currently accounts for about 90 percent of the area under cotton cultivation in India, and India has become the world's second-largest producer of both cotton and cottonseed oil.[716] However, Bt cotton is the only GMO that has been approved for domestic production in India.

Import shipments containing genetically modified material must be declared as such and approved by India's Genetic Engineering Approval Committee (GEAC). To date, the only

[714] Government of India, Department of Food and Public Distribution, *Annual Report 2012–13*, 2013, 47.
[715] Ibid., 48.
[716] USDA, FAS, Production, Supply, and Distribution database (accessed September 8, 2014); *Federation of Oils, Seeds and Fats Associations Newsletter*, "Cottonseed: The Golden Goose," December 2013, 6.

genetically modified material that has been approved for commercial import shipments is soybean oil made from "Roundup-Ready" soybeans.[717] As of 2011, there was no requirement that foods containing GM ingredients be labeled as such at the retail level, but legislation to that effect was being considered.[718] The United States (along with many other countries) is a major exporter of a variety of GMOs, including soybeans and corn. The lack of GMO approvals serves as an effective ban on these products.

Case Study on Goods Barriers: India's NTMs in the Medical Device Industry

India's medical device sales are currently estimated at $4 billion annually. However, a number of nontariff measures, including price controls, ambiguous regulations, and labeling requirements, limit participation by foreign firms.[719] These problems are further aggravated by the country's lack of public investment in medical devices; India's per capita expenditure on medical devices is one of the world's lowest.[720] Moreover, India currently lacks the industrial ecosystem to make manufacturing high-end devices in-country a profitable strategy. Although various multinational medical device firms manufacture in India, most of their production is low-value-added goods, such as portable ultrasounds and other devices intended to serve mostly rural populations throughout Asia.[721] One estimate suggested that if the Indian government removed barriers to medical devices from abroad, the market could reach $50 billion by 2025.[722]

The U.S. medical device industry, by contrast, is the world's largest. Valued at more than $60 billion, it accounts for nearly 20 percent of the $350 billion global industry, by production.[723] Further, 7 of the world's 10 largest medical device original equipment manufacturers (OEMs), by revenue, are headquartered in the United States.[724] The United States is also the world's leading single-country exporter of medical devices: up to 50 percent of medical device OEMs revenues are generated outside of the United States, via either exports or

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[717] WTO, *Trade Policy Review: India*, 2011, 74.
[718] Ibid., 71.
[719] Industry representative, telephone interview by USITC staff, October 16, 2014.
[720] A survey that reviewed healthcare statistics for 66 countries ranked India's per capita expenditure on medical devices at 63. CHP, "Medical Devices," 2013.
[721] For instance, GE has three manufacturing facilities in Bangalore that produce simplified versions of the devices commonly sold in the United States and other leading medical device markets. These devices, such as handheld electrocardiogram devices and portable ultrasound machines, can cost 40 percent less than competing versions. Abraham, "GE Healthcare," November 6, 2013; industry representative, telephone interview by USITC staff, October 16, 2014.
[722] Industry representative, telephone interview by USITC staff, October 16, 2014.
[723] American Action Forum, "Primer," 2012.
[724] MPO, "The Top 30," 2014.

sales through foreign affiliates.[725] Notably, emerging markets, such as India, typically generate less than 10 percent of U.S. medical device firms' revenues.[726]

However, U.S. medical device OEMs have increasingly looked to expand sales in India, drawn by the country's burgeoning middle class; its growing incidence of lifestyle-related illnesses, such as cardiovascular disease and diabetes; and its aging population, a factor that commonly expands demand for orthopedic devices.[727] Because Indian medical device companies, as noted above, mostly produce low-value-added devices, 75 percent of India's medical device market is supplied by imports, of which the United States provides the largest share.[728] U.S. medical device exports to India have traditionally been high-end goods, such as cardiac stents, orthopedic implants, and diagnostic equipment.[729]

Price Controls

India's Drug Price Control Order of 1995, which primarily regulates the prices of pharmaceuticals, also applies price controls to various medical devices,[730] notably stents, heart valves, and orthopedic devices. For example, in February 2013, the Central Government Health Scheme reduced retail prices on coronary stents, one of India's most frequently imported medical devices, by 65 percent.[731] This measure likely responded to concerns from Indian medical device companies and various Indian government entities, such as the Drug Controller General and the State Food and Drug Administration; before these controls were applied, imported devices from the United States were priced up to 63 percent higher than those manufactured by Indian companies.[732] The new measure lowered the prices for U.S.-produced stents to the same level as those produced by Indian companies, despite the fact that the U.S. stents have been certified for safety and quality by internationally accredited agencies, while most Indian-made stents have not.[733] The 2013 measure imposed dramatic price reductions on some devices. For example, the price assigned to U.S. drug-eluting stents—sophisticated stents

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[725] GTIS database (accessed October 8, 2014); S&P, *Medical Goods*, 2014.
[726] *Economist*, "Left to Their Own Devices," September 10, 2011.
[727] Torsekar, "India's Medical Device Sector," 2010; industry representative, telephone interview by USITC staff, October 6, 2014.
[728] Torsekar, "India's Medical Device Sector," 2010.
[729] Gross, "Spotlight on Asia," 2013.
[730] Rao, "Put Pacemakers, Stents," 2011.
[731] Industry representative, email correspondence with USITC staff, December 20, 2013. The Census Bureau classifies exports of stents under Schedule B code 9021.39.00: "Artificial parts of the body (other than artificial joints) and parts and accessories thereof." Since 2012, this category has been the United States' second most exported medical device to India, behind catheters. Official statistics of the U.S. Department of Commerce (accessed October 9, 2014).
[732] *The Hindu*, "Now, Pay Less," March 2, 2013; industry representative, telephone interview by USITC staff, October 16, 2014.
[733] *The Hindu*, "Now, Pay Less," March 2, 2013.

that gradually release drugs to prevent the growth of dangerous tissue—was cut from $1,200 to $450.[734]

The effects of these policies have been considerable. According to one estimate, since price controls took effect in 2013, sales trends for some multinational medical device firms in India have changed from 20 percent growth per quarter to a 3 percent decrease per quarter.[735] As one result, many stent manufacturers have prioritized high-volume sales of their low-value-added stents over sales of the most novel technologies, such as advanced stents that can be used to treat diabetic patients with heart disease.[736]

Inadequate Regulations

India's regulatory framework for medical devices is considered inadequate by at least some industry representatives whom the Commission interviewed.[737] India's regulatory treatment of medical devices is similar to its treatment of drugs. Since 2006 they have both been regulated under the Drugs and Cosmetics Act of 1940. This arrangement fails to reflect the substantial differences between the two classes of goods, including in their development, production, and sales.[738]

In addition, the Indian government currently recognizes only 14 categories of medical devices, including high-value-added items. This leaves the remaining 10,000 categories largely unregulated.[739] Foreign makers of regulated devices must face the burdensome process of gaining approval for sale in India, including submitting documents and complying with other requirements more suited to drugs than medical devices.[740] Makers of unregulated devices, for their part, must deal with the arbitrariness with which Indian regulators can compel firms to provide paperwork and additional documentation; officials can make these demands at any point, even if the device has already been sold for years.[741]

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[734] Gross, "Spotlight on Asia," 2013.
[735] Industry representative, telephone interview by USITC staff, October 16, 2014.
[736] Ibid.
[737] Industry representative, interview by USITC staff, Washington, DC, December 13, 2013.
[738] Emergo, "India Medical," 2014.
[739] Ibid.
[740] Industry representative, interview by USITC staff, Washington, DC, December 13, 2013; Radhadevi, *Regulatory Guidelines*, 2012.
[741] It is believed that the government does this to boost revenues, as every document that a medical device firm submits can cost $1,000 each. Industry representative, interview by USITC staff, Washington, DC, December 13, 2013; industry representative, telephone interview by USITC staff, October 16, 2014.

Labeling Requirements

As of September 28, 2014, India's Central Drugs Standard Control Organization—a regulatory body that governs the imports of medical devices—has implemented India-specific labeling requirements for medical device exporters.[742] In particular, medical device firms are required to provide the date and place of manufacture and the maximum retail price—requirements that exceed international standards.[743] Manufacturers must attach this labeling to each device before exporting it into India. This rule can impose substantial costs in time and money, as distinct labels must be printed for India that are not required for sales to other countries.[744]

Factors Affecting the U.S. Provision of Services to India

A number of measures not addressed in previous sections of this report affect the provision of services to India. These include measures involving the cross-border provision of services (such as the provision of plans or advice through the Internet or phone); the provision of services to Indian nationals traveling in the United States (including the supply of accommodations, education, and medical treatment, among other services);[745] and the supply of services by U.S. nationals traveling in India on a temporary basis. This section also covers measures that affect the operations of U.S.-owned affiliates that have established a presence in India.

Because many of these measures are directed towards providers of specific services, the following discussion is largely organized by industry. However, measures affecting the entry and employment of foreign workers principally consist of visa requirements that apply across industries, and as such, these provisions are addressed separately at the end of this section.

Foreign equity caps, limitations on the form of market entry, business licensing requirements, and other provisions affecting the establishment of a commercial presence are significant obstacles to foreign participation in many of the industries mentioned below, but are not covered in this chapter. For an overview of measures affecting the establishment of services affiliates in India, please see chapter 7 of this report.

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[742] Eisenhart, "September 2014 Compliance Deadline," 2014.
[743] The Global Harmonization Task Force (GHTF) is a voluntary international group of representatives from various medical device regulatory authorities that aims to standardize regulatory procedures within the industry. The GHTF approach to labeling, which is nonbinding, calls for country-specific requirements to be "kept to a minimum" or removed entirely. GHTF, "Label and Instructions," 2011.
[744] Industry representative, telephone interview by USITC staff, October 16, 2014.
[745] For example, India may not recognize degrees earned by Indian students at foreign universities, thereby discouraging the purchase of education services by Indian nationals who travel to foreign markets. For more information on this particular issue, see the discussion on "professional services," below.

Survey Results for Measures Affecting Services Industries

The results of the Commission survey suggest that the nine Indian barriers that were specifically listed in the questionnaire but are not covered elsewhere in this report likely affect only a small number of U.S. services providers (table 8.7).[746] According to the survey results, between 1.4 percent and 11.3 percent of all services firms with exports or investment in India are affected by at least one of these nine barriers. The share of such firms that are substantially affected by these barriers is somewhat lower, ranging from 0.3 percent to 9.1 percent.

Barriers exerting at least some effect on the greatest number of services providers included unclear legal liability (which affects 11.3 percent of companies), financial requirements limiting what a firm may do with Indian profits (10.3 percent), and difficulty importing intermediate inputs into India (9.1 percent). The survey suggests that ICT firms are the most affected by each of these three barriers. In fact, ICT firms were most affected by all of the "other" barriers specifically listed in the questionnaire, except for restrictions on the cross-border transmission of data, which had the greatest impact on financial services firms.

Table 8.7: Effects of various barriers on U.S. services providers engaged in India, by policy, 2007–13

	Share of services providers (%)	
Policy issue	**Facing the issue[a]**	**Substantially affected[b]**
Unclear legal liability	11.3	9.1
Financial requirements that limit what your organization may do with profits earned in India	10.3	8.7
Difficulty importing intermediate inputs into India or other problems with customs administration	9.1	5.5
Restriction on cross-border transmission of data	5.3	4.4[c]
Requirement that certain staff or a share of staff must be Indian citizens	6.2	3.5[c]
Subsidies, price supports, and other assistance given to Indian competitors by the Indian government	4.0	2.8[c]
Involuntary technology transfer (including compulsory licensing)	2.6	0.8
Inability of non-Indian staff to be licensed/certified in India	2.3	0.4
Inadequate protection of regulatory test data	1.4	0.3[c]
Other	7.4	6.9

Source: USITC calculations of weighted responses to the Commission questionnaire (questions 4.2 and 5.2).

[a] Share of companies reporting an effect ranging from 1 (faced the policy but it had no effect on activities) to 5 (prohibitive effect) in 2007, 2010, or 2013.

[b] Share of companies reporting an effect of 3–5, indicating the policy had a moderate, severe, or prohibitive effect on activities in 2007, 2010, or 2013.

[c] Low-precision estimate, with an RSE above 50 percent.

[746] In this discussion, "affected firms" are all firms reporting that a particular measure had any effect (a rating of 1 or higher) on their industry in any year covered by the survey.

While the share of companies affected by specific barriers is low, approximately 7.4 percent of services providers are affected by at least one barrier not listed in the survey. Barriers identified by individual survey respondents cover a wide variety of issues. Some of these issues include difficulties associated with the receipt of payments and barriers affecting particular industries (for example, India's prohibition on the provision of legal services by foreign lawyers), among others. Several other self-identified barriers relate to investment, corruption, taxes, and other issues addressed in previous sections of this report.

Audiovisual Services

In addition to foreign equity caps and weak, inconsistent enforcement of antipiracy legislation (addressed in earlier chapters of this report), several other measures reportedly impede the operations of foreign firms in India's audiovisual services market. Many of these provisions appear to affect both foreign and domestic audiovisual services providers, but they have all been identified by U.S. industry representatives as measures that impact their ability to supply services in India.

Indian regulations forbid the cross-border provision of broadcast services. Foreign firms must establish a commercial presence in India in order to broadcast signals into the country, and must pay set fees for each channel it broadcasts in the country. The Telecom Regulatory Authority of India (TRAI) regulates rates in the audiovisual industry by capping the price of pay channels where set-top boxes are used, and by imposing price bands on multi-broadcaster "bouquets" of channels[747] in order to minimize the price difference between bouquets and individual channels. TRAI indicated that these price caps and bands are temporary measures that will be eased following the more widespread adoption of Internet and satellite television. The Motion Picture Association of America (MPAA) asserts that these measures are hampering industry growth, and favors setting a timetable for eliminating them.[748]

India prohibits contracts that grant distributors exclusive rights to broadcast particular programming, and requires the non-discriminatory provision of channels to any distributor making a request. While distributors still must pay to broadcast programming, U.S. industry contends that these measures discourage program development and the purchase of broadcast rights, and have a negative impact on competition in the Indian audiovisual market.[749]

Other measures that reportedly impact U.S. audiovisual services providers in India include a measure requiring warnings on film scenes in which tobacco use is depicted, reportedly raising

[747] Unlike a traditional bundle of channels provided by a single broadcaster, a "bouquet" is a bundle of channels provided by multiple broadcasters. TRAI, "TRAI Streamlines Distribution of TV Channels," 2014.
[748] MPAA, letter to Ambassador Michael Froman, United States Trade Representative, October 22, 2013.
[749] Ibid.

costs; and provisions requiring broadcasters to carry certain programming. The government also requires an archival copy of each film and will not accept a digital cinema package, which is the standard format among U.S. film producers.[750]

Financial Services

Banking

Several Indian measures make it very difficult for banks that have not established a commercial presence in India to provide services to customers located in India. Only entities with a banking license issued by the Reserve Bank of India (RBI) and that are physically present in the country may provide banking services in India, and residency is required to obtain such a license.[751] Indian residents may not open an account in a foreign currency with a bank that is not resident in India, nor may they borrow from such a bank, with certain exceptions.[752] Exceptions include firms that are not financial intermediaries and that have registered under India's Companies Act of 1956; nongovernment entities involved in microfinance; and other entities that have received RBI approval. All these may borrow from overseas banks, but loans exceeding $500 million in a single fiscal year are generally not permitted.[753] Additionally, cross-border borrowing and lending in either domestic or foreign currency is not allowed except with RBI approval.[754]

Several regulations also impact the operations of foreign-owned bank subsidiaries that have already established operations in the country. For example, India places limitations on raising capital in the domestic market, thus restricting bank lending.[755] The RBI also caps interest rates on fixed-deposit accounts that mature within one to five years opened by non-resident Indians in a foreign currency.[756] Further, India's "know your customer" regulations[757] are reportedly

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[750] Industry representative, interview by USITC staff, Mumbai, June 23, 2014.
[751] RBI, "Mobile Banking Transactions in India—Operative Guidelines for Banks," n.d. (accessed October 29, 2014); OECD, Services Trade Restrictions Database (accessed June 9, 2014); RBI, "Report on Internet Banking," June 22, 2001.
[752] OECD, Services Trade Restrictions Database (accessed June 9, 2014); RBI, "Report on Internet Banking," June 22, 2001.
[753] Financial services providers whose business is limited to infrastructure projects may borrow an additional $250 million with approval from the RBI. World Bank, Services Trade Restrictions Database (accessed May 23, 2014).
[754] OECD, Services Trade Restrictions Database (accessed June 9, 2014).
[755] World Bank, Services Trade Restrictions Database (accessed May 23, 2014); OECD, Services Trade Restrictions Database (accessed June 9, 2014).
[756] These accounts are called Foreign Currency Non Resident (FCNR) accounts and operate similarly to certificates of deposit. OECD, Services Trade Restrictions Database (accessed June 9, 2014).
[757] "Know your customer" guidelines—which require a bank to identify the individuals and the nature of the businesses that ultimately own its accounts—are intended to prevent the use of banks for criminal purposes. RBI, "Know Your Customer Guidelines," n.d. (accessed August 15, 2014).

onerous, as they differ from standards in other countries and require that individual banks—rather than a central office—conduct background checks on clients.[758]

Several industry representatives indicated that priority-sector lending requirements can impact bank operations in India. Specifically, India requires domestic banks and foreign banks with 20 or more branches to direct at least 40 percent of lending to priority sectors: 18 percent to the agricultural sector and the remaining 22 percent in small loans to exporters, small enterprises, students, farmers, and other priority borrowers. Foreign banks with 19 or fewer branches must direct 32 percent of funding to priority sectors, but are not required to direct a share of such lending to any particular group.[759] The WTO's most recent *Trade Policy Review*: India states that priority sector lending programs may reduce lending to other economic sectors and increase bank risk, thus leading to higher interest rates.[760] Additionally, U.S. industry representatives say that the mandate to direct loans to India's agricultural sector is particularly challenging, as this is an area in which their firms have little expertise.[761] In fact, India's priority-sector requirements reportedly contributed to one bank's decision to turn down an Indian banking license.[762] However, these requirements apply to both domestic banks and foreign banks with a large presence in the country, and one industry representative comments that agricultural sector lending requirements can be addressed indirectly by purchasing loans made by other banks.[763]

Another area of possible concern is capital repatriation. It is limited by a provision requiring that at least 25 percent of foreign bank earnings remain in India;[764] moreover, repatriated capital is subject to taxes. However, industry representatives indicate that these measures have a minimal impact on their business.[765]

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[758] Industry representative, interview by USITC staff, Mumbai, June 24, 2014.
[759] RBI, "Priority Sector Lending—Targets and Classification," February 1, 2014; industry representative, interview by USITC staff, Mumbai, June 26, 2014.
[760] WTO, *Trade Policy Review: India*, 2011, 141; OECD, Services Trade Restrictions Database (accessed June 9, 2014).
[761] Industry representative, interview by USITC staff, Mumbai, June 26, 2014; industry representative, interview by USITC staff, New Delhi, June 26, 2014.
[762] Industry representative, interview by USITC staff, Mumbai, June 24, 2014.
[763] Industry representative, interview by USITC staff, New Delhi, June 26, 2014.
[764] World Bank, Services Trade Restrictions Database (accessed May 23, 2014).
[765] Industry representatives, interviews by USITC staff, Mumbai, June 24, 2014; industry representative, interview by USITC staff, Mumbai, June 26, 2014.

Insurance

As noted by several industry representatives, the insurance FDI cap is seen as one of the most restrictive trade barriers to foreign insurers.[766] However, other restrictions affect foreign and domestic insurance carriers more equally. For example, following the market collapse of unit-linked insurance products (ULIPs)[767] in 2010, the Insurance Regulatory and Development Authority (IRDA) introduced new regulations (minimum life covered, policy duration, "surrender penalties") to protect consumers against poor market performance.[768] These new regulations severely reduced the returns on ULIPs for both foreign and domestic carriers. However, given that these products accounted for 55 percent of the market,[769] the decline in sales was especially felt by foreign providers. Strict regulations intended to prevent large flights in capital or to safeguard consumers have made selling similar individual products, like the National Pension Scheme (NPS), India's optional, defined-contribution national pension system, unviable for domestic insurance companies and market-limiting for foreign insurers.[770]

The reinsurance[771] sector in India is also restricted by other measures besides investment barriers. With the enactment of the Insurance Regulatory and Development Authority Act, liberalization reforms in 1999 and 2000 removed market control from the General Insurance Corporation (GIC) and the Life Insurance Corporation (LIC) of India. The reforms restructured GIC as GIC Re, a reinsurance company wholly owned by the government of India, and deconsolidated LIC into 23 private companies.[772] The state-owned GIC Re is currently the only reinsurance company in India, although Indian insurers are permitted to contract with non-Indian reinsurance companies after ceding 10 percent of premiums to GIC Re, provided that they are registered with the IRDA (a requirement since 2012).[773] However, in practice, reinsurance through an overseas reinsurer that has not registered with the IRDA is allowed in most cases.[774] To date, the prohibition on branch offices, as detailed in chapter 7, remains the biggest market barrier to foreign reinsurers.[775]

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[766] AIA, written testimony submitted to the USITC, February 12, 2014; industry representatives, interview by USITC staff, Washington, DC, October 23, 2013; industry representatives, interview by USITC staff, New Delhi, June 27, 2014.
[767] ULIPs provide policyholders with insurance coverage and serve as an investment vehicle. These products are linked to the market's performance.
[768] Trefis, "A Look at the Indian Life Insurance Market," 2013.
[769] Industry representative, interview by USITC staff, New Delhi, June 27, 2014.
[770] Ibid.
[771] Reinsurance is a type of insurance that insurance companies hold to reduce and spread out the risks associated with the underwritten policies.
[772] Trefis, "A Look at the Indian Life Insurance Market," 2013.
[773] Mathew, "Global Reinsurance Firms Gearing Up to Enter India," 2014; Lloyd's, "Indian Regulatory and Development Authority Registration," 2013.
[774] Tuli, "Changing Times for Overseas Reinsurers in India," 2012.
[775] Mathew, "Global Reinsurance Firms Gearing Up to Enter India," 2014.

Additionally, foreign and domestic general insurers are required to transfer 5 percent of their total risk to GIC Re. The IRDA is considering extending this cost to life insurers as well, mandating firms to reinsure with domestic reinsurers (GIC Re) up to 30 percent of the sum assured on each policy.[776] For fire, marine hull, and other insurance classes, domestic reinsurance pools that are set by GIC Re must first be met, and any surplus required beyond the pool can be sought from an overseas firm. Finally, a maximum of 10 percent of total premiums that are placed with a reinsurer outside of India can be given to a single foreign reinsurer, with certain exceptions available.[777]

Educational Services

India imposes no barriers specifically limiting the movement of students or of personal funds to obtain higher education services across borders. However, a few measures may hamper the operation of foreign educational institutions that have established a presence in India. Specifically, India imposes caps on tuition and fees that may impact providers of education services.[778] In addition, following an executive order issued in September 2013,[779] the Indian government proposed new rules that would permit foreign universities to set up campuses in India. However, degrees awarded by these institutions would be treated as “foreign degrees,” and graduates would need to have their degrees recognized by the Association of Indian Universities to continue their education or pursue government employment.[780] Such recognition is reportedly a "haphazard" process without clear rules.[781]

Health Services

Although FDI is permitted in India’s health industry, industry experts have noted a distinction in treatment between foreign health firms that deliver their services under the public health umbrella and those that are established for commercial purposes. The latter perceive market access and operation to be less open and more burdensome as a result of an unclear regulatory environment and complex approval process.[782]

Current policy does not permit foreign medical professionals to practice for profit in India despite the severe shortage of personnel, especially in rural areas. Foreign medical

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[776] Kumar, “Mandatory 30% Ceding of Life Insurer’s Business,” 2013.
[777] Tuli, “Changing Times for Overseas Reinsurers in India,” 2012.
[778] USTR, “India,” March 29, 2013.
[779] Government of India, Ministry of Human Resource Development, “Opening of Campuses by Foreign Universities,” September 10, 2013. The “press release” is effectively an executive order which does not need to be approved by Parliament. Official notification of the rules will be published once the law ministry has vetted the proposal.
[780] Mishra, “India Moves Ahead with Plans,” 2013.
[781] Industry representative, interview by USITC staff, Washington, DC, April 10, 2014.
[782] Ibid., April 9, 2014.

professionals who are in India for charitable or teaching purposes are subject to registration by the Medical Council of India.[783] Within the last five years, growing criticism of Indian medical education and the acute shortfall in qualified professionals triggered a reform initiative to allow foreign national doctors to practice medicine in India. In 2010, the National Commission for Human Resources in Health Bill was first introduced to Parliament. Concerns from state governments grounded the bill, but new legislation, the Indian Medical Council (Amendment) Bill 2013, was introduced on August 19, 2013.[784] The new draft bill would restructure the Medical Council of India and establish legal practice for Overseas Citizens of India (OCI) doctors. Under the new proposal, these doctors could work in a select institution with the Medical Council of India's permission.[785]

Information and Communications Technology (ICT) Services

With the exception of concerns related to the protection of intellectual property (which are addressed in chapter 5 of this report), foreign firms identify very few barriers to the provision of ICT services in India. The only other barriers cited by industry representatives include difficulties in importing equipment, and costs related to the cross-border transfer of IT.[786]

Professional Services

Most professional services in India are regulated primarily by an industry body that controls the level of foreign access to the market. The majority of foreign providers in the legal, medical, accounting, and architecture fields are barred from practice, and tight restrictions exist on the accreditation of foreign degrees of Indian nationals. Professional degree recognition falls under the purview of the professional industry bodies. These entities may also mandate registration, citizenship, local licensing certification, and professional fees.

Market access and foreign degree accreditation concurrently pose the most restrictive barriers to professional services. By law, foreign attorneys, doctors, accountants, and architects are prohibited from practice in India; however, they still serve the market in some capacity. For example, in 2012, the Madras High Court legally recognized a "fly-in, fly-out" arrangement for lawyers, permitting foreign attorneys a temporary stay in India to advise on international law

[783] Prasad and Sathish, "Policy for India's Services Sector," March 2010.
[784] PRS Legislative Research, "The Indian Medical Council (Amendment) Bill, 2013," n.d. (accessed October 28, 2014).
[785] Chatterji, "Centre May Allow Foreign Docs," 2013.
[786] Industry representatives, interview by USITC staff, Chennai, June 30, 2014, and New Delhi, June 24, 2014. The local-content requirements that exclusively apply to the ICT industry are discussed in chapter 6.

and arbitration.[787] While this amounts to a relaxation in regulation, this exception restricts practice to counsel on foreign law only.

Foreign architects do practice in India, despite a statutory restriction. Many, however, do not maintain the architect title in practice, calling themselves "design consultants."[788] More frequently, foreign companies partner with local firms, or these firms retain unregistered, foreign architects on staff to provide design services for domestic projects. Indian firms then coordinate the execution.[789] Some examples of projects with foreign participants include the Mini Cooper showroom, designed by a New Delhi-based French studio; the renovation of the Old New Delhi Railway Station, inspired by a designer based in Hong Kong; the collaborative effort of Britain's RMJM and the United States' Callison and HOK on Unitech's massive residential complex on the Noida expressway; and the restoration by the German firm Schlaich Bergermann and partners of the Jawaharlal Nehru Stadium.[790]

Until recently, India has pursued a less restrictive approach to the movement of architects across its borders, especially relative to the accounting or legal professions.[791] In 1996, the Foreign Investment Promotion Board (FIPB) granted permission for a Singapore firm, RSP Architects, to establish offices in Mumbai, Bangalore, and Hyderabad. Since its entry, the firm has designed the International Tech Park in Bangalore as well as several commercial spaces for IT giants such as Wipro and Microsoft. However, the affiliated commerce ministry in 2011 determined that the approval given to RSP Architects 15 years earlier violated the Architects Act. In July 2012, the New Delhi high court reopened the FIPB clearance case and asked the finance ministry to revisit this decision.[792] Given the recent increase in regulatory and judicial oversight in the industry, additional relaxation of regulation seems unlikely, at least in the near term.

Other industry-specific restrictions have also been noted but generally have not been identified, either in the literature or by industry representatives, as posing substantial barriers to trade. For example, the Institute of Chartered Accountants of India (ICAI) bans foreign-affiliated accounting firms from using the names or logos of their global networks, and new regulations found in the 2013 Companies Act, which mandate a rotation of auditors on a multiyear basis, extend to affiliates of multinational companies outside of India.[793] In architecture and engineering services specifically, both foreign and domestic firms face land

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[787] Palazzolo, "India Supreme Court Oks 'Fly In, Fly Out,'" 2012; industry representative, interview by USITC staff, Washington, DC, April 14, 2014.
[788] Industry representatives, interview by USITC staff, Washington, DC, May 1, 2014.
[789] Goyal and Mukherjee, "Movement of Engineers and Architects," 2013.
[790] Rawat, "Foreign Architectural Firms in India," 2013.
[791] Goyal and Mukherjee, "Movement of Engineers and Architects," 2013.
[792] Sarthak, "Developers Hire Foreign Architects," 2008.
[793] Industry representative, interview by USITC staff, May 27, 2014.

acquisition restrictions, local-content rules, and other stringent requirements for building permits. However, foreign firms must also comply with professional quotas and labor market tests.[794]

Research and Development Services

Foreign firms in a number of industries—including agriculture, electronics, and pharmaceuticals, among others—engage in research and development (R&D) activities in India, and have identified a number of barriers to the provision of such services. Industries report that they have difficulty bringing testing equipment into India in a timely way due to provisions regarding the importation of used goods. They contend that this is problematic when circumstances require that the same equipment be used to test products made in different parts of the world.[795] In addition, the inability of Indian customs authorities to value prototype equipment—which is shipped to India for testing—may effectively prevent the importation of such products, making it impossible to conduct certain types of R&D in India.[796] One industry representative also reports that R&D activities directed solely towards products that are exported from India have not been eligible for tax credits since 2007.[797] Additionally, industry representatives indicate that clinical trials for new drugs are hindered by lack of clear regulations, uncertain legal liabilities, and a burdensome operating environment.[798] Barriers to clinical research are described in the case study at the end of this chapter.

R&D firms may also be affected by the Indian Biodiversity Act, which requires the payment of licensing fees for the use of natural resources that are native to India. This requirement, together with uncertainty about its application, may impact R&D firms that use native species to test a product's suitability for the Indian environment. When such firms import or export materials from other parts of the world, they have the additional burden of proving that the materials are not native to India.[799]

Retail Services

Indian law limits foreign retailers' ability to source and sell certain products, as well as the ability to sell products directly to Indian consumers through the Internet. However, recent

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[794] Labor market tests are similar to economic needs tests to determine if the domestic market is capable of meeting current demand. Gereffi et al., "Getting the Numbers Right: International Engineering Education," 2008.
[795] Industry representative, interview by USITC staff, Bangalore, June 18, 2014.
[796] Industry representative, interview by USITC staff, Bangalore, June 17, 2014.
[797] Industry representative, interview by USITC staff, Chennai, June 30, 2014.
[798] Industry representatives, telephone interview by USITC staff, January 7, 2014; industry representatives, interview by USITC staff, New Delhi, June 24, 2014.
[799] Industry representative, interview by USITC staff, Bangalore, June 17, 2014.

regulatory changes have eased some of these limitations, and India's new government reportedly may introduce further liberalization.

Indian restrictions on the variety and type of products that foreign retailers sell include the country's significant limitations on foreign participation in multibrand retailing and its local-sourcing requirements, which are described in the previous chapter. Additionally, the government requires foreign-invested retailing firms—but not wholly owned Indian retailers—to seek approval before adding a new product or product category.[800] In September 2012, however, the government eased sales provisions by eliminating a January 2012 regulation prohibiting 100 percent foreign-owned retailers from selling brands that they did not own. In August 2013, the government ended its prohibition on multiple foreign retailers selling the same brand.[801]

Telecommunications

U.S. firms indicate that Indian regulations constitute a significant barrier to the foreign provision of satellite services. India gives preference to domestically owned satellites, and stipulates that foreign entities may provide satellite capacity to the Indian market only by selling it to the India Space Research Organization (ISRO). The ISRO, in turn, allows such transactions only when its own satellites lack adequate capacity. The Office of the United States Trade Representative (USTR) indicates that this requirement places foreign firms at a disadvantage by raising costs and by allowing the ISRO—a competitor in the satellite market—to manage market growth and to take business from foreign providers whenever its own capacity becomes available. These provisions reportedly affect foreign operators of very small aperture terminals (VSATs), as well as the foreign provision of direct-to-home television services and Ku-band[802] capacity.[803]

Additionally, USTR indicates that India permits only closed user groups (CUGs)[804] to use Internet-based telephone connections, or voice over Internet protocol (VoIP). It also indicates that CUGs are not permitted to supplement their Internet connections by linking to the public switched telephone network (PSTN). This provision reportedly raises the costs of starting or

[800] World Bank, Services Trade Restrictions Database.
[801] EIU, *Country Commerce: India*, 2013, 17.
[802] The Ku-Band (or Kurtz-under band) comprises certain frequency ranges within the electromagnetic spectrum that are used for satellite television broadcasting, among other purposes. Tech-Faq, "Ku Band," http://www.tech-faq.com/ku-band.html (accessed October 29, 2014).
[803] USTR, *2014 Section 1377 Review*, 14; USTR, "India," 2014, 151.
[804] A closed user group is an inter-company communications network.

operating a business in India by keeping firms from merging external and internal communication networks.[805]

Transportation

Aside from the equity limits on FDI in air transport services, as discussed in chapter 7, research has uncovered few significant barriers to the foreign provision of transportation services in India. However, under India's 40/40/20 maritime cargo reservation system, cargo shares are reserved for certain categories of shippers: 40 percent for Indian-flagged vessels, 40 percent for shipping partners engaged in trade with India, and 20 percent for third-party shippers. Indian-flagged vessels are the preferred carriers of government cargo.[806] Further, foreign-flagged ships may engage in freight or passenger cabotage only on routes that are not served by a suitable Indian-flagged carrier.[807]

Measures Affecting the Temporary Entry and Employment of Foreign Workers

Indian affiliates of foreign firms commonly employ a small number of foreign workers to fill technical or management positions. Like other countries, India maintains visa requirements that apply to the entry and employment of foreign nationals, but the literature indicates that these requirements are not onerous, and the services industry representatives interviewed for this report did not identify Indian entry and employment measures as a major concern.[808] Foreigners traveling to India to conduct business must obtain either a business visa or an employment visa. A business visa is issued to individuals who are in the process of establishing a business in India or who are traveling to the country to sell commercial or industrial products; an employment visa is issued to individuals who have been hired to fill technical, senior, or managerial positions in India. Business visas are valid for five years, while employment visas are issued in one-year increments.[809] Visas are typically issued within three months, and firms reportedly have few problems obtaining visas for workers with technical skills.[810]

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[805] USTR, *2014 Section 1377 Review*, 2014, 6.
[806] World Bank, Services Trade Restrictions Database (accessed May 23, 2014); U.S. Congress, Office of Technology Assessment, "An Assessment of Maritime Technology and Trade," 1983, 210.
[807] Pillai, "Effect of Cabotage Policy on Coastal Shipping," n.d., 7 (accessed September 3, 2014). Cabotage is defined as "transport between two points in the same country, including by operators who are not established in the country within which the transport operation take place," while triangular traffic is "traffic between a point in the territory of the other party and a point in the territory of a third state, provided that the journey includes the country of establishment of the hauler." OECD, "Transport and Courier Services," 2012, 27.
[808] EIU, *Country Commerce: India*, 2013, 44; industry representatives, interviews by USITC staff, Washington, DC, April–May 2014.
[809] Government of India, Ministry of External Affairs, "Passport Seva," n.d. (accessed May 20, 2014).
[810] EIU, *Country Commerce: India*, 2013, 44.

In 2009, the Indian government imposed a measure that capped the number of foreign workers at 1 percent or less of the Indian workforce and limited the number of foreign workers who could be employed by a single firm to between 5 and 20. The following year, this measure was removed and replaced with a new provision, under which employment visas can be granted only to workers who earn annual salaries exceeding $25,000, with some exceptions.[811] Aside from this provision, India seems to impose few, if any, overall restrictions on the employment of foreigners. Foreign nationals are not required to obtain work permits, and may remit their entire net salary abroad if their employment in India will last three years or less. Further, only the selection of certain employees—such as a firm's managing director—may require prior approval from the government.[812]

In some service industries, Indian law requires that certain senior managers and/or a certain share of board members be Indian citizens or nationals or residents of particular Indian states.

- Audiovisual services: Indian citizens must fill at least half of the positions on a broadcasting firm's board of directors. In addition, only citizens should occupy the positions of CEO, chief security officer, and chief officer in charge of network operations in a broadcasting firm.[813]
- Banking: All members of a bank's board of directors must satisfy the Reserve Bank of India's (RBI's) "Fit and Proper" standards. No less than half of a bank's board of directors must be Indian nationals, no less than half of the directors must be non-executive directors, and no less than one-third of a bank subsidiary's board must be independent of the subsidiary's parent firm and management.[814] Additionally, wholly owned bank subsidiaries should have CEOs that are resident in India.[815]
- Education: Universities are required to include Indian state representatives as members of their governing boards.[816]
- Telecommunications: No less than half of a telecommunication firm's board of directors must be Indian citizens, and citizenship and residency are required of a firm's chief security officer and chief officer in charge of technical network operations. Foreign nationals may be employed as the CEO, chief financial officer, managing director, or chairman of a telecommunications firm, subject to security screening by the Ministry of Home Affairs.[817]

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[811] This requirement does not apply to teachers of languages other than English, ethnic cooks, and High Commission and embassy staff. Neeraj, "Govt Removes Cap on Foreign Nationals," 2010.
[812] EIU, *Country Commerce: India*, 2013, 44.
[813] OECD, Services Trade Restrictiveness Index Regulatory database (accessed May 23, 2014).
[814] USITC, Services NTM Database (accessed May 23, 2014).
[815] OECD, Services Trade Restrictiveness Index Regulatory database (accessed May 23, 2014).
[816] USTR, "India," 2014, 152.
[817] OECD, Services Trade Restrictiveness Index Regulatory Database (accessed May 23, 2014).

- Transportation: In the air transport sector, Indian citizenship is required of the chairman and no less than two-thirds of the board of directors.[818]
- While these measures do not completely prohibit the employment of foreign nationals, such mandates may impact a firm's ability to hire foreigners to fill certain positions.

Case Study on Services Barriers: New Regulations Deter Clinical Research in India

Clinical trials are research programs to evaluate the safety and effectiveness of new drugs before they are submitted to regulators for approval. Pharmaceutical and biotechnology companies, which develop new drugs and typically own the associated intellectual property rights, often outsource carrying out clinical trials to businesses known as clinical research organizations (CROs). CROs often run a clinical trial in several countries rather than just one because access to a larger patient population allows them to complete the trial faster, making the new medicine available sooner.[819] India is an attractive place to conduct clinical trials, due to its large, English-speaking population, high disease burden, and good medical infrastructure. In theory, these factors should position India to take a prominent role in clinical research alongside the established regions of Europe, Japan, and North America.[820] However, clinical research activity in India declined substantially during 2010–13 due to "confusing, inconsistent, and at times arbitrary application of regulations regarding clinical research."[821]

In recent years, scandals involving alleged malpractice and patient deaths in clinical trials in India have led to widespread public protests and proposals from the Indian government to reform medical research.[822] Public concerns over clinical trials included lack of ethical oversight, no guarantee of compensation to the families of patients who die during trials, and recruitment of patients without informed consent. In 2011, the government of India published draft guidelines to ensure that individuals are compensated for injuries suffered during trials. It also announced tougher rules for ethics committees that approve trials, including mandatory registration of trials.[823] India is one of the few countries to seek direct oversight of CROs through a registration process; however, these new regulations have not been finalized.[824]

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[818] Further, residency is required of all executives and directors in the rail transportation industry. However, the provision has little impact, as this industry is completely closed to foreigners. OECD, Services Trade Restrictiveness Index Regulatory Database (accessed May 23, 2014); World Bank, Services Trade Restrictions Database (accessed May 23, 2014).
[819] USITC, hearing transcript, February 14, 2014, 264 (testimony of John J. Lewis, ACRO).
[820] Ibid.
[821] Ibid.
[822] Cressey, "India Shakes Up Rules on Clinical Trials," 2014.
[823] Ibid.
[824] USITC, hearing transcript, February 14, 2014, 266 (testimony of John J. Lewis, ACRO).

According to industry sources, a lack of clear regulations, uncertain legal liabilities, and a burdensome operating environment have reduced the amount of clinical research in India.[825] Both academic and industrial clinical trial operators have left India for other countries, at least temporarily.[826] In July 2013, for example, the U.S. National Institutes of Health announced that it was suspending 40 clinical trials in India. Quintiles, a large CRO, closed its phase I research center in Hyderabad, a joint venture with India's Apollo Hospitals Enterprise, due to a "challenging external business environment."[827]

Clinical trial operators say that the draft regulations are vague and open to conflicting interpretations. Proposed regulations seem to require clinical trial operators to provide medical care for trial participants for the rest of their lives, regardless of whether a participant's condition is related to the trial itself.[828] Additionally, the clinical trial operator would have to compensate a trial participant if the patient received a placebo or if the medicine being tested did not have the intended therapeutic effect,[829] even though the use of placebos is standard in randomized, controlled trials and the point of the trial is to learn if the candidate drug has a therapeutic effect. India's proposed guidance on compensation in the case of trial-related adverse events or death reportedly offers no adequate mechanism to address issues such as how to determine the cause of injury, the party responsible, or the appropriate amount of compensation, nor does it set out any appeal mechanism.[830] In other countries, compensation claims are addressed through an insurance process that does not exist in India.[831]

While the regulations affecting clinical trials are not intended to discriminate against foreign firms, the regulations sometimes have that effect because they weigh most heavily on trials for new drugs. Most such trials are run by multinational CROs, while local Indian firms tend to focus on the simpler activity of establishing the bioequivalence of generic medicines to brand-named medicines.[832]

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[825] Industry representatives, telephone interview with USITC staff, January 7, 2014; industry representatives, interview with USITC staff, New Delhi, June 24, 2014.
[826] Reardon, "NIH Makes Wary Return to India," 2014.
[827] Brennan, "Quintiles Shutters Phase I Unit in India," 2013.
[828] Reardon, "NIH Makes Wary Return to India," 2014.
[829] Reardon, "NIH Makes Wary Return to India," 2014; USITC, hearing transcript, February 14, 2014, 268 (testimony of John J. Lewis, ACRO).
[830] USITC, hearing transcript, February 14, 2014, 267 (testimony of John J. Lewis, ACRO).
[831] Ibid.
[832] USITC telephone interview with industry representatives, January 7, 2014; USITC, hearing transcript, February 14, 2014, 303 (testimony of John J. Lewis, ACRO).

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Chapter 9
Competitiveness and Indian Industrial Policies

As requested in the Committees' letter, this chapter describes "the general competitiveness of sectors in India's economy that are subject to the identified restrictions" addressed in chapters 4–8. While competitiveness has been defined in many ways,[833] the World Economic Forum usefully defines it as "the set of institutions, policies, and factors that determine the level of productivity"[834] of a country, industry, or firm. As such, the competitiveness of an industry can be influenced by a wide variety of factors, including industrial policies such as those discussed throughout this report. This chapter analyzes competitiveness using a qualitative assessment that provides an overview of key factors of competitiveness in specific industries, and Commission survey results on the price competitiveness of U.S. goods in the Indian market.[835]

In the goods sectors, the major factors of competitiveness include labor costs; a skilled workforce; consumer preferences for local products; and policies that include tariffs, foreign equity caps, and government subsidies. The services sectors are affected by many of the same key factors of competitiveness as those found in the goods sectors, with some additional policies such as restrictions on the provision of services by noncitizens, particularly in professional services.

The Commission survey found that U.S. companies face direct competition from lower-priced Indian products and services in some sectors. Nearly 40 percent of U.S. companies in surveyed industries face competition from Indian goods and services of equivalent quality in the Indian marketplace, and the prices of U.S.-produced goods and services were nearly 30 percent higher than those of their Indian competitors on average. In certain cases, industrial policies and low input costs, such as labor, contribute to these price differences; in other cases, the higher price reflects a higher-quality product provided by U.S. companies.

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[833] For further information on competitiveness, see Weyer and Bloodgood, "A Proposed Framework for Measuring the National Competitiveness of Industries" (accessed March 25, 2014); Jabara et al., "Measurement of Competitiveness in Goods and Services Industries" (accessed March 25, 2014); and Balkytė and Tvaronavičienė, "Perceptions of Competitiveness," 2010.
[834] WEF, *Global Competitiveness Index 2014–2015*, 2014.
[835] Appendix I provides a third approach, using economic complexity analysis.

Factors of Competitiveness

The Commission has a long history of examining factors of competitiveness in specific industries.[836] Previous Commission reports have developed a framework of factors of competitiveness that can be applied to agricultural goods,[837] and this framework can be readily applied generally to other goods industries. This framework identifies three categories that each consist of a number of individual factors of competitiveness: total delivered cost, product differentiation, and reliability of supply. Delivered costs consist of production costs, transportation costs, tariffs and customs fees, import compliance, and exchange rates.

Factors of competitiveness in services industries have been an ongoing focus of Commission work, but to date no framework has been developed that can be applied to all services industries. However, some factors common to services have been identified, including labor costs, workforce skill level, knowledge of the environment and customer needs, and domestic cultural preferences, among others.

Firm competitiveness in the industries discussed may be affected to differing degrees by Indian policies. For example, in industries such as agriculture, where government subsidies[838] substantially lower production costs, policies play a significant role in the ability of domestic producers to competitively supply certain products, whereas in audiovisual services, domestic policies appear to have little effect. Moreover, the absence of some factors of competitiveness can undermine the positive effects of other factors. For example, in spite of a skilled workforce and low labor costs, India's information and communications technology (ICT) manufacturing sector is relatively uncompetitive. In large part, the lack of competitiveness is due to infrastructure barriers, including unreliable electricity and poor road conditions; a complicated legal and regulatory environment; and a poor business climate.[839]

This chapter organizes industries into the nine broad sectors used throughout the report. Goods sectors include agricultural and food products, natural resources and metals, chemicals and textiles, and other manufactured goods and equipment. Services sectors include retail and wholesale services, financial services, content and media providers, ICT (which also includes some goods industries), and other services. Competitiveness in Indian industries in these sectors are presented below.

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[836] An early example is USITC, *Global Competitiveness of U.S. Environmental Technology Industries,* 1995. The most recent example is *Rice: Global Competitiveness of the U.S. Industry,* forthcoming 2015.
[837] USITC, *China's Agricultural Trade, 2011;* USITC, *Brazil,* 2012.
[838] Agricultural subsidies as set forth by the Indian government are noted in Government of India, *Twelfth Five Year Plan,* 2013.
[839] WEF, *The Global Information Technology Report 2014,* 2014.

Agriculture and Food

A number of foreign agricultural products face policy-related barriers in the Indian market, particularly from tariffs, SPS requirements, and other nontariff measures such as labeling laws. Two industries heavily affected by and representative of some of the challenges U.S. companies face when participating in the Indian market are food grains (wheat and rice) and alcoholic beverages. Important factors of competitiveness in this sector include labor costs and domestic policies, including government subsidies and taxes.

Alcoholic Beverages

The Indian market for alcoholic beverages is dominated by distilled spirits. These spirits are split between foreign-style liquors (e.g., whiskey, rum, vodka), which account for 70 percent of the alcoholic beverage market by value, and Indian-style liquors, which account for 19 percent of the alcoholic beverage market. Beer is growing in popularity (with 11 percent of the alcoholic beverage market and with sales growth of about 15 percent a year[840]); the market for wine is also growing, but remains very small. Industry concentration in distilled spirits is substantial: the Indian firm United Spirits holds a 44 percent market share (and exports its products to 37 other countries, mainly in Asia and Africa). The next largest market share (9 percent) is held by the French company Pernod Ricard.[841] The beer market is similarly concentrated.[842]

Important factors of competitiveness in the alcoholic beverage industry include the cost of distribution (which is often influenced by regulations), brand reputation and recognition, taxes and widespread price controls, and nearly prohibitive tariffs.

The Indian market is influenced by high taxes on alcohol and by a wide range of regulations at the state level. Most states impose both high taxes and price controls on alcohol. There are excise taxes on alcoholic beverages and some of the raw material inputs shipped between Indian states, which has led some producers to establish facilities in every state in which they plan to distribute their product.[843] The price controls limit producers' ability to pass higher production costs on to the consumer.[844]

The factors above tend to favor domestic producers, which are big enough to operate in multiple locations in India and are well informed about the varying state tax and regulatory regimes. Additionally, India bans the advertising of alcoholic beverages. This preserves an advantage for domestic producers, as consumers are more likely to rely on brands they already

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[840] Indigo Edge, "The Indian Liquor Industry," June 2013.
[841] Crédit Suisse, Indian Spirits Market, September 27, 2012.
[842] Indigo Edge, "The Indian Liquor Industry," June 2013.
[843] USDA, FAS, "India: Wine Market Update 2012," December 2012, 4; Pardeshi and Joshi, "India Consumer: Alcoholic Beverages," April 18, 2012.
[844] Pardeshi and Joshi, "India Consumer: Alcoholic Beverages," April 18, 2012, 4.

recognize.[845] The market is also protected by high import tariffs, ranging from 100 to 150 percent.[846] As a result, only 3 percent of the distilled spirits and beer consumed in India is imported.[847] Despite the high import tariffs, U.S. companies primarily attempt to serve the market through exports rather than investment.

Wheat and Rice

Wheat and rice are among the agricultural products most affected by Indian policies, though India is a relatively low-cost producer of a wide variety of agricultural products and is largely self-sufficient in many commodities. Indian producers of wheat and rice, and agricultural products more broadly, are competitive in this industry in large part due to low labor costs and government input subsidies, as well as natural resource endowments.

Agricultural wages are much lower in India than in the United States. Agricultural labor costs are about Rs 173 per day in West Bengal and Rs 273 per day in Punjab, the two Indian states with the highest rice production; in U.S. dollars, these costs come to a little over $3 and about $5, respectively.[848] In comparison, the average wage for crop, nursery, and greenhouse workers in the United States was $9.62 per hour in May 2011.[849] India is also well endowed with arable land. Arable land accounts for 52.5 percent of total land area in India, compared to 8.7 percent in Brazil, 11.3 percent in China, and 17.0 percent in the United States.[850]

India's farm-level price[851] for rice is typically significantly lower than the price in the United States. Over marketing year (MY) 2008/09 to MY 2012/13, the price for Indian unmilled rice ranged from 50 percent of the price for U.S. unmilled rice in MY 2008/09 to 78 percent of the U.S. price in MY 2010/11. Wheat prices have been closer to the U.S. average, ranging from 87 percent of U.S. prices in MY 2012/13 to 130 percent of U.S. prices in MY 2009/10. India's farmers benefit from fertilizer and fuel subsidies, which lowers the costs of these inputs compared to the United States.[852]

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[845] Pardeshi and Joshi, "India Consumer: Alcoholic Beverages," April 18, 2012, 3.
[846] Goyal, *BIG's Easy Reference Customs Tariff 2014,* 2014.
[847] Pardeshi and Joshi, "India Consumer: Alcoholic Beverages," April 18, 2012. In the small, niche market for wine, about 30 percent of consumption is imported.
[848] Government of India, Ministry of Agriculture, Commission for Agricultural Costs and Prices, "Price Policy for Kharif Crops," Annex Table 4.2. Labor costs as of December 2012.
[849] USDA, ERS, "Farm Labor" (accessed October 23, 2014).
[850] World Bank, World Development Indicators, Arable land (% of land area) (accessed October 23, 2014).
[851] Based on minimum support prices (MSP). All prices in this paragraph are the average farm-level price.
[852] USDA, ERS, Commodity Costs and Returns, Recent Costs and Returns: Wheat, 2009–2013; USDA, ERS, Commodity Costs and Returns, Recent Costs and Returns: Rice, 2006–2013.

Chemicals and Textiles

Within the chemicals and textiles sector, the pharmaceutical industry is most affected by Indian industrial policies. Significant factors of competitiveness in this sector include a skilled workforce, labor costs, and India's domestic policy from 1970 to 2005, which did not protect patents.

Pharmaceuticals

India's pharmaceutical industry is the world's second largest in terms of volume, after that of the United States, and India accounts for about 10 percent of the volume of global production.[853] India's pharmaceutical consumption is valued at $27.4 billion and has grown at 10 percent or more per year in recent years.[854] Consumption is dominated by generic drugs, which account for roughly 75 percent of the market by volume.[855] Indian companies are very competitive with foreign companies in generics production, because of the highly skilled workforce in this industry, along with low labor costs. Additionally, from 1970 to 2005, the Indian government did not grant patents for pharmaceutical products. During this time, pharmaceutical companies in India started operations focused on the production of generic medicines and were able to develop efficient, low-cost production of bulk drugs and drug formulations. India's pharmaceutical industry also has the support of government programs, such as a venture capital fund to boost drug discovery and the Pharma Vision 2020 program. The latter initiative aims to make India a major hub for end-to-end drug discovery, from early research through clinical trials and final regulatory approval.[856]

As a result, Indian companies such as Sun Pharma, Dr. Reddy's Laboratories, and Cipla all have a strong international presence, and the local market is primarily supplied by domestic companies. Moreover, India's pharmaceutical exports have grown steadily in the last decade and have accounted for between 4 and 5 percent of India's total exports.[857] The United States is the largest overseas market for Indian pharmaceutical exporters. Exports of off-patent generic drugs have shown strong growth in recent years due to the expiration of patents for a number of blockbuster drugs.[858]

However, Indian companies are generally not competitive with foreign companies in the development of new drugs, in large part because the process of developing new drugs requires different skills, technology, infrastructure, and investment than does developing generics. As a

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[853] EIU, India Industry Report: Healthcare, 2014, 6.
[854] Nishith Desai Associates, "The Indian Pharmaceutical Industry," April 2014.
[855] EIU, India Industry Report: Healthcare, 2014, 6.
[856] India Brand Equity Foundation, "Pharmaceuticals, March 2013," 22.
[857] Government of India, Department of Pharmaceuticals, Annual Report 2012–13 (accessed May 15, 2014).
[858] EIU, *India Industry Report: Healthcare,* 2014, 6.

result, Indian companies appear to have been reluctant to enter this area. India's pharmaceutical companies are increasing their research and development (R&D) spending on the development of new drugs, however. One area where Indian companies are making progress is in the development of biosimilars,[859] a relatively new area of research and one where Indian companies may be competitive with foreign companies. For example, Dr. Reddy's Laboratories has invested heavily in the production of biosimilars and has four biosimilar products on the market in India and some Latin American countries.[860]

Mergers and acquisitions in recent years have increased the market share of larger, multinational firms.[861] Sun Pharmaceuticals recently acquired Ranbaxy to create the largest generic drug company in India. Other Indian firms with an international presence include Dr. Reddy's Laboratories, Lupin Pharmaceuticals, and Cipla.

Other Manufacturing

"Other manufacturing" consists of industries making a number of different manufactured products. Motor vehicles and solar energy products are industries in this sector which are particularly affected by Indian policies. Competitiveness factors in these industries include labor costs and a skilled workforce, in conjunction with domestic policies such as local-content requirements in solar products and high tariffs in motor vehicles.

Motor Vehicles[862]

India's motor vehicle market is currently the sixth-largest in the world, but is expected to become the third-largest market by 2016.[863] India's industry encompasses both domestic players and foreign-owned companies. Japanese-Indian joint venture Maruti Suzuki led in the domestic production of passenger vehicles with a 32 percent share in 2013, followed by Korean-owned Hyundai Motors India Ltd. at 17 percent, and domestic Indian producers Tata at 14 percent and Mahindra & Mahindra at a 12 percent share.[864] U.S.-owned producers Ford and GM had the seventh- and ninth-largest production shares, at 3 and 2 percent, respectively.

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[859] Biosimilars are medicines that are similar in terms of quality, safety, and efficacy to already licensed biotherapeutic products. Biosimilars are typically produced by a living organism rather than by traditional chemical synthesis. WHO, *Guidelines on Evaluation of Similar Biotherapeutic Products*, 2009.
[860] EIU, "Key Player—Dr. Reddy's Laboratories," May 16, 2014.
[861] OPPI, *46th Annual Report 2011-2012* (accessed May 15, 2013).
[862] Motor vehicles include a wide range of vehicles, ranging from small passenger cars to heavy-duty trucks for the transport of goods. Relevant subheadings under the international Harmonized Commodity Description and Coding System (HS) include 8701.20, 8702.10, 8702.90, 8703.22, 8703.23, 8703.24, 8703.31, 8703.32, 8703.33, 8704.21, 8704.22, 8704.23, 8704.31, 8704.32, 8704.90, 8705.30, 8705.40, 8705.90, and. 8706.00.
[863] *Economic Times,* "India to Be World's Third Largest Automotive Market," July 24, 2013.
[864] Binder, *Ward's Automotive Yearbook,* 2014, 32.

India's government policies, discussed in chapter 4, encourage local production of vehicles over imports, which face very high tariff rates and are therefore not competitively priced with vehicles produced in India. Imported motor vehicles represented only 1.3 percent of total vehicle sales in India in 2013.[865] Automotive producers in India are able to source lower-cost raw material inputs like steel, rubber, and components from India or Southeast Asian countries.[866] India's automotive industry has access to a skilled labor force at competitive wages. Many workers speak English and hold advanced engineering degrees.

However, domestically owned producers face competitive disadvantages in the Indian market as well. One of these is Indian consumers' brand preferences. Indian consumers view Tata as having a good selection of small vehicles and a good distribution network, but a weak brand reputation for quality. Mahindra & Mahindra has a strong distribution network and strong consumer following, but has not been able to expand past the role of a niche sport utility vehicle (SUV) manufacturer.[867]

Solar Energy

India has a large solar photovoltaic (PV) market, ranking fifth globally in 2013.[868] A significant PV industry has developed to supply both domestic and foreign markets, but India's industry has struggled to compete with foreign producers. One of the main challenges for Indian companies in this market is their lack of scale and high duties on critical imports, which raise their input costs; by some estimates, overall module production costs in India are substantially higher than in other Asian countries.[869] Further, in spite of the Jawaharlal Nehru National Solar Mission (JNNSM) program that requires the use of local content in certain solar projects, India's production of many of the critical inputs to PV technologies, including polysilicon ingots and wafers, is limited.[870] Additionally, some industry representatives have stated that Indian producers' lack of automation and insufficient investment in new technology is a challenge in competing with imports.[871] Further, Indian manufacturers are at a disadvantage relative to

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[865] GTIS, Global Trade Atlas database (accessed September 9, 2014); Binder, *Ward's Automotive Yearbook,* 2014, 33.
[866] Borgave and Chaudhari, "India Auto Component Industry: Challenges Ahead," 2010.
[867] Gould, "The Untapped Potential of the Indian Auto Market," January 22, 2014.
[868] EPIA, *Global Outlook for Photovoltaics until 2016,* May 2012, 50; EPIA, *Global Market Outlook for Photovoltaics 2013–2017,* 2013, 31; EPIA, *Global Market Outlook for Photovoltaics 2014–2018,* June 2014, 9; MNRE, "Commissioning Status of Grid Connected Solar Power," August 11, 2014; Solarbuzz, "Top 10 Solar PV Markets Illustrate Shifts," March 11, 2014.
[869] WTO, Tariff Analysis Online (accessed May 14, 2014); FICCI, Subgroup on Securing Solar Supply Chain, *Securing the Supply Chain for Solar in India,* n.d., 29–30 (accessed September 17, 2014); ESMAP, *Paving the Way for a Transformational Future,* 2013, 21–22; industry representative, interview by USITC staff, June 23, 2014.
[870] For a more detailed discussion of solar PV technologies, see chapter 6. Industry representative, interview by USITC staff, Bangalore, June 19, 2014; industry representative, interview by USITC staff, Chennai, June 28, 2014.
[871] Industry representative, interview by USITC staff, Bangalore, June 19, 2014; industry representative, interview by USITC staff, Chennai, June 28, 2014.

some of their foreign competitors due to the higher cost of financing in India. U.S. companies, for example, have benefited in India from their ability to access low cost-financing through the U.S. Export-Import Bank.[872]

In contrast to solar PV, there is a much smaller market for concentrated solar power (CSP),[873] with India's cumulative CSP installations at the end of 2013 less than 6 percent of the size of its total PV installations.[874] India's domestic industry is capable of supplying components for over half the value of a CSP plant, including products such as steel support structures, certain power plant components, and piping. However, CSP is a relatively new industry in India, and therefore the country has only limited ability to produce specialized CSP components, such as mirrors, receiver tubes, and heat transfer fluids. While Indian industry may have benefited from the JNNSM program to some extent, currently these components are made exclusively by a small number of U.S. and European companies. However, Indian production capacity in some of these areas might expand if domestic demand increases.[875]

Information and Communications Technology

The ICT sector in this report encompasses both goods and services production. In the global ICT goods industries, which include desktop computers, televisions, and mobile phones, factors of competitiveness include the state of the information technology (IT) infrastructure and access to global supply chains and financing. India's poor access to a number of these factors suppresses domestic industry growth. ICT services largely consist of telecommunications. Factors of competitiveness in this industry globally include experience with value-added services and newer-generation networks, which are not currently common among Indian companies.

ICT Goods

India's ICT consumption, estimated at nearly $200 billion in 2012, is the fifth largest in the world.[876] However, more than three-quarters of the domestic industry consists of low- and medium-value-added manufacturing of various ICT goods, such as desktop computers, LCD/LED televisions (TVs with liquid crystal display and light-emitting diode backlighting), and mobile

[872] Deign, "What Is behind India's Love Affair with Thin Film?" February 14, 2012; Choudhury, "Update: Indian Solar Industry Suffocated," August 20, 2012.
[873] For a more detailed discussion of CSP technologies, see chapter 6.
[874] REN21, Renewables 2014 Global Status Report, 2014, 15.
[875] In 2013, Areva indicated that the cost of building a CSP in India had declined 35 percent since 2010 due to the increased availability of locally produced products. Areva Solar, "Areva Says India Solar-Thermal Costs Fell," September 25, 2013; industry representative, telephone interview by USITC staff, April 1, 2014; Stromsta, "Schott Solar Considers CSP Equipment Production," January 6, 2013; Schweitzer, "Pioneer Again—EuroTrough Goes India," n.d., 8 (September 8, 2014); World Bank, Development of Local Supply Chain, February 2013, 39–40.
[876] TIA, "TIA Public Comments," April 9, 2014.

handsets.[877] The industry is considered to be the poorest performer among the BRICS economies (encompassing Brazil, Russia, India, China, and South Africa), due largely to the country's low standing in such factors of competitiveness as digital infrastructure, corporate tax rates, and bureaucratic and administrative costs.[878] All of these factors have likely discouraged greater FDI in India's ICT sector and prevented Indian-owned manufacturers from rising higher in the production value chain, in spite of LCRs in this industry. For instance, out of the 148 countries surveyed by the World Economic Forum for its 2014 global IT report, India's IT infrastructure ranked 119th, while the political and regulatory environment ranked 73rd. As a result, India imports nearly 60 percent of its ICT goods, with some products almost entirely supplied by imports.[879]

Telecommunications Services

There are two types of telecommunication services: basic and value-added. In the area of basic services, such as point-to-point calls, Indian telecom companies are highly competitive, with a rapidly expanding wireless subscriber base and increasing wireless teledensity.[880] However, Indian companies lack the experience of U.S. and European Union telecom providers in value-added services, such as voicemail and email on phones. As broadband and newer-generation wireless networks become increasingly accessible in large population centers, and with few to no barriers to foreign investment, foreign telecom companies disproportionately provide more value-added services. However, knowledge spillovers and the broadening accessibility of newer-generation networks should allow Indian companies to become competitive in the higher-end value-added areas quickly.[881] Some Indian companies, such as Bharti Airtel, already are competing with Western telecom providers in these areas.[882]

Retail and Wholesale Services

Retail services are more affected by Indian policies than are wholesale services. Important factors of competitiveness in the retail industry include efficiencies in the back-end activities of storage and distribution. India's poor infrastructure raises costs for all providers in the Indian market, but domestic policies that prevent foreign investment have kept local providers dominant.

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[877] Low- and medium-value-added assembly translates into activities that contribute between 20 and 50 percent of value added to the final good. This activity focuses on the assembly of finished ICT goods, with limited local sourcing of inputs and negligible goods design. IESA, Indian ESDM Market, 2014.
[878] WEF*, The Global Information Technology Report 2014,* 2014.
[879] OECD, "The Information and Communication Technology Sector," June 2010.
[880] Teledensity is an indicator of telecom penetration and is the measure of number of phones per unit of population. Government of India, DoT, *Annual Report, 2012–13*, n.d. (accessed October 27, 2014).
[881] OECD, "The Information and Communication Technology Sector," June 2010.
[882] EIU, "2012 India Country Commerce Report," 2014.

Retail

Due to the FDI restrictions that restrict foreign multibrand retailers[883] from entering this market, the domestic retailing industry faces little pressure, remaining dominant despite its inefficiencies in storage and distribution.[884] For instance, because the country has limited refrigerated distribution infrastructure, many foodstuffs must be produced and sold locally. The food and grocery retailing industry, which accounts for 70 percent of all retailing in India and 10 percent of Indian gross domestic product (GDP), primarily consists of small, private companies.[885] If barriers to entry were removed, Indian companies would not likely be competitive with multinational companies in back-end activities and infrastructure financing.

Due to its size and the growth of the country's middle class, the Indian retail market is a highly attractive growth market for global retailers and would likely see an influx of foreign investment if barriers were removed.[886] Experts note the lack of competitiveness of domestic companies and state that the entry of more efficient foreign companies has led to the exit of some domestic companies with lower labor productivities.[887]

Because of high Indian demand for high-end foreign-branded products, such as products of well-known fashion labels, foreign companies compete with domestic companies in single-brand retail operations in high-density, relatively wealthy population centers, in spite of barriers. However, Indian policy barriers prevent foreign-owned retailers from competing with domestic companies that supply mass-market consumer products and products without significant brand recognition that are mostly sold by large Indian retailers.[888]

Financial Services

The financial services sector includes the banking and insurance industries. Important factors of competitiveness in these industries are economies of scale, quick adoption of advanced technology, awareness of individual consumer needs, and domestic policies that include limits on foreign investment and state-owned enterprises.

Banking

Factors that may affect a commercial bank's competitiveness in the global market include sound management, economies of scale, the development and use of advanced technologies,

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[883] Single-brand retail stores sell merchandise from only one brand, such as a single shoe manufacturer. Multibrand stores, like department stores or grocery stores in the United States, sell merchandise from many different brands. Chari and Madhav Raghavan, "Foreign Direct Investment in India's Retail Bazaar," 2012.
[884] Industry representative, interview by USITC staff, Washington D.C., October 24, 2014.
[885] Kalhan and Franz, 2009.
[886] Chari and Raghavan, "Foreign Direct Investment in India's Retail Bazaar," 2012, 5.
[887] Ibid., 6.
[888] Ibid., 10.

and the opportunity to generate non-interest revenue.[889] In the domestic market, Indian banks are competitive with foreign banks in regard to many of these factors. Though foreign banks may introduce advanced technology first, Indian banks benefit from the market presence of technologically advanced companies and often adopt technologies that foreign companies bring to the market. Several Indian measures restricting bank establishment may also give domestic banks a competitive edge. These include limits on the share and form of foreign investment; required screening and prior approval for foreign establishments; quotas on the licensing and branching of foreign banks; and requirements that at least 50 percent of bank directors be residents or nationals of India.

Once established in the Indian market, however, foreign banks face few if any restrictions on operations; Indian banks largely compete on much the same terms as their foreign competitors. As noted in chapter 8, India does maintain provisions that require banks to direct a certain share of lending to small companies, agriculture, and other priority sectors.[890] While such requirements are imposed on all banks, some foreign banks contend that these measures put them at a disadvantage, as they may have less experience in structuring loans for priority sector clients than domestic banks do.[891]

With respect to certain financial measures, profits per employee and return on assets were higher on average for foreign banks during 2012–13 than for all banks operating in India, while return on equity was lower for foreign banks than for all banks.[892] Despite the strong performance of foreign banks in India, the top Indian-owned banks are substantially larger than foreign-owned banking entities in India and dominate the country's banking market. During 2012–13, India had a total of 89 commercial banks, 43 of which were foreign. However, foreign banks represented only a small share of Indian banking activity during that time, accounting for 3.9 percent of commercial bank deposits, 4.5 percent of loans, and 0.4 percent of bank offices in India.

Foreign banks generally provide services to home-country firms that have a presence in India and offer Indian individuals and firms foreign market access. One industry representative indicated that Indian-owned banks are particularly competitive providers of lending and project financing in their own domestic market, and identified the foreign exchange market as a segment in which competition between foreign- and Indian-owned banks is significant.[893]

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[889] Hoopes, *Global Commercial Banks,* February 2014, 17.
[890] USITC, Services Nontariff Measures (NTM) Database (accessed May 9, 2014).
[891] Industry representative, interview by USITC staff, Mumbai, June 26, 2014; industry representative, interview by USITC staff, New Delhi, June 26, 2014.
[892] Reserve Bank of India, *A Profile of Banks 2012–13,* 2013, 1 and 8.
[893] Industry representative, interview by USITC staff, Mumbai, June 24, 2014.

India's relatively strong performance in the global financial services market also suggests that Indian banks are increasingly able to compete with foreign players. India was the world's 11th-largest exporter of financial services in 2012, with financial services exports totaling $5.4 billion.[894] These exports were far lower than those of the United States (which was the world's largest single-country exporter of financial services, with $76.8 billion in exports) and Singapore and Hong Kong (which were the largest Asian exporters of financial services, with $16.0 billion and $15.6 billion, respectively, in exports). However, Indian financial services exports were higher than those of other large Asian economies, such as Japan ($4.6 billion) and Korea ($3.2 billion).

Insurance

Rising incomes and a growing population make India an important market for foreign insurers, although Indian companies maintain high levels of market share across all segments of the insurance market. India's low insurance penetration levels suggest that the market is undeveloped. In the global life and non-life insurance markets, India's global market share in 2012 was 2.0 and 0.7 percent, ranking India 10th and 19th, respectively, among the 88 countries for which data are available.[895] Although annual premiums per person in India have grown consistently since 2001,[896] they remain below that of the average developing country.[897]

General Insurance Corporation Reinsurance (GIC Re), a state-owned enterprise, is the sole reinsurer in India. Based on total premium income, the market share of the state-owned Life Insurance Corporation of India increased in 2012 to almost 73 percent.[898] The market share of state-owned companies in the general[899] insurance industry was 59 percent in 2011.[900]

Foreign insurers with a presence in India are major global multinationals that primarily serve corporate international clients already familiar with their brand. Given their size and international recognition, foreign insurers have distinct advantages in terms of both economies of scale and economies of scope—a wider range of services. However, Indian insurance agencies and brokers benefit from their deep local knowledge and awareness of consumer needs. Current domestic policies may also prevent an increase in foreign insurers' market

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[894] IMF data on financial services include financial intermediary services and auxiliary financial services supplied by financial firms and banks, but do not include insurance services or pension fund services. IMF, *Balance of Payments and International Investment Position,* November 2013, 172.
[895] IRDA, Annual Report 2012–13, 2014, 17–18.
[896] Ibid., 18.
[897] Capgemini and EFMA, "World Insurance Report 2013," 2013, 13.
[898] IRDA, Annual Report 2012–13, 2014, 18–21.
[899] According to a 2009 report published by PricewaterhouseCoopers, general insurance in India covers fire, marine, and other property/casualty insurance lines. Pricewaterhouse Coopers, "International Comparison of Insurance Taxation," May 2009.
[900] Sodhi, "An Indian Summer for Actuaries," July 1, 2012.

share. Presently, due to equity caps on investment, most multinational insurance companies in the Indian market maintain a partnership with a domestic carrier.

Content and Media Providers

Audiovisual services are an important industry within the content and media sector, and one in which domestic-owned businesses are very competitive. An important factor of competitiveness here is the preference for content reflecting Indian culture and language.

Audiovisual Services

Domestic companies dominate the Indian market for audiovisual services: domestically produced films account for about 95 percent of box office revenues in India,[901] and at least 16 of the top 25 motion picture, sound recording, and broadcasting companies in India are Indian-owned.[902] But the growing number of multiplexes in the Indian market, together with rapid growth in foreign film dubbing, has led to a modest increase in foreign films' share of the Indian box office within the last few years, from about 5 percent to 8 percent. In 2012, India was the world's top market in terms of the number of films produced, but only the world's sixth-largest market in terms of box office revenues. India also produces a large amount of music that enjoys a high degree of popularity in the domestic market as well as in international markets to which Indians migrate, such as the Middle East and the United States.[903]

India maintains some measures regulating the foreign provision of audiovisual services that may place domestic suppliers at an advantage. These include a 74 percent cap on foreign ownership in many segments of the broadcasting industry, with government approval required for foreign investment exceeding 49 percent; a requirement that foreign companies that broadcast programming in India must maintain a presence in the country and pay fees for each channel transmitted into India;[904] and taxes on temporary intellectual property transfers that reportedly subject imported films to what is essentially double taxation.[905] However, as noted earlier, deep cultural knowledge and consumer preferences for local content are other important factors that make Indian-owned companies more competitive in this industry.

Foreign-owned firms have adapted to the policy environment in several ways. On occasion, U.S. and other foreign companies will co-produce Indian films with a local partner.[906] A few large foreign audiovisual companies have established a presence in India, and some have acquired

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[901] *Guardian,* "Can Indian Film Ever Go Global?" September 6, 2011.
[902] Bureau van Dijk, Orbis Companies Database.
[903] Industry representative, interview by USITC staff, Mumbai, June 23, 2014; industry representative, telephone interview by USITC staff, July 1, 2014.
[904] MPAA, "Trade Barriers to Exports of U.S. Filmed Entertainment," October 15, 2012.
[905] MPAA, written submission to the United States Trade Representative, October 22, 2013.
[906] Industry representative, interview by USITC staff, Washington, DC, April 22, 2014.

Indian studios.[907] Star India Private Limited—a subsidiary of U.S.-owned 21st Century Fox—is the largest television programming and broadcasting firm in India identified by ORBIS. Disney, which established a presence in India in 2004, produces and distributes films and broadcasts several television channels in the country.[908] Overall, however, U.S. companies hold only a small share of the Indian motion picture market.[909]

Other Services

The "other services" sector includes a number of different industries, including architecture, engineering, and legal services. Common factors of competitiveness in these industries include a skilled and educated workforce, low labor costs, and knowledge of local institutions and culture. Domestic policies that prevent foreign involvement in some of these industries are also important factors of competitiveness in this sector.

Architects

Foreign and domestic companies in architecture services tend to focus on different areas of the market. An evolving national demand for modern infrastructure and higher value per square foot may encourage many Indian consumers to continue to seek foreign over domestic architects. Foreign architects are more likely to have the technical experience designing with the resources required for these types of projects. However, as with many professional services industries, domestic architects offer a much deeper understanding of local land dynamics, tax laws, construction materials, design philosophies, and cultural idiosyncracies than their foreign counterparts. [910] Partnerships in architecture services between foreign and Indian companies are apparently considered to be mutually beneficial. Thus, enforcement of the 1972 Architects Act barring foreign practitioners has been minimal.[911]

Engineering

India graduates a large and growing number of engineers each year.[912] In general, domestic Indian engineering companies have a well-qualified, low-cost workforce that understands local regulations and the local market better than foreign companies do.[913] Opinion about the suitability of Indian engineering graduates for employment with multinational companies, however, varies. A 2005 study by the McKinsey Global Institute found that only 25 percent of

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[907] Industry representative, interview by USITC staff, Mumbai, June 28, 2014.
[908] Disney India website, "Company Overview," http://corporate.disney.in/about-disney/company-overview (accessed July 30, 2014); industry representative, telephone interview by USITC staff, July 1, 2014.
[909] Industry representative, interview by USITC staff, Washington, DC, April 22, 2014.
[910] Sarthak, "Developers Hire Foreign Architects," August 1, 2008.
[911] Enforcement was weak until a recent decision by the New Delhi high court in 2012 revoked the investment approval granted to Singapore-based RSP Architects back in 1996, finding it in violation of the 1972 Act.
[912] NAS, *Rising Above the Gathering Storm*, 2007, 16.
[913] Goyal and Mukherjee, "Movement of Engineers and Architects," April 2013.

Indian engineering graduates were suitable for work in multinational companies.[914] Employability is likely related to the quality of education received, which varies among Indian universities. Local companies and multinationals feel confident in the skill level of top graduates. But, despite the large number of Indian engineers, companies continue to use foreign nationals for the most highly skilled positions, particularly in civil engineering.[915]

Legal

India's domestic legal industry consists primarily of solo practitioners who focus on individual litigation in district courts. Deep understanding of the local systems and the consumer in individual litigation, along with the prohibition on the foreign provision of legal services, gives domestic legal professionals a competitive advantage over foreigners in this area.

While a few elite Indian firms offer corporate legal counsel, these companies are small compared to their foreign counterparts. Even larger Indian law firms average only about 50 associates per location,[916] indicating a lack of the scale needed to allow Indian companies to compete with foreign firms in corporate counsel.

Service quality is one of the most important competitive factors for legal practices.[917] Only a small segment of the Indian legal market may meet the service standards of some of the legal multinational companies. Because of India's legal barriers on foreign lawyers, U.S. firms provide services to Indian clients from satellite offices in Singapore, Hong Kong, or Dubai. Generally staffed by both Indian and foreign lawyers, these offices attract clientele as a result of providing higher-quality services and addressing the growing demand for expertise in international/foreign law.

Survey Results on the Competitiveness of Indian Companies

In many cases, Indian companies supply competing products at lower prices than U.S. companies can. As noted earlier, these price differences are affected by various factors of competitiveness, including domestic policies. In other cases, the higher price of U.S. goods and services may reflect a higher-quality product provided by U.S. companies.

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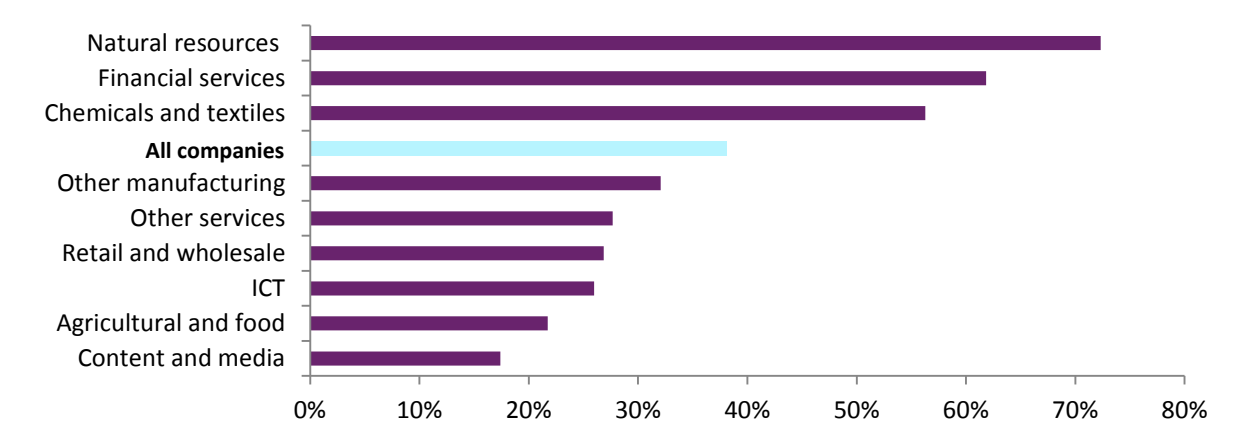
[914] Farrell et al. *The Emerging Global Labor Market*, 2005, 23.
[915] Gereffi et al., "Getting the Numbers Right: International Engineering Education," 2008, 13–25.
[916] Krishnan, "Globetrotting Law Firms," 2010.
[917] IBISWorld, *Attorneys in China,* 2014, 19.

According to the Commission survey, 38.2 percent of U.S. companies engaged in India[918] face direct competition from Indian companies that produce goods or services of equivalent quality. More than half of the companies in the natural resources, financial services, and chemicals and textiles manufacturing sectors faced such competition (figure 9.1).

Figure 9.1: Share of U.S. companies producing goods or services that have equivalent quality to and compete directly with those of Indian competitors in the Indian market, by sector



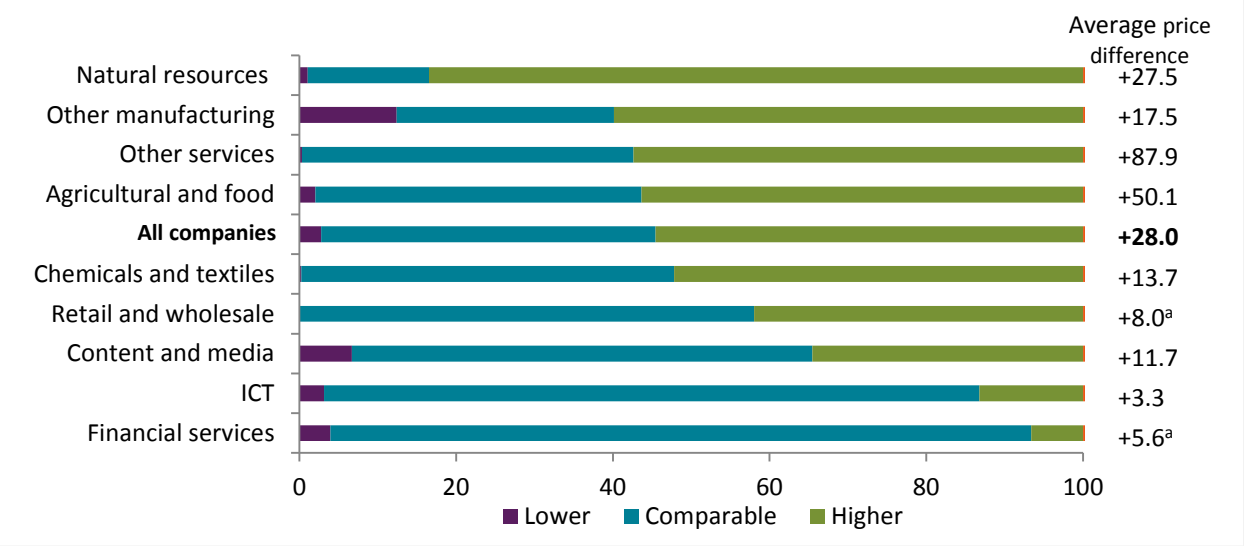
Source: USITC calculations of weighted responses to the Commission questionnaire (question 2.4A).
Note: See appendix Table I.38 for underlying data for this figure.

The Commission's survey controlled for non-price factors of competition by asking U.S. companies only about Indian products of equivalent quality that compete directly with U.S. products. Hence this analysis of survey results focuses on price, holding all other factors of competition constant.

Overall, over half (54.5 percent) of U.S. companies reported that their products were priced higher than competing Indian products in the Indian market (figure 9.2). Few U.S. companies offer goods or services with prices lower than competing Indian products. In several industries, the majority of U.S. companies report that U.S. and Indian prices are comparable. These industries include content and media services, financial services, and the ICT sector. About half of U.S. companies in the chemicals and textiles sectors have products that are priced higher than their competitors'.

[918] As noted in chapter 1, the surveyed industries account for just over one-third of all U.S. industries. The Commission included industries in the nine industrial sectors most likely to be affected by Indian policies. Unless noted otherwise, references to "U.S. companies" below should be interpreted as including only companies in surveyed industries.

Figure 9.2: Shares of U.S. companies with prices lower than, comparable to, or higher than equivalent Indian goods and services, percent



Source: USITC calculations of weighted responses to the Commission questionnaire (question 2.4B).
Note: See appendix Table I.39 for underlying data for this figure.
[a] Low-precision estimate, with RSE greater than 50 percent.

The sectors with the highest share of U.S. companies reporting prices above those of their Indian competitors—natural resources and other manufacturing—do not have the highest average price differences.[919] Hence, some prices of U.S. goods in these sectors must be relatively close to the price of Indian goods.

The agriculture and other services sectors, on the other hand, have substantially higher average price differences. Some products in these sectors must therefore be priced well above their Indian counterparts. For example, in professional services, such as architecture, management, and consulting services, U.S. companies often compete in the Indian market for large, high-profile contracts, for which higher U.S. prices may reflect additional services. In the agricultural sector, alcohol and processed or frozen foods producers reported the highest price differences. For alcohol products, as discussed above, high tariffs, high excise taxes on inputs, varying price controls between states, and other regulations have contributed to the lower costs of Indian products.

[919] U.S. companies engaged in India were asked to estimate the percent by which their goods or services were higher or lower than directly competing Indian products.

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Appendix A
Request Letter

Congress of the United States

Washington, DC 20510

DOCKET NUMBER
2972
Office of the Secretary
Int'l Trade Commission

2013 AUG -2 PM 3: 06

RECEIVED
OFC OF THE SECRETARY
US INTL TRADE COMM

August 2, 2013

The Honorable Irving A. Williamson
Chairman
U.S. International Trade Commission
500 E Street, S.W.
Washington, DC 20436

Dear Chairman Williamson,

We are writing to request that the U.S. International Trade Commission (Commission) conduct an investigation under section 332(g) of the Tariff Act of 1930 (19 U.S.C. §1332(g)) regarding Indian industrial policies that discriminate against U.S. imports and investment for the sake of supporting Indian domestic industries, and the effect that those barriers have on the U.S. economy and U.S. jobs.

India is an important strategic partner of the United States, yet U.S. exports of goods and services to India remain low. In 2011, U.S. goods exports to India – the world's second most populous country – were just $22.3 billion. Similarly, recent data indicates that U.S. private commercial services exports, sales of services by majority U.S.-owned affiliates, and U.S. foreign direct investment (FDI) in India were also low.

India has risen rapidly and lifted millions out of poverty in the wake of its significant market opening reforms and its efforts to seek foreign investment in certain sectors of its economy over the past two decades. However, India maintains and continues to put in place measures that appear to contradict its stated domestic growth objectives. For example, India has a complex, non-transparent tariff and fee system and byzantine and overburdensome customs procedures, and it maintains significant tariff and non-tariff barriers to U.S. goods and service participation in sectors including retail and agriculture. More recently, India has introduced new localization-forcing measures such as local content and technology transfer requirements in the green technology and information and communications technology sectors. And India has not yet taken action to fully and effectively protect and enforce copyrights, including in the digital environment, and has applied its patent law in a discriminatory manner, particularly against innovative U.S. pharmaceutical companies, so as to advantage its domestic industries.

Beyond any particular action India has taken, the government has enunciated a broader policy objective to develop and support Indian domestic industries by forcing foreign firms to use local facilities and suppliers and to transfer their intellectual property to Indian entities. Government documents indicate that India is likely to adopt additional measures to this end, and expand these sorts of

measures to additional sectors, creating significant concern and uncertainty for U.S. exporters and investors.

Finally, we are very concerned about the broader impact that India's trade policy may be having on the global trading system, both in terms of the model it is setting for other countries and the drag it is exerting on multilateral trade negotiations.

Despite the widespread evidence of these existing and anticipated barriers to U.S. exports and investment in India, the U.S. Government has not conducted a comprehensive economic analysis of the effect of Indian trade policies on the U.S. economy and U.S. jobs. To assist us in better understanding the effects of these existing and anticipated barriers to U.S. exports and investment in India, we request the Commission to provide a report covering the items described below.

Based on a review and analysis of data and information from available sources, including a survey of U.S. firms, we request the Commission to provide:

- An overview of trends and policies in India affecting trade and foreign direct investment in that country's agriculture, manufacturing and service sectors, as well as the overall business environment. The overview should take a historic view, but focus on the period since 2003. It should include examples of changes in tariff and nontariff measures, including measures related to the protection of intellectual property (IP) rights, and other actions taken by India's government to facilitate or restrict the inflow of trade and FDI.

- A description of (1) any significant restrictive trade and FDI policies currently maintained or recently adopted by India as identified by USITC research; (2) the sectors in the U.S. economy most affected by these restrictive policies; and (3) the general competitiveness of sectors in India's economy that are subject to the identified restrictions.

- Several case studies that examine the effects of particular restrictive measures on U.S. firms that export to or invest in India, or that have not done so because of the measures. To the extent feasible, the case studies should address the impact of the restrictive measures on both large and small and medium-sized enterprises.

- To the extent feasible, a quantitative analysis of the economic effects of India's identified restrictive measures on the U.S. economy as a whole, on U.S. trade and investment, and on selected sectors of the U.S. economy.

- Based on the survey and analysis of results, and to the extent feasible, a summary of U.S. firms' perception of (1) recent changes in India's trade and investment policies in selected sectors and (2) the effects of these changes on U.S. firms' strategies towards India (e.g., reducing investment or altering

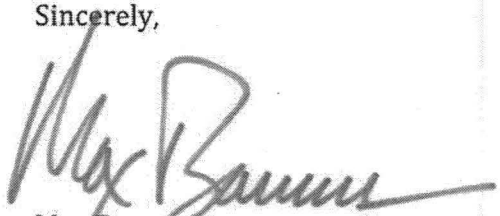
product mix), and analysis of whether the effects of these policy changes differ by firms' characteristics, such as size, IP-intensiveness, or export status.

We request that the Commission deliver the report to us by November 30, 2014.

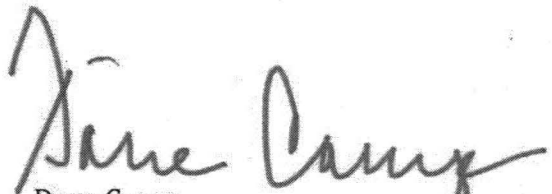
In preparing its report, we do not expect the Commission to make findings regarding the legal merits of any Indian laws or policies.

As we intend to make the report available to the public, we request that the Commission not include confidential business information in the report.

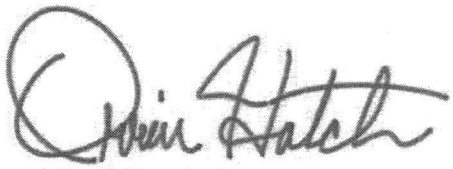
Sincerely,



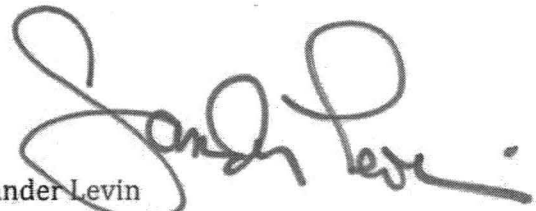
Max Baucus
Chairman
Senate Committee on Finance



Dave Camp
Chairman
House Committee on Ways and Means



Orrin Hatch
Ranking Member
Senate Committee on Finance



Sander Levin
Ranking Member
House Committee on Ways and Means

Appendix B
Federal Register Notices

implications. Through this consultation, the NIGC hopes to identify areas that need to be addressed to ensure that the Agency meets new regulatory challenges as technology develops. The Commission recognizes the necessity of engaging experts from the industry as it considers its options. To ensure that any decisions made benefit and protect the entire gaming industry, all points of view must be considered and decisions informed by the industry the NIGC regulates.

In compliance with Executive Order 13175, the NIGC will hold four consultations at the locations listed below. Every attempt was made to hold a consultation in each region and to coordinate with other established meetings when establishing this consultation schedule. Please RSVP to *consultation.rsvp@nigc.gov.*

Consultation Schedule

The Commission will be conducting government-to-government consultations with Tribes on this proposed rule at the following dates and locations:

- March 20, 2014 in Las Vegas, NV
- April 2, 2014 in Prior Lake, MN
- May 8, 2014 in Biloxi, MS
- May 14, 2014 in San Diego, CA

One or more of the consultations will include an option for Tribes to participate by telephone. For additional information on consultation locations and times, please refer to the consultation page on the NIGC Web site at *www.nigc.gov.*

Jonodev Chaudhuri,

Acting Chairman.

Daniel J. Little,

Associate Commissioner.

[FR Doc. 2014–02862 Filed 2–10–14; 8:45 am]

BILLING CODE 7565–01–P

INTERNATIONAL TRADE COMMISSION

[Investigation No. 332–543]

Trade, Investment, and Industrial Policies in India: Effects on the U.S. Economy; Addition of Second Day for Public Hearing

AGENCY: United States International Trade Commission.

ACTION: Notice of scheduling a second day for public hearing.

DATES: February 6, 2014.

SUMMARY: To accommodate the larger than expected number of requests to appear at the public hearing in this investigation scheduled to begin on February 13, 2014, the Commission will begin the hearing a day earlier, at 1 p.m. on February 12, 2014, and will continue the hearing at 9:30 a.m. on February 13, 2014 (as previously scheduled). The hearing will be held at the United States International Trade Commission Building, 500 E Street SW., Washington, DC, as previously announced. Commission staff is working with persons who filed requests to appear as to the day on which they appear. Requests to appear were due by January 21, 2014. All other dates and deadlines, including with respect to the filing of pre- and post-hearing briefs and statements and written submissions, remain the same as in the Commission's notice of investigation and hearing in this investigation, which was published in the **Federal Register** on September 5, 2013 (78 FR 54677).

ADDRESSES: All Commission offices, including the Commission's hearing rooms, are located in the United States International Trade Commission Building, 500 E Street SW., Washington, DC. All written submissions should be addressed to the Secretary, United States 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/edis3-internal/app.*

FOR FURTHER INFORMATION CONTACT: Project Leader Bill Powers (202–708–5405 or *william.powers@usitc.gov*) or Deputy Project Leader Renee Berry (202–205–3498 or *renee.berry@usitc.gov*) for information specific to this investigation. For information on the legal aspects of these investigations, contact William Gearhart of the Commission's Office of the General Counsel (202–205–3091 or *william.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 Internet server (*http://www.usitc.gov*). Persons with mobility impairments who will need special assistance in gaining access to the Commission should contact the Office of the Secretary at 202–205–2000.

By order of the Commission.

Issued: February 6, 2014.

Lisa R. Barton,

Acting Secretary to the Commission.

[FR Doc. 2014–02915 Filed 2–10–14; 8:45 am]

BILLING CODE 7020–02–P

DEPARTMENT OF JUSTICE

Notice of Lodging Proposed Consent Decree

In accordance with Departmental Policy, 28 CFR 50.7, notice is hereby given that a proposed Consent Decree in *Gasco Energy, Inc.* v. *Environmental Protection Agency and United States* v. *Gasco Energy, Inc.,* Civil Action No. 1:12-cv-1658–MSK–BNB, was lodged with the United States District Court for the District of Colorado on February 4, 2014.

This proposed Consent Decree concerns a complaint filed by Gasco Energy, Inc. (''Gasco'') under the Administrative Procedure Act, 5 U.S.C. 706, that seeks judicial review of an administrative order EPA issued to Gasco under Section 309 of the Clean Water Act, 33 U.S.C. 1319, and counterclaims filed by the United States and Intervenor Southern Utah Wilderness Alliance against Gasco under Sections 309(b) and (d) of the Clean Water Act, 33 U.S.C. 1319(b) and (d), to obtain injunctive relief from and impose civil penalties against Gasco for violating the Clean Water Act by discharging pollutants without a permit into waters of the United States. The proposed Consent Decree resolves these allegations by requiring Gasco to restore the impacted areas and to pay a civil penalty.

The Department of Justice will accept written comments relating to this proposed Consent Decree for thirty (30) days from the date of publication of this Notice. Please address comments to Alan D. Greenberg, United States Department of Justice, Environmental Defense Section, 999 18th Street, Suite 370—South Terrace, Denver, CO 80202 and refer to *United States* v. *Gasco Energy, Inc.,* DJ # 90–5–1–1–19544.

The proposed Consent Decree may be examined at the Clerk's Office, United States District Court for the District of Colorado, Alfred A. Arraj United States Courthouse, Room A105, 901 19th Street, Denver, CO 80294. In addition, the proposed Consent Decree may be examined electronically at *http://*

agreement includes, but is not limited to, acts and omissions of the patentee and their employees, agents, contractors, lessees, or any third party, arising out of or in connection with the use and/or occupancy of the patented real property which has already resulted or does hereafter result in (1) Violations of Federal, State, and local laws and regulations that are now, or may in the future become, applicable to the real property; (2) Judgments, claims or demands of any kind assessed against the United States; (3) Costs, expenses, or damages of any kind incurred by the United States; (4) Other releases or threatened releases of solid or hazardous waste(s) and/or hazardous substance(s), as defined by Federal or State environmental laws of, on, into or under land, property and other interests of the United States; (5) Other activities by which solid waste or hazardous substance(s) or waste, as defined by Federal and State environmental laws are generated, released, stored, used or otherwise disposed of on the patented real property, and any cleanup response, remedial action or other actions related in any manner to said solid or hazardous substance(s) or waste(s); or (6) Natural resource damages as defined by Federal and State law. This covenant shall be construed as running with the parcel of land patented or otherwise conveyed by the United States and may be enforced by the United States in a court of competent jurisdiction.

Conveyance of this land to the City of Truth Consequences is consistent with applicable Federal and county land use plans, and BLM policy.

On December 23, 2013, the land described above will be segregated from all other forms of appropriation under the public land laws, including the general mining laws, except for conveyance under the R&PP Act, leasing under the mineral leasing laws, and disposals under the mineral material disposal laws.

Classification Comments: Interested parties may submit comments involving the suitability of the land for a conveyance of a landfill. Comments on the classification are restricted to whether the land is physically suited for the proposal, whether the use will maximize the future use or uses of the land, whether the use is consistent with local planning and zoning, or if the use is consistent with State and Federal programs.

Application Comments: Interested parties may submit comments regarding the specific use proposed in the application and plan of development, whether the BLM followed proper administrative procedures in reaching the decision to convey under the R&PP Act, or any other factor not directly related to the suitability of the land for use as an existing landfill.

The public may submit comments in writing directly to the BLM using one of the methods listed in the **ADDRESSES** section above. Comments should be submitted on or before February 6, 2014.

Before including your address, phone number, email address, or other personal identifying information in your comment, you should be aware that your entire comment—including your personal identifying information—may be made publicly available at any time. While you can ask us in your comment to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so. Any adverse comments will be reviewed by the BLM New Mexico State Director who may sustain, vacate, or modify this realty action. In the absence of any adverse comments, the classification of the land described in this notice will become effective on February 21, 2014. The land will not be available for conveyance until after the classification becomes effective.

Authority: 43 CFR part 2740.

Bill Childress,

District Manager, Las Cruces.

[FR Doc. 2013–30485 Filed 12–20–13; 8:45 am]

BILLING CODE 4310–FB–P

INTERNATIONAL TRADE COMMISSION

[Investigation No. 332–543]

Trade, Investment, and Industrial Policies in India: Effects on the U.S. Economy Submission of Questionnaire for OMB Review

AGENCY: United States International Trade Commission.

ACTION: Notice of submission of request for approval of a questionnaire to the Office of Management and Budget. This notice is being given pursuant to the Paperwork Reduction Act of 1995 (44 U.S.C. Chapter 35).

Purpose of Information Collection: The information requested by the questionnaire is for use by the Commission in connection with investigation No. 332–543, *Trade, Investment, and Industrial Policies in India: Effects on the U.S. Economy*. The investigation was instituted under section 332(g) of the Tariff Act of 1930 (19 U.S.C. 1332(g)) at the request of the House Committee on Ways and Means and the Senate Committee on Finance (the Committees). The Commission expects to deliver its report to the Committees by December 15, 2014.

Summary of Proposal

(1) *Number of forms submitted:* 1.

(2) *Title of form:* Trade, Investment, and Industrial Policies in India Questionnaire.

(3) *Type of request:* New.

(4) *Frequency of use:* Industry questionnaire, single data gathering, scheduled for 2014.

(5) *Description of respondents:* Companies in the United States in industries particularly affected by Indian trade, investment, or industrial policies.

(6) *Estimated number of questionnaires to be mailed:* 9,000.

(7) *Estimated total number of hours to complete the questionnaire per respondent:* 12 hours.

(8) Information obtained from the questionnaire that qualifies as confidential business information will be so treated by the Commission and not disclosed in a manner that would reveal the individual operations of a firm.

Additional Information or Comment: Copies of the questionnaire and supporting documents may be obtained from project leader William Powers (*william.powers@usitc.gov* or 202–708–5405) or deputy project leader Renee Berry (*renee.berry@usitc.gov* or 202–205–3498). Comments about the proposal should be directed to the Office of Management and Budget, Office of Information and Regulatory Affairs, Room 10102 (Docket Library), Washington, DC 20503, ATTENTION: Docket Librarian. All comments should be specific, indicating which part of the questionnaire is objectionable, describing the concern in detail, and including specific suggested revision or language changes. Copies of any comments should be provided to Andrew Martin, Chief Information Officer, U.S. International Trade Commission, 500 E Street SW., Washington, DC 20436, who is the Commission's designated Senior Official under the Paperwork Reduction Act.

General information concerning the Commission may also be obtained by accessing its Internet address (*http://www.usitc.gov*). Hearing impaired individuals are advised that information on this matter can be obtained by contacting the TDD terminal on 202–205–1810. Persons with mobility impairments who will need special assistance in gaining access to the Commission should contact the Secretary at 202–205–2000.

Issued: December 17, 2013.

By order of the Commission.

Lisa R. Barton,

Acting Secretary to the Commission.

[FR Doc. 2013–30494 Filed 12–20–13; 8:45 am]

BILLING CODE 7020–02–P

INTERNATIONAL TRADE COMMISSION

[Investigation No. 337–TA–850]

Certain Electronic Imaging Devices; Notice of Commission Determination To Review-in-Part a Final Determination

AGENCY: U.S. International Trade Commission.

ACTION: Notice.

SUMMARY: Notice is hereby given that the U.S. International Trade Commission has determined to review in-part the final initial determination (''ID'') issued by the presiding administrative law judge (''ALJ'') on September 30, 2013, finding a violation of Section 337 of the Tariff Act of 1930, 19 U.S.C. 1337 (''Section 337'').

FOR FURTHER INFORMATION CONTACT: Jia Chen, Office of the General Counsel, U.S. International Trade Commission, 500 E Street SW., Washington, DC 20436, telephone (202) 708–4737. Copies of non-confidential documents filed in connection with this investigation are or will be available for inspection during official business hours (8:45 a.m. to 5:15 p.m.) in the Office of the Secretary, U.S. International Trade Commission, 500 E Street SW., Washington, DC 20436, telephone (202) 205–2000. General information concerning the Commission may also be obtained by accessing its Internet server at *http://www.usitc.gov.* The public record for this investigation may be viewed on the Commission's electronic docket (EDIS) at *http://edis.usitc.gov.* Hearing-impaired persons are advised that information on this matter can be obtained by contacting the Commission's TDD terminal on (202) 205–1810.

SUPPLEMENTARY INFORMATION: The Commission instituted this investigation on June 29, 2012, based on a complaint filed by Flashpoint Technology, Inc. (''Flashpoint'') of Peterborough, New Hampshire alleging violations of Section 337 in the importation into the United States, the sale for importation, and the sale within the United States after importation of certain electronic imaging devices by reason of infringement of certain claims of U.S. Patent Nos. 6,504,575 (''the '575 patent''), 6,222,538 (''the '538 patent''), 6,400,471 (''the '471 patent''), and 6,223,190 (''the '190 patent''). The notice of investigation named the following respondents: HTC Corporation of Taoyuan, Taiwan and HTC America, Inc. of Bellevue, Washington (collectively, ''HTC''); Pantech Co., Ltd. of Seoul, Republic of Korea and Pantech Wireless, Inc. of Atlanta, Georgia (collectively, ''Pantech''); Huawei Technologies Co., Ltd. of Shenzhen, China; FutureWei Technologies, Inc. d/b/a Huawei Technologies (USA) of Plano, Texas (collectively ''Huawei''); ZTE Corporation of Shenzhen, China; and ZTE (USA) Inc. of Richardson, Texas (collectively ''ZTE''). The '575 patent and respondent Pantech have been terminated from the investigation. The Commission Office of Unfair Import Investigations did not participate in this investigation.

On September 30, 2013, the ALJ issued a final ID finding a violation of Section 337 by HTC. Specifically, the ALJ concluded that two of the accused HTC smartphones, *i.e.,* the HTC Vivid and HTC Droid Incredible 4G LTE, infringe the asserted claims of the '538 patent. The ALJ found, however, that none of the other accused HTC smartphones infringe the '538 patent and that none of the accused HTC, Huawei, or ZTE smartphones infringe the asserted claims of the '471 patent or the '190 patent. The ALJ found that the smartphones of Flashpoint's licensees [REDACTED] meet the technical prong of the domestic industry requirement with respect to the '538 patent, but that none of the licensed [REDACTED] smartphones meet the technical prong of the domestic industry requirement with respect to either the '471 or '190 patents. The ALJ found that Flashpoint established the economic prong of the domestic industry requirement under Sections 337(a)(3)(A), (B), and (C) with respect to all of the asserted patents. The ALJ also found that HTC has not established that the asserted patents are invalid in view of the prior art or the on-sale bar. The ALJ further found that the '190 and '538 patents are not unenforceable for failure to name an inventor.

On October 31, 2013, Flashpoint filed a petition for review, challenging the ALJ's determination with respect to: (1) The representativeness of the accused products for the '538 patent, (2) claim construction for the '471 patent, (3) non-infringement of the '471 patent, (4) non-infringement of the '190 patent, (5) technical prong for the '471 patent, and (6) technical prong for the '190 patent.

On the same day, respondents HTC, Huawei, and ZTE filed a joint petition for review, challenging the ALJ's determination with respect to: (1) Non-infringement of the '190 patent, (2) validity of the '190 patent for anticipation and obviousness, (3) validity of the '471 patent for anticipation and obviousness (4) technical prong for the '190 patent, and (5) economic prong with respect to all asserted patents. HTC filed a separate petition for review with respect to issues affecting only HTC, challenging the ALJ's determination with respect to (1) claim construction for the '538 patent, (2) infringement of the '538 patent, (3) validity of the '538 patent for anticipation and obviousness, (4) non-infringement of the '471 patent; (5) validity of the asserted patents with respect to the on-sale bar, and (6) enforceability of the asserted patents.

The Commission has determined to review the ALJ's findings regarding the following issues: (1) Infringement of the asserted claims of the '538 patent by the HTC Vivid and HTC Droid Incredible 4G LTE smartphones; (2) the technical prong of the domestic industry requirement for the '538 patent; (3) obviousness of the asserted claims of the '538 patent over U.S. Patent No. 5,835,772 to Thurlo (''Thurlo''), U.S. Patent No. 5,740,801 to Branson (''Branson''), the ''Admitted Prior Art'' (''APA''), U.S. Patent No. 5,638,501 to Gough *et al.* (''Gough''), and U.S. Patent No. 5,898,434 to Small (''Small''); (4) claim construction of the term ''operating system'' in the asserted claims of the '471 patent; (5) infringement of the '471 patent by the accused HTC, Huawei, and ZTE products; (6) the technical prong of the domestic industry requirement for the '471 patent; (7) anticipation of the asserted claims of the '471 patent in view of U.S. Patent No. 5,687,376 to Celi, Jr. *et al.;* (8) infringement of the asserted claim of the '190 patent; (9) technical prong of the domestic industry requirement for the '190 patent; (10) anticipation and obviousness of the '190 patent in view of U.S. Provisional Patent Application 60/037,963 to Parulski; (11) anticipation and obviousness of the '190 patent in view of the Zaurus; (12) anticipation and obviousness of the ''190 patent in view of the Japanese Laid-Open Patent Application No. H09–298678 to Kazu Saito; (13) validity of the '538, '471, and ''190 patents in view of the on-sale bar; (14) enforceability of claim 19 of the '538 patent with respect to joint inventorship; and (15) the economic prong of the domestic industry requirement with respect to the '539, '471, and '190 patents. The

the original agency preferred alternative, such as continued pursuit of a visitor center partnership in the Miami area, except that instead of including a marine reserve zone, the alternatives include a new concept referred to as a special recreation zone. In developing the two new alternatives, the NPS and partner agencies are pursuing a new and novel approach to managing special marine ecosystems in a way that seeks to accomplish the same goals as a marine reserve while accommodating recreational fishing and providing a more enjoyable and diverse visitor experience. The two alternatives are described in detail in chapter 2 of the Supplemental Draft EIS. Chapter 4 describes the key impacts of implementing each of the two alternatives.

In alternative 6 (the new agency preferred alternative), the special recreation zone would include the following activities and limitations: Fishing would be allowed year-round, with a special permit required for access to fish recreationally. There would be some zone-specific fishing restrictions (e.g., no grouper or lobster take, no spearfishing), but in general all other state fishing regulations would apply. There would be no commercial fishing allowed in the special recreation zone, with exception of the existing ballyhoo lampara net fishery. Anchoring within the zone would be prohibited; however additional mooring buoys would be added over time as needed to disperse visitor use and improve the safety of diving operations. Snorkeling and diving would be encouraged, and marine debris would be removed throughout the zone to improve the overall visitor experience for these activities. Alternative 7 is similar to alternative 6 in that it includes a special recreation zone with many of the same zone-specific fishing limitations. Differing from alternative 6, alternative 7 would not require an access permit to fish in the zone, but the area would be closed to recreational fishing during the summer months (June to September). This period is when the coral reef ecosystem is most stressed by warm water conditions and would benefit greatest from a respite in fishing pressure.

Adaptive management would be used in both new alternatives to guide long-term decision-making. Both alternatives would employ a collaborative research and monitoring program (10-year Science Plan) to inform adaptive management decisions. Under alternative 6 only, in years three, five, and eight, the NPS would evaluate effort and take to determine if the original assumptions are being met. Effort and take, in this instance, refer to fishing intensity and total harvest of fish in the zone by permitted fishermen. If the assumptions of effort and take are being exceeded, a multi-agency team would evaluate whether to reduce the number of permits to be issued for following years. For both Alternatives 6 and 7, a multi-agency team would evaluate the need for other management actions that may be warranted to reduce recreational impacts, through the adaptive management process. Depending on site-specific observations and concerns, such actions might include adjustments to the number and location of mooring buoys, changes to public messaging and law enforcement effort, and increased effort to remove marine debris. For both alternatives, a panel of experts would be convened at years five and ten to provide recommendations on the Science Plan, the monitoring results, and long-term management. After ten years the NPS would consider monitoring trends and panel recommendations, and would consult with state and federal agencies before deciding whether to continue adaptively managing visitor use in the special recreation zone or implement a marine reserve zone.

If you wish to comment on the Supplemental Draft EIS, you may submit your comments by any one of several methods. We encourage you to comment via the internet on the PEPC Web site at *http://parkplanning.nps.gov/BISC.* An electronic public comment form is provided on this Web site. You may also comment via mail to: Biscayne National Park GMP, National Park Service, M. Elmer (DSC–P), P.O. Box 25287, Denver, CO 80225–0287; or by hand delivery to Park headquarters, located at the address listed above.

Before including your address, phone number, email address, or other personal identifying information in your comment, please be aware your entire comment—including your personal identifying information—may be made publicly available at any time. While you can ask us in your comment to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so.

The responsible official for this Supplemental Draft EIS is the Regional Director, NPS Southeast Region, 100 Alabama Street SW., 1924 Building, Atlanta, Georgia 30303.

Dated: November 8, 2013.

Sherri Fields,

Deputy Regional Director, Southeast Region.

[FR Doc. 2013–27578 Filed 11–15–13; 8:45 am]

BILLING CODE 4310–JD–P

INTERNATIONAL TRADE COMMISSION

[Investigation No. 332–543]

Trade, Investment, and Industrial Policies in India: Effects on the U.S. Economy; Proposed Information Collection; Comment Request; Trade, Investment, and Industrial Policies in India Questionnaire

AGENCY: United States International Trade Commission.

ACTION: In accordance with the provisions of the Paperwork Reduction Act of 1995 (44 U.S.C. Chapter 35), the U.S. International Trade Commission (Commission) hereby gives notice that it plans to submit a request for approval of a questionnaire to the Office of Management and Budget for review and requests public comment on its draft collection.

DATES: To ensure consideration, written comments must be submitted on or before January 14, 2014.

ADDRESSES: Direct all written comments to William Powers, Project Leader, U.S. International Trade Commission, 500 E Street SW., Washington, DC 20436 (or via email at *william.powers@usitc.gov*).

Additional Information: Copies of the questionnaire and supporting investigation documents may be obtained from project leader William Powers (*william.powers@usitc.gov* or 202–708–5405) or deputy project leader Renee Berry (*renee.berry@usitc.gov* or 202–205–3498). Supporting documents may also be downloaded from the Commission Web site at *http://www.usitc.gov/research_and_analysis/What_We_Are_Working_On.htm.* 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 Web site (*http://www.usitc.gov*). Persons with mobility impairments who will need special assistance in gaining access to the Commission should contact the Office of the Secretary at 202–205–2000.

Purpose of Information Collection: The information requested by the questionnaire is for use by the Commission in connection with Investigation No. 332–543, *Trade, Investment, and Industrial Policies in*

India: Effects on the U.S. Economy, instituted under the authority of section 332(g) of the Tariff Act of 1930 (19 U.S.C. 1332(g)). This investigation was requested by both the House Committee on Ways and Means and the Senate Committee on Finance (the Committees). The Committees requested that this investigation include a survey of U.S. firms in selected industries affected by Indian trade, investment, or industrial policies. The Commission expects to deliver the results of its investigation to the Committees by December 15, 2014.

Summary of Proposal

(1) *Number of forms submitted:* 1.

(2) *Title of form:* Trade, Investment, and Industrial Policies in India Questionnaire.

(3) *Type of request:* New.

(4) *Frequency of use:* Industry questionnaire, single data gathering, scheduled for 2014.

(5) *Description of respondents:* Companies in industries particularly affected by Indian trade, investment, or industrial policies.

(6) *Estimated number of respondents:* up to 15,000.

(7) *Estimated total number of hours to complete the questionnaire per respondent:* 12 hours.

(8) Information obtained from the questionnaire that qualifies as confidential business information will be so treated by the Commission and not disclosed in a manner that would reveal the individual operations of a firm.

SUPPLEMENTARY INFORMATION:

I. Abstract

The House Committee on Ways and Means and the Senate Committee on Finance (the Committees) have directed the Commission to produce a report that examines Indian policies that discriminate against U.S. trade and investment and estimates the effects these barriers have on the U.S. economy and U.S. jobs. The Committees have requested that the report should (1) Provide an overview of trends and policies in India affecting trade and foreign direct investment; (2) describe the significant policies currently maintained by India, the U.S. sectors most affected by these policies, and Indian competitiveness in the affected sectors; (3) present case studies of the effects of particular measures; (4) quantify the economic effects of identified Indian measures on the U.S. economy; and (5) survey U.S. firms in selected sectors on their perceptions of recent changes in Indian policies and the effect these changes have on U.S. firms' strategies towards India. The Commission will base its report on a review of available data and other information, including the collection of primary data through a survey of U.S. firms in industries particularly affected by Indian policies.

II. Method of Collection

Respondents will be mailed a letter directing them to download and fill out a form-fillable PDF questionnaire. Once complete, respondents may submit it by uploading it to a secure webserver, emailing it to the study team, faxing it, or mailing a hard copy to the Commission.

III. Request for Comments

Comments are invited on (1) Whether the proposed collection of information is necessary; (2) the accuracy of the agency's estimate of the burden (including hours and cost) of the proposed collection of information; (3) ways to enhance the quality, utility, and clarity of the information to be collected; and (4) ways to minimize the burden of the collection of information on respondents, including through the use of automated collection techniques or other forms of information technology.

The draft questionnaire and other supplementary documents may be downloaded from the USITC Web site at *http://pubapps2.usitc.gov/comments_332_543/.*

Comments submitted in response to this notice will be summarized and/or included in the request for OMB approval of this information collection; they will also become a matter of public record.

By order of the Commission.

Issued: November 12, 2013.

Lisa R. Barton,

Acting Secretary to the Commission.

[FR Doc. 2013–27468 Filed 11–15–13; 8:45 am]

BILLING CODE 7020–02–P

DEPARTMENT OF JUSTICE

[OMB Number 1103–0098]

Agency Information Collection Activities; Revision of a Previously Approved Collection, With Change; Comments Requested: COPS Application Package

ACTION: 60-Day notice.

The Department of Justice (DOJ) Office of Community Oriented Policing Services (COPS) will be submitting the following information collection request to the Office of Management and Budget (OMB) for review and approval in accordance with the Paperwork Reduction Act of 1995. The revision of a previously approved information collection is published to obtain comments from the public and affected agencies.

The purpose of this notice is to allow for 60 days for public comment until January 17, 2014. This process is conducted in accordance with 5 CFR 1320.10.

If you have comments, especially on the estimated public burden or associated response time, suggestions, or need a copy of the proposed information collection instrument with instructions or additional information, please contact Danielle Ouellette, Department of Justice Office of Community Oriented Policing Services, 145 N Street NE., Washington, DC 20530.

Written comments and suggestions from the public and affected agencies concerning the proposed collection of information are encouraged. Your comments should address one or more of the following four points:

—Evaluate whether the proposed collection of information is necessary for the proper performance of the functions of the agency, including whether the information will have practical utility;

—Evaluate the accuracy of the agency's estimate of the burden of the proposed collection of information, including the validity of the methodology and assumptions used;

—Enhance the quality, utility, and clarity of the information to be collected; and

—Minimize the burden of the collection of information on those who are to respond, including through the use of appropriate automated, electronic, mechanical, or other technological collection techniques or other forms of information technology, e.g., permitting electronic submission of responses.

Overview of This Information Collection

(1) *Type of Information Collection:* Revision of a previously approved collection, with change; comments requested.

(2) *Title of the Form/Collection:* COPS Application Package.

(3) *Agency form number, if any, and the applicable component of the Department sponsoring the collection:* None. U.S. Department of Justice Office of Community Oriented Policing Services.

(4) *Affected public who will be asked or required to respond, as well as a brief abstract:* Law enforcement agencies and

SUMMARY: The Bureau of Land Management (BLM) announces the availability of the Record of Decision (ROD)/Approved Amendment to the California Desert Conservation Area (CDCA) Plan for the West Chocolate Mountains Renewable Energy Evaluation Area (REEA) located in Imperial County, California. The BLM California State Director signed the ROD on August 12, 2013, which constitutes the BLM's final decision.

ADDRESSES: Copies of the ROD/Approved Amendment to the CDCA Plan are available upon request from the Field Manager, BLM El Centro Field Office, 1661 S 4th Street, El Centro, CA 92243; California Desert District Office at 22835 Calle San Juan de Los Lagos, Moreno Valley, CA; or via the Internet at the following Web site: *http://www.blm.gov/ca/st/en/fo/elcentro/nepa/wcm.html*.

FOR FURTHER INFORMATION CONTACT: Sandra McGinnis, BLM Project Manager, telephone 916–978–4427; address 2800 Cottage Way Suite W–1623, Sacramento, CA 95825; email *smcginni@blm.gov*. Persons who use a telecommunications device for the deaf (TDD) may call the Federal Information Relay Service (FIRS) at 1–800–877–8339 to contact the above individual during normal business hours. The FIRS is available 24 hours a day, 7 days a week, to leave a message or question with the above individual. You will receive a reply during normal business hours.

SUPPLEMENTARY INFORMATION: The Final Environmental Impact Statement (EIS) and Proposed Plan Amendment (PA) for the REEA analyzed the potential environmental impacts of making available approximately 20,762 acres of BLM-managed surface lands in the REEA for testing and developing solar and wind energy facilities and for leasing approximately 19,162 acres of Federal mineral estate for geothermal energy testing and development near Niland, California. The Final EIS also analyzed the potential environmental impacts of approving a pending geothermal lease application in the REEA.

The purpose of the proposed action was to facilitate appropriate development of geothermal, solar, and wind energy in the REEA and make appropriate land use plan decisions regarding the location, development, and management of those resources. The Final EIS/Proposed PA fully analyzed six alternatives. The preferred alternative and the BLM's final decision is Alternative 6—Geothermal Development Emphasis with Moderate Solar Development and No Wind Development. Selection of this alternative amends the CDCA Plan to identify areas in the REEA as suitable for geothermal leasing and development and solar energy development, subject to constraints related to the presence of sensitive resources. Standard stipulations as well as a stipulation for groundwater usage to require preparation of a Water Supply Assessment under California Code §§ 10910–10915 are included. In addition, renewable energy development that would require high water usage will not be allowed. The CDCA Plan is also amended to identify the REEA as unsuitable for wind energy development. Additionally, lands east of the Coachella Canal will have a disturbance cap of 10 percent. BLM lands west of the Coachella Canal are identified as a Solar Energy Zone. Finally, a noncompetitive Federal geothermal lease application is approved; however, before development of the lease is authorized, site specific NEPA analysis will be required. The Notice of Availability of the Final EIS/Proposed PA for the REEA was published in the **Federal Register** December 14, 2012 (77 FR 74479 and 77 FR 71446), which initiated a 30-day protest period for the proposed amendment to the CDCA Plan. During this time no protests were submitted. Simultaneously with the protest period, the Governor of California conducted a consistency review of the proposed CDCA Plan amendment to identify any inconsistencies with State or local plan, policies or programs; no inconsistencies were identified.

The agency decision to authorize a geothermal lease is an implementation decision and is appealable under 43 CFR part 4. Any party adversely affected by the leasing decision may appeal within 30 days of publication of this Notice of Availability pursuant to 43 CFR part 4, subpart E. The appeal must be filed with the BLM at 2800 Cottage Way Suite W–1623, Sacramento, CA 95825 as well as the Regional Solicitor Pacific Southwest Region, U.S. Department of Interior, 2800 Cottage Way, E–1712, Sacramento, CA 95825. Please consult the appropriate regulations (43 CFR part 4, subpart E) for further appeal requirements.

Authority: 40 CFR 1506.6.

Thomas Pogacnik,

Deputy State Director.

[FR Doc. 2013–21603 Filed 9–4–13; 8:45 am]

BILLING CODE 4310–40–P

INTERNATIONAL TRADE COMMISSION

[Investigation No. 332–543]

Trade, Investment, and Industrial Policies in India: Effects on the U.S. Economy; Institution of Investigation and Scheduling of Hearing

AGENCY: United States International Trade Commission.

ACTION: Institution of investigation and scheduling of public hearing.

SUMMARY: Following receipt of a request on August 2, 2013 from the Senate Committee on Finance and the House Committee on Ways and Means (Committees) under section 332(g) of the Tariff Act of 1930 (19 U.S.C. 1332(g)), the U.S. International Trade Commission (Commission) instituted investigation No. 332–543, *Trade, Investment, and Industrial Policies in India: Effects on the U.S. Economy.*

DATES: January 21, 2014: Deadline for filing requests to appear at the public hearing.

January 30, 2014: Deadline for filing pre-hearing briefs and statements.

February 13, 2014: Public hearing.

February 25, 2014: Deadline for filing post-hearing briefs and statements.

April 11, 2014: Deadline for filing all other written statements.

November 30, 2014: Transmittal of Commission report to the Committees.

ADDRESSES: All Commission offices, including the Commission's hearing rooms, are located in the United States International Trade Commission Building, 500 E Street SW., Washington, DC. All written submissions should be addressed to the Secretary, United States 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/edis3-internal/app.*

FOR FURTHER INFORMATION CONTACT: Project Leader Bill Powers (202–708–5405 or *william.powers@usitc.gov*) or Deputy Project Leader Renee Berry (202–205–3498 or *renee.berry@usitc.gov*) for information specific to this investigation. For information on the legal aspects of these investigations, contact William Gearhart of the Commission's Office of the General Counsel (202–205–3091 or *william.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 Internet server (*http://www.usitc.gov*). Persons with mobility impairments who will need special assistance in gaining access to the Commission should contact the Office of the Secretary at 202–205–2000.

Background: In their request letter the Committees asked that the Commission conduct an investigation regarding Indian industrial policies that discriminate against U.S. imports and investment for the sake of supporting Indian domestic industries, and the effect that those barriers have on the U.S. economy and U.S. jobs. As requested by the Committees, the Commission will provide in its report:

- An overview of trends and policies in India affecting trade and foreign direct investment in that country's agriculture, manufacturing and service sectors, as well as the overall business environment. The overview will take a historic view, but focus on the period since 2003. It will include examples of changes in tariff and nontariff measures, including measures related to the protection of intellectual property rights, and other actions taken by India's government to facilitate or restrict the inflow of trade and FDI.
- A description of (1) any significant restrictive trade and FDI policies currently maintained or recently adopted by India as identified by Commission research; (2) the sectors in the U.S. economy most affected by these restrictive policies; and (3) the general competitiveness of sectors in India's economy that are subject to the identified restrictions.
- Several case studies that examine the effects of particular restrictive measures on U.S. firms that export to or invest in India, or that have not done so because of the measures. To the extent feasible, the case studies will address the impact of the restrictive measures on both large and small and medium-sized enterprises.
- To the extent feasible, a quantitative analysis of the economic effects of India's identified restrictive measures on the U.S. economy as a whole, on U.S. trade and investment, and on selected sectors of the U.S. economy.
- Based on the survey and analysis of results, and to the extent feasible, a summary of U.S. firms' perception of (1) recent changes in India's trade and investment policies in selected sectors and (2) the effects of these changes on U.S. firms' strategies towards India (e.g., reducing investment or altering product mix), and analysis of whether the effects of these policy changes differ by firms' characteristics, such as size, IP-intensiveness, or export status.

Public Hearing: A public hearing in connection with this investigation will be held at the U.S. International Trade Commission Building, 500 E Street SW., Washington, DC, beginning at 9:30 a.m. on February 13, 2014. Requests to appear at the public hearing should be filed with the Secretary, no later than 5:15 p.m., January 21, 2014 in accordance with the requirements in the ''Submissions'' section below. All pre-hearing briefs and statements should be filed not later than 5:15 p.m., January 30, 2014; and all post-hearing briefs and statements should be filed not later than 5:15 p.m., February 25, 2014. In the event that, as of the close of business on January 21, 2014, 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 January 21, 2014, 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., April 11, 2014. All written submissions must conform with the provisions of section 201.8 of the *Commission's Rules of Practice and Procedure* (19 CFR 201.8). Section 201.8 and the Commission's Handbook on Filing Procedures require that interested parties file documents electronically on or before the filing deadline and submit eight (8) true paper copies by 12:00 p.m. eastern time on the next business day. In the event that confidential treatment of a document is requested, interested parties must file, at the same time as the eight paper copies, at least four (4) additional true paper copies in which the confidential information must be deleted (see the following paragraph for further information regarding confidential business information). Persons with questions regarding electronic filing should contact the Secretary (202–205–2000).

Any submissions that contain confidential business information (CBI) must also conform with 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 be clearly identified by means of brackets. All written submissions, except for confidential business information, will be made available for inspection by interested parties.

In the request letter, the Committees stated that they intend to make the Commission's report available to the public in its entirety, and asked that the Commission not include any confidential business information or national security classified information in the report that it sends to the Committees. 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.

By order of the Commission.

Issued: August 29, 2013.

Lisa R. Barton,

Acting Secretary to the Commission.

[FR Doc. 2013–21499 Filed 9–4–13; 8:45 am]

BILLING CODE 7020–02–P

DEPARTMENT OF JUSTICE

Office of Justice Programs

[OJP (OJJDP) Docket No. 1630]

Establishment of the Attorney General's Advisory Committee of the Task Force on American Indian/Alaska Native Children Exposed to Violence

AGENCY: Office of Juvenile Justice and Delinquency Prevention (OJJDP), DOJ.

ACTION: Notice of establishment of a federal advisory committee.

SUMMARY: Pursuant to the Federal Advisory Committee Act, as amended (5 U.S.C. Appendix 2), the Department of Justice announces the establishment of the Advisory Committee of the Attorney General's Task Force on American Indian/Alaska Native Children Exposed to Violence (hereinafter, the ''AI/AN Advisory Committee''). The AI/AN Advisory Committee will advise the Attorney General on a broad array of issues relating to addressing the problem of AI/AN children exposed to violence in the United States.

FOR FURTHER INFORMATION CONTACT: Jim Antal, Designated Federal Officer, AI/AN Advisory Committee at (202) 514–1289, or by email at *james.antal@usdoj.gov.*

ADDRESSES: All questions should be submitted to the Designated Federal Officer, Advisory Committee of the

Appendix C
Calendar of Hearing

CALENDAR OF PUBLIC HEARING

Those listed below appeared as witnesses at the United States International Trade Commission's hearing:

Subject: Trade, Investment, and Industrial Policies in India: Effects on the U.S. Economy

Inv. No.: 332-543

Dates and Times: February 12, 2014 - 1:00 pm
February 14, 2014 - 9:30 am[1]

Sessions were held in connection with this investigation in the Main Hearing Room (room 101), 500 E Street, S.W., Washington, DC.

Wednesday, February 12, 2014

PANEL 1

ORGANIZATION AND WITNESS:

Alliance for Fair Trade with India ("AFTI")
Washington, DC

Brian Pomper, Executive Director

Peterson Institute for International Economics
Center for Global Development
Washington, DC

Dr. Arvind Subramanian, Senior Fellow

U.S. Chamber of Commerce ("USCC")
Global Intellectual Property Center
Washington, DC

Mark Elliot, Executive Vice President

International Intellectual Property Alliance ("IIPA")
Washington, DC

Michael Schlesinger, Of Counsel

Indian Pharmaceutical Alliance
Mumbai, India

D G Shah, Secretary General

[1] The hearing originally scheduled for February 13, 2014 was rescheduled for February 14, 2014 due to inclement weather.

Wednesday, February 12, 2014

PANEL 1 (continued)

ORGANIZATION AND WITNESS:

University of Oklahoma College of Law
Norman, OK

Srividhya Ragavan, Professor of Law

American University Washington College of Law
Washington, DC

Sean Flynn, Professor of Law

National Association of Software and Service Companies ("NASSCOM")

Jerry Rao, Former Chairman, NASSCOM and former CEO, MphasiS

Information Technology and Innovation Foundation ("ITIF")
Washington, DC

Stephen Ezell, Senior Analyst

Friday, February 14, 2014

PANEL 1

ORGANIZATION AND WITNESS:

U.S. India Business Council ("USIBC")
Washington, DC

Ron Somers, President

Confederation of Indian Industry ("CII")
Arlington, VA

Pallavi Shroff, Senior Partner, Amarchand Mangaldas

National Association of Manufacturers ("NAM")
Washington, DC

Linda M. Dempsey, Vice President

PANEL 1 (continued)

ORGANIZATION AND WITNESS:

American Insurance Association ("AIA")
Washington, DC

Stephen Simchak, Director, International Affairs

CropLife America
Washington, DC

Douglas Nelson, Senior Adviser for Trade, Intellectual Property & Strategic Issues

Biotechnology Industry Organization ("BIO")
Washington, DC

Lila Feisee, Vice President, International Affairs

Association of Clinical Research Organizations ("ACRO")
Washington, DC

John J. Lewis, Vice President of Public Affairs

PANEL 2

ORGANIZATION AND WITNESS:

Pharmaceutical Research and Manufacturers of America ("PhRMA")
Washington, DC

Rod Hunter, Senior Vice President, International Advocacy

Sonecon, LLC
Washington, DC

Robert J. Shapiro, Chairman

Bayer Corporation ("Bayer")
Whippany, NJ

Philip Blake, President

PANEL 2 (continued)

ORGANIZATION AND WITNESS:

Knowledge Ecology International
Washington, DC

James Love, Director

Doctors Without Borders
New York, NY

Rohit Malpani, Director of Policy and Analysis,
The Access Campaign

Public Citizen
Washington, DC

Peter Maybarduk, Director of Global Access to Medicines
Program

-END-

Appendix D
Positions of Interested Parties

Introduction

This section summarizes the positions of interested parties presented at the Commission's public hearing, held on February 12 and 14, 2014, and in written submissions filed during the course of the investigation (table D.1) . The individual summaries were prepared by Commission staff, and the views and information contained in these summaries are those of the interested parties, not the Commission. Commission staff did not attempt to confirm the accuracy of the information presented or to correct any errors in it. The full text of the hearing transcript and written submissions for the current investigation can be found by searching the Commission's Electronic Docket Information System.[920]

Table D.1: Information provided by interested parties

Company	Hearing testimony	Written submission
Abbott		X
Alliance for Fair Trade with India	X	X
American Insurance Association	X	X
Association of Clinical Research Organizations	X	X
Bayer Corporation	X	X
Biotechnology Industry Organization	X	X
Boeing Company		X
Confederation of Indian Industry	X	X
CropLife America	X	X
Distilled Spirits Council of the United States		X
Doctors Without Borders	X	
Sean Flynn, American University Washington College of Law	X	X
IBM Corporation		X
Indian Pharmaceutical Alliance	X	X
Information Technology and Innovation Foundation	X	X
International Intellectual Property Alliance	X	X
Knowledge Ecology International	X	X
National Association of Manufacturers	X	X
National Association of Software and Service Companies	X	X
National Center for Policy Analysis		X
National Milk Producers Federation and the U.S. Dairy Export Council		X
Pharmaceutical Research and Manufacturers of America	X	X
Public Citizen	X	X
Srividhya Ragavan, University of Oklahoma College of Law	X	X
Sonecon LLC	X	X
Arvind Subramanian, Peterson Institute for International Economics	X	X

[920] Available online on http://edis.usitc.gov.

Company	Hearing testimony	Written submission
Telecommunications Industry Association		X
U.S.-India Business Council	X	X
United States Chamber of Commerce	X	X
Wine Institute		X

Source: USITC Electronic Docket Information System.

Abbott[921]

In a posthearing statement, Abbott described itself as global healthcare company with a portfolio of diagnostics, medical devices, nutritionals, and branded generic pharmaceuticals in 150 countries. Abbott stated that the company is one of the largest healthcare companies in the country, with a presence in 90 percent of all therapeutic areas recognized for drugs. Abbott said that it has 14,000 employees in India, and that India is the company's largest employee base outside of the United States. The company indicated that it operates pharmaceutical manufacturing plants in Goa and Baddi, a pharmaceutical development center in Mumbai, and a research and development (R&D) facility for nutrition products in Bangalore. Abbott further indicated it has invested $75 million to build a nutrition manufacturing facility in Gujarat that will begin production in 2014.

According to its statement, Abbott considered India to be a "great opportunity" for companies like itself. The company, in its view, is not currently facing any significant challenges with respect to intellectual property protection, and the government has demonstrated procedural fairness. Abbott noted that the Indian government formally solicited the opinions of different stakeholder groups during the recent revision of India's National List of Essential Medicines. Abbott stated that, if the transparent and fair process the company experienced in that situation were formalized, it would help increase investor confidence following past experiences in which the government had made decisions on healthcare product regulations without official notice or opportunity for stakeholders to comment or to understand the methodology used for the decisions.

Alliance for Fair Trade with India[922]

In both oral and written testimony to the Commission, as well as a written posthearing submission, the Alliance for Fair Trade with India (AFTI) said it was a coalition of 17 trade associations focused on fostering a more open trade relationship between the United States and India. Representing AFTI, Mr. Brian Pomper stated that AFTI considers there to be a

[921] Abbott, posthearing statement to the USITC, April 18, 2014.
[922] USITC, hearing transcript, February 12, 2014, 7–11; AFTI, written testimony to the USITC, January 30, 2014; AFTI, posthearing submission to the USITC, April 11, 2014.

"plethora of anti-competitive policies in India today that discriminate against US industry." Both AFTI's written testimony and its posthearing submission highlighted a number of policies and practices that AFTI considered burdensome in India:

- Patent protection, which AFTI called inadequate—particularly in sectors such as biopharmaceuticals, green technology, telecommunications, and semiconductors.
- The "forced transfer of technology," where AFTI highlighted what it described as India's "failure to protect confidential information, trade secrets, and test data."
- Copyright protection, which AFTI deemed poor, specifically describing India as "a haven for the illegal downloading and distribution of music, movies, and books."

AFTI's written testimony recognized the Indian government announcement that it would discontinue its Preferential Market Access (PMA) program for security-related goods and equipment for the private sector, but said that AFTI remained concerned about continued PMA practices in the area of government procurement. Another policy that AFTI pointed to as problematic involved forced local-content requirements in the renewable energy sector, solar energy in particular.

American Insurance Association[923]

The American Insurance Association (AIA) said in both oral and written testimony to the Commission that, as a property-casualty insurance trade organization, the AIA represents approximately 300 insurers that write more than $100 billion in premiums each year. Representing AIA, Mr. Stephen Simchak testified that the most significant barrier to investment in India is the cap of 26 percent on foreign direct investment (FDI) by insurance companies. He said that even firms willing to invest in India can face difficulties in finding a suitable joint venture partner. Mr. Simchak said that raising the FDI cap would likely trigger a significant and long-term increase in FDI into the Indian economy, attracting new market entrants over time. Mr. Simchak described the area of regulatory predictability and transparency in regulatory reforms as another significant investment barrier in India. To illustrate, he said that rapid regulatory changes in the life insurance sector without adequate notice to the industry recently led to a multiyear decrease in premiums, harming both consumers and companies. Finally, he said that the Indian government should allow reinsurers to operate in India as another means of increasing FDI inflows.

[923] USITC, hearing testimony, February 14, 2014, 238–47; AIA, written testimony to the USITC, February 13, 2014.

Association of Clinical Research Organizations[924]

The Association of Clinical Research Organizations (ACRO) represents the eight largest clinical research organizations in the world, and its membership accounts for about two-thirds of industry revenues, according to oral and written testimony to the Commission by John J. Lewis, vice president for public affairs. Mr. Lewis' stated that ACRO's members have conducted approximately two-thirds of the industry-sponsored clinical trials in India and have collectively invested over $100 million in India to build research infrastructure and train employees. Mr. Lewis testified that the Indian government's application of regulations on clinical research were "confusing, inconsistent and at times arbitrary," and that they discouraged clinical research organizations from conducting clinical trials in India. Mr. Lewis reported that between 2010 (the peak of clinical trial activity in India) and 2013, ACRO members' activity dropped more than 60 percent, where the vast majority of currently ongoing trials received approval prior to 2013, with very few trials approved since.

According to his statement, as India has gained in importance as a location for clinical trials, the issue of clinical trial testing has become politicized. Mr. Lewis stated that the issue has been widely discussed in the press, leading politicians to "apply pressure to regulators to crack down on clinical trials;" in response, Indian policymakers have published new draft regulations and guidance. According to Mr. Lewis's testimony, ACRO supports the Indian government in creating a framework of regulatory expectations and oversight, but finds that the language of the proposed regulations and guidance has been inconsistent with global standards and "at times shockingly lacking in scientific rigor." Mr. Lewis highlighted aspects of the regulations that his organization found problematic or inconsistent with international norms, including financial liability for compensation claims without clear supporting evidence of injury, causation, or responsibility. He also noted the unclear regulatory authority in India over clinical trials. These policies and the uncertain regulatory environment, Mr. Lewis stated, have had a "chilling effect" on clinical research in India.

Bayer Corporation[925]

The Bayer Corporation, a biopharmaceutical research company, provided a prehearing statement, with Ms. Julie Corcoran, director of public policy, providing oral testimony at the

[924] USITC, hearing transcript, February 14, 2014, 262–302; Lewis, written testimony to the USITC, February 20, 2014.
[925] USITC, hearing testimony, February 14, 2014, 363–70; Bayer, prehearing statement to the USITC, January 30, 2014.

Commission's hearing. She pointed to the challenge that she said biopharmaceutical companies like Bayer face in India, describing India's industrial policy acts as "a tax on intellectual property rights…and price setting that discourages innovation." In its prehearing statement, Bayer said that India's policies are not designed to broaden access to medicines for patients but rather were an industrial policy to support local industry, a policy approach that might be replicated in other markets if left unchecked. Bayer contended that the compulsory license allowing Natco (an Indian firm in the field of new-drug research) to manufacture the drug Nexavar led to a decrease in Bayer's annual revenue in India from sales of Nexavar. Moreover, according to the statement, India's actions are inconsistent with India's obligations under the World Trade Organization (WTO) Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement). Bayer also addressed the issue of India's cost-plus approach to price control of patented medicines, saying that the narrowly defined approach to setting a maximum price for some medicines on India's national list of essential medicines failed as a result of the assumption that the cost of bringing a drug to market consists mainly of the price of the raw materials. In its statement, Bayer said that it is committed to finding sustainable and effective ways to improve access for its products, and that Bayer works with aid organizations and governments to do so. Bayer argued that nonetheless, only patent rights can support the investment needed to find innovative drug products and therapies for the majority of India's patients, not the Indian government's approach of granting compulsory licenses to solve the issues facing the Indian health system.

Biotechnology Industry Organization[926]

The Biotechnology Industry Organization (BIO), represented by Ms. Lila Feisee in a prehearing statement and Mr. Roy Zwahlen in hearing testimony to the Commission, said that it represents over 1,100 companies, universities, research institutions, and related organizations that focus on the research and development of novel biotechnology products and applications in healthcare, agriculture, and the environment. BIO expressed its position that the difficulty in obtaining and enforcing intellectual property rights in India is a barrier to biotechnology companies, and that India has recently taken steps that revoke protection on biopharmaceutical products through patent revocation and compulsory licensing. BIO considers these to be "localization barriers to trade" that negatively affect U.S. industry's R&D investment. BIO's prehearing statement contended that, beyond short-term effects on U.S. industry, there will be further harm through the legal export of medicines from India to countries where U.S. companies do not generally seek patent protection but where these U.S. companies' products would be used. BIO said in its statement that the real motivation for the

[926] USITC, hearing transcript, February 14, 2014, 252–61; BIO, prehearing statement to the USITC, January 30, 2014.

Indian generic drug industry is not to protect the health of the poor, but to export generic drug products to developed countries. Other concerns expressed by BIO included new restrictions on foreign investment in biotechnology and pharmaceutical companies, guidelines for critical research, biopharmaceutical price controls, policies regarding testing and evaluation of genetically modified crops, and the spillover effects from other markets adopting similar policies.

Boeing Company[927]

According to a prehearing statement to the Commission, the Boeing Company is an aviation firm that is the single largest producer by dollar value of U.S. exports to India. The statement addressed Boeing's experiences with Indian customers, partners, and suppliers in the area of intellectual property rights (IPR) protection. Boeing's submission noted that Boeing has had a relationship with India for 70 years. In that time, the statement reported that there has not been any major patent violation in India pertaining to Boeing's defense and aerospace products, and that Boeing considers there to be minimal risk of IPR violation by the government of India and private airlines regarding its products. According to the submission, Indian suppliers have "world-class practices to protect IPR and information security" and adhere strictly to Boeing's processes on network, access, and information security. The submission also stated that Boeing's major academic, government, and industry research partners in India have all honored contractual agreements, including nondisclosure agreements and intellectual property protection.

Boeing's submission detailed that the Indian Ministry of Defense's Defense Procurement Procedure encourages and expects deals by foreign original equipment manufacturers (OEMs) to have a strong local co-production component, encourages indigenization for foreign OEMs to claim offset credits, and caps FDI in the defense industry. While the statement noted that some of these policies can lead foreign OEMs to be reluctant to engage in technology transfer, Boeing said that these policies have not had a significant effect on Boeing's business, although Boeing said it continues to monitor developments in the area of defense indigenization.

Confederation of Indian Industry[928]

The Confederation of Indian Industry (CII) provided both oral testimony and several posthearing submissions to the Commission. In its final submission, the CII said that defense trade between the United States and India is a crucial aspect of the U.S.-India partnership, since it has

[927] Boeing, prehearing statement to the USITC, February 7, 2014.
[928] USITC, hearing testimony, February 14, 2014, 212–21; CII, posthearing submissions to the USITC, February 28, 2014, and April 11, 2014.

multiplier effects in many other areas and has helped propel the strategic U.S.-India relationship on a positive trajectory. Nonetheless, the CII outlined in this submission why it strongly disagreed with findings and conclusions about India found in the International Intellectual Property Index for 2014, as released by the United States Chamber of Commerce's Global Intellectual Property Center (GIPC). The submission said that CII disagreed with GIPC's findings for the following reasons: (1) According to the CII, section 3(d) of the Indian Patent Act does not explicitly prohibit patentability, but merely provides certain qualifying criteria. CII also contended that it is incorrect to claim that India's legal system has not provided adequate protection for intellectual property. To the contrary, India's enforcement system, especially, the courts, are taking actions in this area. (2) The CII stated that Indian courts are very strict about online piracy. In contrast, CII notes that foreign firms such as eBay and Amazon are the ones resisting strict measures against online piracy. India's copyright act and trademark act are more than enough to check online piracy. (3) The CII stated that, although India has not signed any free trade agreement (FTA) with substantial IPR provisions, India has entered into a number of comprehensive economic cooperation agreements with different countries that have reasonable IPR provisions. (4) Finally, the CII pointed out that the GIPC's International Intellectual Property Index (GIPC Index) includes mixed indicators that are based primarily on perceptions, and hence the methodology for calculating the index is flawed and cannot be accepted.

The CII also stated that it supports provisions for compulsory licensing in the interest of maintaining public health. However, the CII recommended the establishment of a roster of experts from different fields to examine requests for a compulsory license, as well as close monitoring of post-compulsory license actions.

CropLife America[929]

Dr. Douglas T. Nelson, senior advisor for trade, intellectual property, and strategic issues, CropLife America's representative provided both oral and written testimony to the Commission. His testimony, Dr. Nelson expressed the organization's concern about intellectual property protection in India, specifically the protection of regulatory data. Dr. Nelson testified that the companies which CropLife America represents are being negatively affected by the lack of IPR protection, as well as market-access barriers, because India has no protection for proprietary data concerning agricultural chemical or crop protection. Further, in his oral testimony Dr. Nelson indicated that U.S. companies face overly burdensome requirements for market approval, with no guarantee that their proprietary and competitively sensitive data will remain

[929] USITC, hearing transcript, February 14, 2014, 247–52; CropLife America, written testimony to the USITC, February 13, 2014.

undisclosed; he said that this situation has hindered both U.S. and global industry trade with India. Dr. Nelson also noted that the Indian Pesticides Management Bill, which would implement data protection for crop protection products, has been pending for over six years and that, in the meantime, its absence has hindered trade.

Distilled Spirits Council of the United States[930]

In posthearing comments to the Commission, the Distilled Spirits Council of the United States said that the council is a national trade association representing producers, marketers, exporters, and importers of distilled spirits products, whose member companies export spirits products to more than 130 countries worldwide, including India. In its written comments, the council described U.S. distilled spirit exports to India as "disappointingly low." The council's comments cited both tariff and nontariff barriers in India as the reasons for "lackluster" export performance. The comments described India's base tariffs on imports of bottled spirits as among the highest in the world, with the added problem of additional customs duties and fees that discriminate against imported spirits. The council's comments also described several nontariff barriers, such as customs valuation and interest-rate bonding period procedures for imported spirits, that the submission said may violate several international trade rules. The submission detailed several other state-level restrictions that it called "discriminatory measures to imported distilled spirits, in apparent violation of India's WTO obligations."

Doctors Without Borders[931]

Mr. Rohit Malpani, the director of policy analysis at Doctors Without Borders (Médicins Sans Frontières, or MSF), an international medical humanitarian organization that provides medical assistance in 70 countries, gave oral testimony before the Commission, raising the issue of "evergreening." Mr. Malpani said that this is the practice in the United States of granting patents for the simple modification of existing medicines, which extends patent protection, keeps prices high, and delays generic competition. Referring to India as the developing world's source for generic pharmaceuticals, Mr. Malpani noted that developing nations and government donors, such as the United States, rely on Indian generic medicine in their administration of humanitarian aid. With regard to patent protection policies, Mr. Malpani acknowledged that there is a need to balance access and innovation in pharmaceuticals. Mr. Malpani testified that his organization strongly objects to pressure exerted by the United States on India, among other developing countries, for using "legal flexibilities" to protect public health while continuing to be in line with its international obligations. Mr. Malpani argued that

[930] Distilled Spirits Council of the United States, posthearing comments to the USITC, April 11, 2014.
[931] USITC, hearing transcript, February 14, 2014, 378–88.

the Indian government maintains a strong patent policy that abides by all treaty obligations and has made only limited use of compulsory licensing.

Sean Flynn, American University Washington College of Law[932]

Sean Flynn, professor of law at the American University's Washington College of Law, stated in oral testimony before the Commission that a "clear-eyed analysis" of India's intellectual property policies is likely to "show a relatively minimum impact" on the U.S. economy and U.S. trade, for the reason that "India is an extremely poor country with extremely high income inequality." He illustrated his point by saying that at the time India imposed a compulsory license on Bayer's Nexavar drug, Bayer was charging $5,000 per month in a country where the average income in the country was less than $2,000 per year. According to Mr. Flynn, this meant that the "real market" for the drug was a "minuscule" number of people at the very top tier of income earners in India. This, he added, was exactly the criterion that Indian courts were considering when adopting a compulsory license. Mr. Flynn also raised concerns about the value of some of the questions in the USITC questionnaire, particularly ones that asked companies to subjectively analyze what the "effect on their practices" is, adding that he did not find that "there can be really any utility in that kind of question." In a posthearing submission, Mr. Flynn and a colleague, Mr. Mike Palmedo, provided additional references to literature addressing issues raised at the hearing.

IBM Corporation[933]

In a letter to the Commission, Mr. Christopher A. Padilla, International Business Machines (IBM) corporation vice president of governmental programs, wrote that in 2013 when the Indian government published its Preferential Market Access policy, which created local-content requirements for information and communications technology (ICT) products and services, both IBM and other U.S. technology companies worked with the Indian government to "seek revisions that would excise those discriminatory provisions that were inconsistent with World Trade Organization rules." After constructive dialogue, wrote Mr. Padilla, the government of India agreed to key revisions of the policy. The letter noted that India's willingness to revise the PMA policy was an example of the government of India's readiness to engage foreign companies on important policy issues in a constructive manner.

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[932] USITC, hearing transcript, February 12, 2014, 50–60; Flynn and Palmedo, posthearing submission to the USITC, March 11, 2014.
[933] IBM, posthearing letter to the USITC, February 17, 2014.

Indian Pharmaceutical Alliance[934]

The Indian Pharmaceutical Alliance (IPA) provided oral testimony to the Commission as well as several written submissions. In its prehearing statement, it said that the IPA consists of 19 pharmaceutical companies in India. IPA Secretary-General Dilip G. Shah testified before the Commission that the IPA's members account for close to 80 percent of pharmaceutical R&D expenditures in India. In his final submission, Mr. Shah asserted that the U.S. pharmaceutical industry is not disadvantaged by India's patent environment and that the patent system in India continues to improve in addressing issues, such as through the hiring of additional patent examiners and the streamlining of patent processes. He addressed what he stated were the U.S. pharmaceutical industry's concerns about India's Patent Act, including compulsory licensing and denial of follow-on patents. In his final submission to the Commission, Mr. Shah indicated that the IPA is aware of only two applications for compulsory licensing since 2005 for reasons other than public health emergencies. In his final submission, Mr. Shah said that the IPA has repeatedly pointed out that "policy measures such Section 3(d) and compulsory licensing are not restrictive measures," but "mainly ensure that health outcomes do not deteriorate, within the framework of the [WTO] TRIPS Agreement." In oral testimony and written submissions, the IPA also addressed the issue of follow-on patents and stated that Indian patent law is strong and transparent, granting follow-on patents when the change enhances efficacy. The IPA further articulated the reasoning behind section 3(d) of the Indian Patent Act and noted that invalidation of follow-on patents is not uncommon in the United States.

Information Technology and Innovation Foundation[935]

The Information Technology and Innovation Foundation (ITIF), a research and educational institute located in Washington, DC, according to its website, presented both oral and written testimony to the Commission, represented by Mr. Stephen Ezell, a senior ITIF analyst. Mr. Ezell said that over the past few years, India has begun to implement what the ITIF describes as "innovation mercantilist policies" across many sectors, including local-content requirements, compulsory licensing, price preferences and subsidies for domestic manufacturers, market-access restrictions, and barriers to FDI. According to Mr. Ezell, these policies (1) introduce market "balkanization"; (2) introduce "excess competition" through price or quality preferences; and (3) compromise IP-dependent American industries. In addition, Mr. Ezell

[934] USITC, hearing testimony, February 12, 2014, 32–41; IPA, written submissions to the USITC, February 13, 2014; February 24, 2014; and April 9, 2014.
[935] USITC, hearing transcript, February 12, 2014, 72–81; ITIF, written testimony to the USITC, February 12, 2014.

stated that India's policies would establish a precedent and encourage other governments to adopt similar policies to close off their own markets to foreign competition. In his testimony before the Commission, Mr. Ezell stated that while "India's innovation mercantilist policies appear to offer India short-term benefits, in the long run they will prove self-defeating, while causing significant harm not just to India's economy . . . but also to enterprises and workers in the United States, and even damage to the global innovation economy."

Focusing on the ICT sector in his written testimony, Mr. Ezell estimated that compulsory registration for ICT products has caused U.S. and other foreign ICT enterprises to incur millions of dollars in new compliance and liability costs. In his written testimony, he said the ITIF estimates that "U.S.-based ICT production would fall by an estimated $1.7 billion, costing the United States 10,500 jobs, annually" if India's Preferential Market Access policy were to be fully realized. He further pointed out that the PMA may also compromise many American ICT firms that depend on proprietary ICT hardware when offering their services.

International Intellectual Property Alliance[936]

Mr. Michael Schlesinger testified on behalf of the International Intellectual Property Alliance (IIPA) before the Commission, as well as submitting both pre- and posthearing written briefs to the Commission, saying that the IIPA is a private sector coalition of trade associations representing U.S. copyright-based industries. Mr. Schlesinger stated in his testimony that the key impediments to IIPA members doing business in India are market-access and other discriminatory barriers to its members' businesses, as well as IP theft in the form of piracy and counterfeiting. The IIPA prehearing brief identified examples of market-access restrictions, including price controls and bans on exclusivity in the pay TV sector; high and discriminatory entertainment taxes; price fixing on tickets; onerous regulations on satellite signals into India; high import tariffs on entertainment software and hardware; software goods and services taxes, including transfer pricing rules and double taxation of software; and technology and procurement mandates which capture software.

The brief also identified issues of intellectual property content theft, including online, mobile, smartphone, and tablet piracy; unauthorized camcording of movies; unauthorized use of software and published materials; lack of priority for pursuing copyright piracy cases; lack of uniform enforcement within India; "must provide" requirements in the pay TV sector; and discriminatory procurement practices.

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[936] USITC, hearing transcript, February 12, 2014, 25–32; IIPA, prehearing brief and statement to the USITC, January 30, 2014, and posthearing brief and statement to the USITC, April 11, 2014.

The prehearing brief summarized the major copyright protection problems in India, including ownership provisions that alter existing commercial arrangements; lack of robust protection measures for technologies, including a failure to prohibit circumvention technologies, devices, and services; compulsory or statutory licenses that do not meet the internationally agreed provisions of the Berne Convention and WTO TRIPS Agreement; the absence of statutory provisions that allow takedowns of online infringements; limitations on and exceptions to copyright protections, such as exceptions for private or personal use that may not meet international norms; no provisions for statutory damages adequate to compensate rights holders in cases where the number of infringing copies or distributions cannot be determined; and a lack of provisions for increased civil and criminal penalties in cases where defendants make available pre-release works or similar subject matter. Appended to its posthearing brief, the IIPA provided a number of papers, studies, and presentations focused on aspects of intellectual property protection authored by the BSA Software Alliance,[937] the World Intellectual Property Organization, INSEAD,[938] Deloitte, and the Motion Picture Association that it said show a positive correlation between software IP protection, reduction of software piracy, and Indian economic development.

Knowledge Ecology International[939]

In his written statement to the Commission, Mr. James Love, director of Knowledge Ecology International (KEI), stated that KEI is a nonprofit organization with offices in Washington, DC, and Geneva, Switzerland. He said that KEI follows global negotiations on knowledge goods, including patented inventions for new drugs and other medical technologies. His testimony focused on the recent compulsory license issued by India to Bayer's cancer drug Nexavar. Mr. Love noted that the price for Nexavar in India was $5,626 per month, in a country where per capita income was $132 per month. This indicated that Bayer had no interest in selling its drug in India. Given the fact that few people in developing countries like India have access to expensive cancer drugs, Mr. Love suggested that U.S. policies regarding patents on pharmaceutical drugs in India should be informed by evidence, and that the very companies pressing for trade sanctions against India should be asked to provide information that sheds light on the consequences of strong patent protection for cancer drugs in developing countries. KEI also proposed that as part of the Commission's methodology for the study, the USITC staff should estimate the number of people who will die or have died because of a lack of compulsory licenses in India and other countries.

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[937] Formerly the Business Software Alliance.
[938] Originally, Institut Européen d'Administration des Affaires (European Institute of Business Administration).
[939] USITC, hearing transcript, February 14, 2014, 370–78; Love, written statement to the USITC, February 14, 2014.

National Association of Manufacturers[940]

The National Association of Manufacturers (NAM), represented by Ms. Linda Dempsey, vice president of international affairs, presented oral testimony before the Commission in addition to both a written prehearing statement and a supplemental posthearing submission. She noted that NAM is the largest industrial trade association in the United States. Ms. Dempsey testified at the hearing that "India is aggressively implementing a more strident industrial policy that has as its core the discrimination against foreign manufacturers and our products." She highlighted the barriers to trade faced by U.S. manufacturers in India that her organization considered problematic, including high import tariffs, restricted access to imported products and import bans, local-content requirements, and export taxes on raw materials, as well as patent license denial, revoked patent licenses, and compulsory licensing. NAM also recounted in its posthearing submission other "restrictive and trade-limiting" barriers, including additional duties, export taxes, and government procurement rules. Ms. Dempsey testified that India's policies target innovation-based, high-value-added sectors, such as telecommunications, clean energy, pharmaceuticals, and medical devices.

Regarding the USITC, NAM in its posthearing submission urged the USITC to evaluate dynamic economic effects, such as slower productivity growth, when considering the economic impact of India's policies on the U.S. economy.

National Association of Software and Service Companies[941]

India's National Association of Software and Service Companies (NASSCOM) was represented in both a prehearing brief by Mr. Shri R. Chandrashekhar, the current president of NASSCOM, as well as in oral testimony before the Commission by Mr. Jerry Rao, a former NASSCOM chairman. In its brief, NASSCOM says that it is an industry association representing over 1,500 members in the information technology and business process management sector that do business in India. At the hearing, NASSCOM noted that trade, commercial relationships, and investment in IT enterprises are "an especially bright spot in U.S.-India relations."

Mr. Chandrasekhar's brief summarized NASSCOM's position as follows: As a result of efforts by NASSCOM, "the government of India has responded with policies creating a wide range of

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[940] USITC, hearing transcript, February 14, 2014, 230–38; Dempsey, written submissions to the USITC, January 30, 2014, and April 11, 2014.
[941] USITC, hearing transcript, February 12, 2014, 60–72; Chandrashekhar, written submission to the USITC, February 11, 2014.

opportunities in the domestic market for U.S. and other foreign IT companies," and "progressive reform has continued [since 2001] with regular review and easing of fiscal and procedural issues on taxes, duty exemptions and gradual removal of restrictions on overseas investment." The written and oral testimonies said that NASSCOM has been a strong advocate for intellectual property protection, which in turn helps encourage U.S. and other international companies to collaborate with Indian partners on R&D and design functions. NASSCOM's brief says that NASSCOM has contributed directly to the Indian government's cybersecurity and data protection policies by conducting so-called Common Criteria evaluations. The brief said that NASSCOM had also helped to promote best practices for data security and privacy, as well as security and privacy assessment frameworks; organize information security summit meetings with key stakeholders; and train and hold workshops for judiciary staff and police officers in the area of cybercrime.

Both its written and oral testimonies indicated that NASSCOM has lobbied the government of India to enact business reforms, including redrafting the PMA policy, clarifying transfer pricing and other tax administration issues, and changing Special Economic Zone rules. In its written brief, NASSCOM said it has encouraged the government of India to improve its enforcement of intellectual property rights.

National Center for Policy Analysis[942]

The National Center for Policy Analysis (NCPA), described on its website as a public policy research organization, submitted posthearing comments to the Commission. In its submission, Mr. Devon Herrick and Mr. Clinton Ritchey, respectively a senior fellow and research associate at the NCPA, wrote of the integral role patent rights plays in many industries, the pharmaceutical industry in particular. Commenting on patent protection as a key reason companies invest in innovation in the drug industry, the NCPA comments point to some "highly publicized cases" where Indian courts have broken pharmaceutical patents. The submission says that "India shuts out U.S. pharmaceutical companies, using U.S. innovation for the benefit of their domestic companies." The NCPA suggests instead that India should work with U.S. pharmaceutical companies to strengthen India's intellectual property rights for the mutual benefit of both the United States and India. The NCPA contends that India's continued barriers against U.S. pharmaceutical firms are likely to hinder "job and economic growth for both countries."

[942] Herrick and Ritchey, written submission to the USITC, April 4, 2014.

National Milk Producers Federation and the U.S. Dairy Export Council[943]

The National Milk Producers Federation (NMPF) and the U.S. Dairy Export Council (USDEC), in a joint prehearing submission to the Commission, said that the NMPF is the national farm commodity organization that represents dairy farmers and the dairy cooperative marketing associations in operation throughout the United States. These prehearing comments also said that the U.S. Dairy Export Council (USDEC) is an independent, nonprofit organization that represents the global trade interests of its members, which include U.S. dairy producers, proprietary processors and cooperatives, ingredient suppliers, and export traders.

According to their submitted comments, the NMPF and USDEC consider India as a large and unrealized market opportunity for the U.S. dairy industry. Their submission contended, however, that U.S. dairy products face significant trade barriers to enter the Indian market. Since 2003, the Indian government has imposed sanitary and phytosanitary (SPS) barriers that block most U.S. dairy exports to India, according to the submission. The NMPF and USDEC in particular highlighted the late-2003 revision of the SPS certificate India requires for all imported dairy products, following an increase in dairy imports into the Indian market from the United States and other countries. In addition to the SPS import certificate, the submission reported that the Indian government has also required other import certification procedures for U.S. dairy products which, the two organizations said, were duplicative and more trade-restrictive than are necessary to protect human and animal life and health.

NMPF and USDEC further stated that India maintains tariff-rate quotas (TRQs), as well as high tariff rates, which also limit imports of dairy products. NMPF and USDEC pointed out that since early 2004 the U.S. government has actively sought to reach a mutual agreement on a dairy import certificate, but suggest in their submission that the Indian government has not engaged to resolve this trade dispute, but instead raises new issues to prevent a resolution.

In the submission, the USDEC calculated that resolution of the dairy import certificate issue could yield upward of $100 million in U.S. dairy exports to India by 2018, and $122 million by 2023. According their comments, the NMPF and USDEC believe that resolution of the certificate issue is critical to maximize future export possibilities for the U.S. industry, where at present the simple risk that a shipment will be rejected at the Indian border because of an unaccepted dairy certificate has prevented most U.S. dairy exporters from attempting to ship to the Indian market.

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[943] NMPF and USDEC, written submission to the USITC, January 30, 2014.

Pharmaceutical Research and Manufacturers of America[944]

The Pharmaceutical Research and Manufacturers of America (PhRMA) submitted to the Commission a prehearing statement and posthearing submission. Mr. Rod Hunter, PhRMA's senior vice president for international advocacy, also presented oral testimony to the Commission. Mr. Hunter noted that PhRMA is a nonprofit association that represents the United States' leading global pharmaceutical research and biotechnology companies. He stated that many of its member companies are directly affected by what they refer to as India's barriers to U.S. trade and investment, and that others are experiencing the effects of India's "anti-innovation policies" in other countries where similar policies have been instituted.

The PhRMA statement asserted that that India's IP environment does not value innovation and contended that intellectual property is key for the productivity, growth, and competitiveness of U.S. companies, while weak IPR protection discourages R&D. PhRMA referred to India's patentability standard as "unfair and discriminatory," and stated that the additional condition of "enhanced efficacy" for patent protection in India's Patent Act appeared to apply only to pharmaceuticals and thus discriminates against a particular field of technology. PhRMA also listed other examples of rules that have hindered innovation, such as pre-grant opposition proceedings; lack of protection for required clinical test data and other data submitted during the marketing approval process; lax patent enforcement for patented pharmaceutical products when a generic product seeks marketing approval during the patent term; and other unnecessarily burdensome patent application requirements. In its posthearing submission, PhRMA contended that weak IP protection functions as a market-access barrier, and that failing to protect and enforce IP rights is "tantamount to appropriation."

Public Citizen[945]

In oral testimony to the Commission as well as written comments submitted to the Commission, Peter Maybarduk, director of the global access to medicines program at Public Citizen, said that Public Citizen was a nonprofit consumer advocacy group based in Washington, DC. Mr. Maybarduk detailed the view that India was well within the bounds of its international trade obligations—the WTO TRIPS Agreement in particular—to adopt policies to promote public interests, including public health, and so such policies should not be considered trade

[944] USITC, hearing testimony, February 14, 2014, 351–56; PhRMA, written submissions to the USITC, February 13, 2014 and February 25, 2014.
[945] USITC, hearing transcript, February 14, 2014, 388—95; Maybarduk, written submission to the USITC, April 11, 2014.

barriers. India's compulsory licensing of life-extending and life-saving cancer treatments to bring the costs of cancer drugs under control is one such example, according to Mr. Maybarduk's submission, which went on to suggest that "India should make more frequent use of compulsory licensing to promote public health." The submission questioned how the USITC in its study could measure economic harm to U.S. interests from Indian intellectual property rules where, under WTO disciplines, countries are free to define several of the relevant standards to protect public health interests in areas concerning "access, innovation, competition and scientific progress." In his oral testimony, Mr. Maybarduk also commented on the issue of pharmaceutical pricing, saying that to his understanding India's policy of price caps on drugs applies only to generic drugs and not to patented pharmaceuticals. As a consequence, he said that it was difficult to understand how U.S. companies' interests were prejudiced with regard to patented drugs marketed by U.S. firms.

Srividhya Ragavan, University of Oklahoma, College of Law[946]

According to a prehearing submission to the Commission from Professors Srividhya Ragavan, Brook Baker, and Sean Flynn,[947] India's recent enactment and implementation of its patent law is fully in accord with the WTO TRIPS Agreement. The authors stated that India has demonstrated its adherence to its TRIPS obligations, as well as to a trade regime based on national treatment and nonprotectionism, by "revamping its systems, instituting massive changes to further intellectual property rights and by establishing prudent IP standards that apply equally to both domestic and foreign companies." The authors also noted that the TRIPS Agreement leaves countries "free to define patentability criteria, including to define what is not an invention." Along the same lines, their prehearing submission says that each member of the WTO has the "sovereign right to determine and establish the threshold for the non-obviousness/inventive-step requirement." The authors go on to say that "Thus, India is within its rights to establish that the new forms or uses of existing and known molecules that do not significantly increase the therapeutic effectiveness of such substances are not entitled to patent protection." The three professors also stated that most of the questions used in the USITC survey are "irrelevant to the task of ascertaining whether India's policies violate" the WTO TRIPS Agreement.

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[946] USITC, hearing transcript, February 12, 2014, 41–50; Ragavan, Baker and Flynn, pre- and posthearing submissions to the USITC, February 10, 2014 and February 28, 2014.

[947] Srividhya Ragavan, professor at the University of Oklahoma, College of Law; Brook Baker, professor of law at the Northeastern University School of Law; and Sean Flynn, associate director and lecturer in law at the American University's Washington College of Law.

In her oral testimony, Ms. Ragavan stated that Bayer's Nexavar is the only drug subject to compulsory licensing in India. She went on to say that, considering the "exceptionally high pricing of the drug" given the per capita income in India, "the fact that Bayer has been compulsory licensed has affected absolutely no market because nobody could afford that market in India." Ms. Ragavan pointed out that the WTO TRIPS Agreement allows countries to establish a compulsory license regime in order to carry out public health requirements within a country, such that section 84 of the Indian Patents Act is "absolutely in compliance" with these requirements of the TRIPS Agreement. Ms. Ragavan explained that when looking at agricultural issues, such as India's Plant Variety and Farmers' Rights Act, Article 27.3 of the WTO TRIPS Agreement "basically mandates" establishment of an intellectual property protection regime by either patents, an effective sui generis system, or a combination of both. As India's system is an effective sui generis system, according to Ms. Ragavan, India, like other developing countries, was able to take advantage of the flexibilities provided under Article 27.3.

Sonecon LLC[948]

Mr. Robert J. Shapiro, chairman of Sonecon LLC, a Washington, DC, firm providing economic and risk-management services, according to its website, submitted both written and oral testimony to the Commission. His testimony focused on what he described as "India's weak respect for and enforcement of the intellectual property (IP) rights of U.S. companies and citizens." Mr. Shapiro's written as well as oral testimony detailed a number of economic measures by which he concluded that "India does not conduct itself as a responsible actor with respect to the IP rights of American companies." Mr. Shapiro contended that, based on work he and others have done, if India adopted intellectual property rights and enforcement comparable to those of the United States, U.S. foreign direct investment in India's pharmaceutical industry would likely increase threefold over the next four years, from a projected $8.8 billion to $25.3 billion. He suggested that given the fast growth in developing markets, "India's current lax IP regime directly harms U.S. domestic business investment" apart from its impact on U.S. exports.

[948] USITC, hearing transcript, February 14, 2014, 356–63; Sonecon, written submission to the USITC, January 27, 2014.

Arvind Subramanian, Peterson Institute for International Economics[949]

Dr. Arvind Subramanian, of the Peterson Institute for International Economics and the Center for Global Development—both economic policy research institutions based in Washington, DC, according to their websites—provided both oral and written testimony to the Commission about U.S.-India economic integration and India's trade policy regime. Dr. Subramanian's testimony also bore on recent trade and investment developments between the two countries, in particular those concerning intellectual property. Dr. Subramanian noted that, although there have been trade frictions between India and the United States, rapid and robust integration has been occurring between the two countries not just in goods, but also in services and foreign direct investment. Dr. Subramanian also contended that this integration had not come at the expense of U.S. employment.

With respect to the concern that India has systematically turned protectionist in the last few years, Dr. Subramanian stated that the picture is more mixed, with retreat from a more open economy in some sectors co-existing with significant liberalization in several others. He further stated that India's manufacturing sector presents only modest levels of protection, while the services sector is more highly protected. In terms of India's intellectual property regime, he argued that any assessment of the IP regime in pharmaceuticals hinges crucially on the benchmarks used: if the Indian IP regime is compared with those in industrial countries or the richer trading partners of the United States, it falls short. However, he said, if the metric used is consistency with India's WTO obligations or comparison with India's adherence to TRIPS rules in a historical perspective, India's IP regime "may not fare badly." He concluded that the concerns of sectoral interests should not obscure the broader and medium-run developments in India's policies and trade outcomes, which he stated have been positive. He also suggested that the United States and India should be focusing on building a framework that can address frictions and revive cooperation more broadly, and recommended that the two countries should move toward an eventual free trade agreement.

Telecommunications Industry Association[950]

The Telecommunications Industry Association (TIA) submitted a written statement to the Commission by Danielle Coffey and Eric Holloway, respectively, vice president for government affairs and director of international and government affairs. The statement expressed concern

[949] USITC, hearing transcript, February 12, 2014, 12–19; Subramanian, written submission to the USITC, April 12, 2014.
[950] Coffey and Holloway, written submission to the USITC, April 9, 2014.

about the increased use of information and communications technology policies that "create localization barriers to trade for India's telecommunications sector and the ICT sector more broadly, as well as other policies that negatively impact the commercial environment for global ICT companies operating in India." The TIA statement expressed concern "that there is an underlying trend in India to implement policies that would reverse the pro-growth and pro-competition trajectory that has benefited India." Among these localization barriers, according to the submission, are:

- domestic manufacturing and government procurement preferences, such as the Indian government's 2011 Manufacturing Policy with its focus on indigenous technology and manufacturing;
- security-related preferences through amendments to the Unified Access Service License Agreement that included transfer of technology requirements, Indian nationality requirements, and mandatory security agreements between telecommunications operators and vendors;
- testing and inspection requirements; and
- preferential market access in government procurement policy.

Other commercial challenges detailed by the TIA submission included compulsory registration orders for electronic and IT products; corporate social responsibility rules that mandate certain company spending requirements; and possible wireless device approval procedures that would require safety testing and certification requirements. The TIA warned that adopting domestic manufacturing requirements and national standards in India that are incongruent with international standards will inhibit India's long-term growth.

U.S.-India Business Council[951]

In his prehearing submission, Ron Somers, president of the U.S.-India Business Council (USIBC), stated that USIBC has witnessed an impressive expansion in India of FDI by U.S. companies since 2003. Mr. Somers noted in his submission that the growth of India's middle class presents an extremely lucrative market for American goods and services. However, he also pointed to both short-term and long-term impediments that he said have hampered business growth, including infrastructure bottlenecks, policy reversals, and protectionist actions. He listed a number of important policy choices that USIBC considered key to the continued strength of the U.S.-India economic relationship:

[951] USITC, hearing transcript, February 14, 2014, 221–30; Somers, written submissions to the USITC, January 30, 2014 and February 25, 2014.

- Support less restrictive domestic manufacturing requirements under India's Preferential Market Access policy designed to force creation of indigenous manufacturing jobs.
- Better align U.S. and India tax policies and administration to avoid the uncertainty that inhibits investment, such as tax disputes over transfer pricing.
- Support immigration reforms that would allow free movement of technical professionals between the United States and India.
- Create an environment in India that protects intellectual property and rewards innovation rather than one that challenges existing patents, imposes compulsory licenses, and stifles investment in areas such as pharmaceuticals and green technology.
- Address investment difficulties that arise from bottlenecks in infrastructure projects, notably lack of transparency and payment security, particularly in the power sector.
- Lift foreign investment caps in the retail sectors, including single-brand, multibrand, and electronic retail.
- Conclude pending contracts and letters of acceptance to strengthen U.S.-India defense and strategic commercial ties.
- Build on the current growth in the tourism sector through travel reciprocity programs such as Global Entry, Trusted Traveler, and other streamlined customs procedures.
- Negotiate a U.S.-India bilateral investment treaty that would facilitate increased two-way investment.

In oral testimony before the Commission, Mr. Somers noted that despite India's opaque tax decision-making process, the government of India has demonstrated a notable effort to engage more directly with industries on tax concerns. On intellectual property rights, he stated that technology and innovation were the two keys to resolving difficulties in this area, and that it was essential to develop shared IPR systems that reward and protect intellectual property. On the Indian government's PMA policy, he said that the USIBC was relieved that the Indian government had "backed away from their PMA policy affecting the private sector," and noted that the USIBC is satisfied that this PMA policy now applies only to public procurement in India.

United States Chamber of Commerce[952]

The United States Chamber of Commerce (USCC) Global Intellectual Property Center (GIPC) provided both pre- and posthearing written statements, as well as oral testimony that was presented to the Commission by Mark Elliot, executive vice president of the GIPC. In all cases, the GIPC conveyed concern over India's "weakening" IP regime. According to the GIPC, examples of the deterioration of India's IP regime include inadequate protection under

[952] USITC, hearing transcript, February 12, 2014, 19–25; United States Chamber of Commerce, written submissions to the USITC, January 30, 2014, and April 11, 2014.

copyright legislation for the motion picture and recording industries, possible compulsory licensing in the green technology sector under India's National Manufacturing Policy, and tax policies for development centers in India that ignore internationally accepted standards for compensation, as well as compulsory licensing in the biopharmaceutical industry. In testimony and in written submissions, Mr. Elliot and GIPC said that patent cases involving protection of pharmaceuticals are often not about actual access to the medicine, offering the example of a foreign firm that offered a drug for free or at heavily subsidized prices, but after the patent for the drug was revoked, the price for the generic version rose to 3–4 times the average annual income in India. The GIPC warned in its oral testimony that the deterioration of IP rights affected FDI flows, particularly in relation to pharmaceutical patents, and that the business community is losing confidence in India's IP environment.

Wine Institute[953]

According to its written submission, the Wine Institute is the public policy advocacy association for 1,000 California wineries and businesses. Its comments, submitted on behalf of the California wine industry, requested consideration of "the very significant discriminatory non-tariff and tariff barriers that U.S. wineries face in exporting to India." The submission identified two national tariff barriers on wine in India: (1) a 150 percent duty on all imported wines, and (2) a 1 percent landing fee applied on a cost, insurance, and freight (c.i.f.) basis, as well as a special so-called countervailing duty tax of 4 percent on the c.i.f. duty price and associated landing fee. In addition to the national tariff barriers, the submission points out that there are also duties and taxes assessed by provincial and state authorities that range from 22 to 200 percent, also applied on a c.i.f. basis, as well as additional duty and landing charges.

According to the submission, nontariff barriers over and beyond tariff barriers make it "virtually impossible" for U.S. wineries to export to India. The Wine Institute singled out three barriers: (1) India's exclusion of certain internationally accepted additives and processing aids used by U.S. winemakers, (2) an Indian requirement that all imported wines must be stored at government-approved custom bonded warehouses that charge storage fees, and (3) the inability of importers to adjust packaging labels for any mandatory information not already included on the production label. The Wine Institute said in its submission that the Food Safety and Standards Authority of India (FSSAI) had granted variances in the past to allow labels to be corrected once on the market, but that these variances have expired and are not expected to be renewed.

[953] LaFaille, written submission to the USITC, February 12, 2014.

The Wine Institute attached to its February 12, 2014, submission to the USITC comments that were provided by JBC International[954] to FSSAI on behalf of the U.S. wine industry. These comments addressed several methods of analysis for alcoholic beverages put forth by the FSSAI Manuals of Methods of Food Testing, asserting that many of the analyses would give different results than those given by internationally accepted methods and in general would be difficult and expensive to implement.

[954] JBC International is an international trade services consulting firm, according to its website.

Appendix E
Survey Questionnaire

UNITED STATES
INTERNATIONAL TRADE COMMISSION

POLICIES IN INDIA AFFECTING U.S. BUSINESS QUESTIONNAIRE

Written Completion Version

United States International Trade Commission
Attention: India Survey Project Team
Office of Industries, Room 511-G
500 E Street, SW, Washington, DC 20436
Fax: 202-205-2217

The U.S. International Trade Commission (USITC) is conducting a fact-finding investigation regarding Indian industrial policies that discriminate against U.S. imports and investment, and their effect on the U.S. economy. The House Committee on Ways and Means and the Senate Committee on Finance requested this investigation. The Committees directed the USITC to survey U.S. companies about recent changes in Indian policies and the effect these changes have had on company strategies towards India. This questionnaire has been designed to collect information to fulfill this request. You can learn more about this investigation (no. 332-543) by going to the following web site:

http://www.usitc.gov/research_and_analysis/What_We_Are_Working_On.htm

What we are asking you

If your organization has:	This survey asks:
No exports and no foreign affiliates	Limited information about your company so we can ensure our survey accurately represents your industry
Exports to, or foreign affiliates in, countries other than India	Whether Indian policies have affected your decision not to engage with India
Exports to India or foreign affiliates there	Your experience with Indian policies and how they have affected your company

Your organization is required by law to respond to this questionnaire.

Please read all instructions and return the completed questionnaire to the USITC no later than March 18, 2014.

We are requesting this information under the authority of section 332(g) of the Tariff Act of 1930 (19 U.S.C. § 1332(g)). Completing the questionnaire is mandatory, and failure to reply as directed can result in a subpoena or other order to compel the submission of records or information in your possession (19 U.S.C. § 1333(a)). For more information on this questionnaire, contact project team members William Powers or Renee Berry at *indiasurvey@usitc.gov*. You may also call the team at 202-205-3427 or 202-708-5453.

Confidentiality

The Commission has designated as "confidential business information" the information you provide in response to this questionnaire, to the extent that such information would reveal the operations of your organization and is not otherwise available to the public. The Commission will not disclose such confidential business information except as provided for in section 9 of this questionnaire. Information received in response to this questionnaire will be aggregated with information from other questionnaire responses and will not be published in a manner that would reveal the operations of your organization.

OMB no. 3117-0227; Expiration date: 1/31/2017
No response is required if a currently valid OMB control number is not displayed

Instructions

1. **Retrieving the written completion version of the questionnaire.** If you need another copy of the questionnaire, please contact the project team (see cover for contact information). This version of the questionnaire is appropriate if you are completing the questionnaire using written responses. An electronic completion version of this questionnaire is also available. It has been designed to simplify the entry process and minimize the need for our staff to contact your firm for clarifications. If your firm would prefer to use the electronic completion version, please go to the address below using a web browser and download it to your computer.

   http://www.usitc.gov/indiasurvey

2. **Entering information.** Provide responses for each question that applies to your firm. Write in a response or check a box as indicated in each question.

3. **Entering numeric data.** Note that data for sales, employees, etc. should be entered as full figures, not in thousands, millions, or similar format. For example, enter "123,400,000," not "123.4 million."

4. **Submitting the questionnaire.** After completing the questionnaire, follow the submission instructions in section 10. Please keep a copy of your submission for your records.

General information

1. **Coordinating your organization's response.** If separate persons or departments within your organization will share responsibility for completing this questionnaire, please coordinate your responses so that the information your organization gives us is consistent. This will minimize our need to call you back for clarifications.

2. **Relationship to corporate structure.** Please provide a single response for your organization's activities. This may require your organization to combine information from two or more business units.

   If it is not possible to combine responses, or it is unreasonably burdensome, then your organization may provide separate responses for business units, but please ensure that the information is complete and that there is no double-counting. If you have joint venture organizations operating in the United States, please ensure there is no double-counting with other business units of the joint venture partners.

3. **U.S. affiliates of foreign companies.** Please respond as if the affiliate were an independent organization operating in the United States. For example, show total sales for the affiliate and its subsidiaries only, and not for the foreign corporation.

4. **"You" and "Your."** Parts of the questionnaire refer to "you" and "your." These words refer to the organization that is responding to the questionnaire.

5. **"United States."** This refers to the customs territory of the United States, which includes the 50 states, the District of Columbia, and Puerto Rico.

6. **Year**. All references to years means calendar years. If you normally use fiscal years, please convert to a calendar year basis for the responses in this questionnaire.

7. **Questionnaire structure.** This questionnaire is composed of ten sections, as shown below.

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Definitions

1. **Goods:** Products that are covered by the Harmonized Tariff System (i.e., any product for which imports are typically recorded by the Customs bureaus of national governments). This includes all agricultural products, natural resources, and manufactured products. If your firm exports "goods" that are provided digitally, such as software files transferred over the Internet, you should generally record these as exports of services (see definition below), rather than as goods, unless you also export the files on physical media (e.g., disks, hard drives) and cannot separate export figures for the two different forms.

2. **Services:** Products that do not have physical form. This includes wholesale trade, retail trade, transportation and warehousing, information, finance and insurance, real estate and rental and leasing, professional, scientific, and technical services, certain services provided by mining, utilities, and construction firms, and other services as defined in the 2007 version of the North American Industry Classification System (NAICS 2007). Products that are exported digitally and that are not also distributed on physical media (e.g., disks, hard drives) should be recorded as exports of services. Please see the definition of goods (above) for further guidance on the classification of digital exports.

3. **Foreign affiliate**: A firm in a foreign country in which your organization has an equity stake of 10 percent or more.

4. **Establishment**: A single physical location at which business is conducted and/or services are provided. It is not necessarily identical with a company or enterprise, which may consist of one establishment or more. The main objective of the site should be to conduct business. Independent contractors or employees working out of their homes should not be considered separate establishments.

5. **Sales**: Goods or services sales, net of returns, discounts, and allowances. Includes internal consumption and transfers to related organizations, as applicable, at fair market value. Same as sales as shown on a typical income statement.

6. **Employees**: The number of employees (including part-time and temporary workers) at your your organization's facilities. Include production and related workers, managers, supervisors, technicians, office workers, etc. related to your organization's activities. If your firm is an affiliate of a foreign firm, include only employees that can be attributed directly to your organization's U.S. affiliates.

Section 1: Basic Information

1.1 Please enter the 5 digit identification number that was in the notification letter we sent to your organization. This will allow the project team to track your response. If you do not know this number, leave the entry area blank and proceed to the next question.

Identification number

1.2 Please list your organization's primary address and a contact person.

Organization name

Address

City | State | Zip code | Website address (www.name.domain)

Contact person's name | Contact person's job title

Contact person's telephone number (xxx-xxx-xxxx) | Contact person's email address (xxx@xxx.xxx)

1.3 Is the organization named above a subsidiary of an organization operating in the United States?

- ☐ Yes
- ☐ No

If this questionnaire has been sent to one or more subsidiaries and/or the related parent company, then there should be one coordinated response. If it is not possible to coordinate responses, or it is unreasonably burdensome, then your organization may provide separate responses for subsidiaries, but please ensure that the information is complete for your entire organization and that there is no double-counting.

1.4 Is the organization named above a parent company operating in the United States?

- ☐ Yes
- ☐ No

If your organization is a parent company, then this submission should reflect all the activities of the subsidiaries that have U.S. operations. Alternatively, each subsidiary with U.S. operations may provide a separate questionnaire response.

How to report numeric figures	
If sales or costs are $1,200,500, enter in full figures as:	1200500
If the number of employees is 1,550, enter in full figures as:	1550
Note: After you enter a numeric figure, commas between digits will appear automatically.	

For employee data, include the number of your organization's employees (including part-time and temporary workers), at facilities located in the United States and foreign countries. Include production and related workers, managers, supervisors, technicians, office workers, etc. related to your organization's activities. If your firm is an affiliate of a foreign firm, include only employees that can be attributed directly to your organization's U.S. affiliates.

1.5 Please list the number of employees (including part-time and temporary workers) during the years indicated below for your organization's U.S. and foreign activities. **Your best estimates are acceptable**. If your organization is an affiliate of a foreign organization, include only employees that can be directly attributed to your organization's U.S. affiliate and to foreign locations that report to the U.S. affiliate.

#	Employees	2007	2010	2013
1	Number of employees for all your organization's activities in the **United States and all foreign countries** (in full-figures, not in millions or other format)			

1.6 What is your organization's primary sector and corresponding subsector? If your organization is in multiple sectors, please select the one that composes the highest percentage of your revenue in 2013. Check only one primary sector below, and then check only one corresponding subsector.

☐ Agricultural products primary sector

Corresponding subsectors:					
Alcoholic beverages	☐	Grains, malts, starches, or cereals, and animal feeds	☐	Sugar or other sweeteners	☐
Coffee, tea, nuts, or spices	☐	Nonalcoholic beverages, including fruit and vegetable juices	☐	Wool or cotton (raw), fur, and hides	☐
Dairy products (including infant formulas)	☐	Oilseeds or animal or vegetable fats and oils	☐	Other agricultural, food, and beverage products	☐
Fresh or frozen fruits or vegetables	☐	Processed or manufactured food products	☐		
Fresh or frozen meat, poultry, eggs, or fish	☐	Seeds or live plants	☐		

☐ Natural resources, metals, and related downstream products primary sector

Corresponding subsectors:					
Cement, stone, glass, fiberglass, ceramics, or other industrial mineral products	☐	Nonferrous base-metal (e.g., copper, aluminum) mill products, semi-fabricated products	☐	Wood or wood products, paper or paper products	☐
Coal, coke, and related chemical products	☐	Petroleum products	☐	Other manufactured metal products	☐
Iron or steel mill products; semi-fabricated or fabricated products; or waste and scrap thereof	☐	Precious gemstones, semiprecious stones, or pearls	☐		
Natural gas and components	☐	Precious metals (unwrought or semi-fabricated); non-numismatic coins; jewelry	☐		

☐ Chemicals, textiles, and other manufactured goods/equipment primary sector

Corresponding subsectors:					
Aircraft parts or aircraft	☐	Generators, turbines, or other energy-related equipment	☐	Printed circuits, circuit apparatus, semiconductors and integrated circuits, or parts thereof	☐
Apparel or other finished textile products, or footwear	☐	Household or commercial appliances	☐	Rail locomotive, rolling stock, or parts thereof; ships or parts thereof	☐
Computer hardware or parts thereof	☐	Medical devices	☐	Rubber or rubber products (including tires)	☐
Construction or mining equipment or industrial vehicles	☐	Medicinal chemicals/ pharmaceuticals	☐	Telecommunications and broadcasting equipment, including optical fibers	☐
Consumer electronics (not including telecommunications equipment or computers)	☐	Motor vehicles or parts thereof	☐	Other chemical products	☐
Essential oils, soaps, detergents, perfumes, cosmetics, or toiletries	☐	Organic or inorganic chemicals (not transformed into one of the product groups listed elsewhere	☐	Other machinery	☐
Fertilizers or pesticides	☐	Paints, inks, pigments, dyes, adhesives, tanning materials, or photographic chemicals	☐	Other manufactured goods	☐
Fibers, yarns, or fabrics (synthetic or natural)	☐	Plastics or plastic products			

Continued on next page.

1.6 Continued:

What is your organization's primary sector and corresponding subsector? If your organization is in multiple sectors, please select the one that composes the highest percentage of your revenue in 2013. Check only one primary sector below, and then check only one corresponding subsector.

☐ Financial services primary sector					
Corresponding subsectors:					
Asset management	☐	Investment banking	☐	Other financial services	☐
Commercial banking	☐	Risk management	☐		
Insurance	☐	Retail banking	☐		

☐ Retail, wholesale, and related seervices primary sector					
Corresponding subsectors:					
Franchising	☐	Retailing	☐	Rental and leasing (except IP and real estate-related services)	☐
Wholesaling	☐				

☐ Telecommunication, broadcasting, publishing, information, and IP licensing primary sector					
Corresponding subsectors:					
Broadcasting	☐	Newspaper, periodical, book, database, and software publishing	☐	Wired telecommunications	☐
Cellular telecommunications	☐	Recording or publishing of media, including software	☐		
Licensing of intellectual property	☐	Satellite telecommunications	☐		

☐ Other primary sector					
Corresponding subsectors:					
Administrative or business support	☐	Education	☐	Research and development	☐
Advertising	☐	Electricity development or distribution	☐	Road transportation	☐
Air, maritime, or rail transportation	☐	Environmental services (except waste management and sanitation)	☐	Travel, accommodation, or other tourism-related services	☐
Architecture or engineering	☐	Legal (including foreign legal consultancy)	☐	Waste management and sanitation	☐
Computer systems design, data management, or other IT services	☐	Management consulting	☐	Other professional or support services	☐
Construction	☐	Mining services	☐	Other transportation or warehousing	☐
Dental, medical, or veterinary services	☐	Natural gas or oil development or distribution	☐	Other services not listed	☐

1.7 During 2013, how important to your business were the following types of intellectual property?

#	Intellectual property type	Not important	Somewhat important	Very important
1	Patents	☐	☐	☐
2	Trademarks	☐	☐	☐
3	Copyrights	☐	☐	☐
4	Trade secrets, including protection of test data	☐	☐	☐
5	Other (specify):	☐	☐	☐

1.8 During 2007-2013, did your organization (check all that apply):

☐ Export goods or services from the United States to any foreign country?

☐ Have any foreign affiliates (i.e., a firm in a foreign country in which your organization has an equity stake of 10 percent or more)?

If you checked any of the boxes in question 1.8, please go to the next section.

If you did not check any of the boxes in question 1.8, please go to section 9.

Section 2: Activity in India

Beginning with this section, you will be asked to provide data on goods and services separately. You will also be asked to separate these data depending on whether these goods or services originate from your U.S. facilities or your Indian facilities. Please note:

The export of goods (or merchandise) includes the sale of goods by your U.S. facilities to customers in India. If these same goods were sold by your operations in India, then it would count as a foreign affiliate sale.

Service exports occur when your organization sells services from facilities based in the United States to consumers in India, with people, information, or money crossing national boundaries in the process. For example, if your organization has accountants based in the United States that provide services for a firm in India, these are service exports. If your organization sells the same service from accountants based in Indian facilities, then these count as foreign affiliate sales.

See the definitions section for more information about these terms.

2.1 During 2007-2013, did your organization (check all that apply):

- ☐ Export goods or services from the United States to **India**?
- ☐ Have an equity stake of 10 percent or more in an affiliated organization in **India**?

If you checked any of the boxes in question 2.1, please go to the next question.

If you did not check any of the boxes in question 2.1, please go to section 7.

2.2 In what year did your organization first engage in the Indian market via exports or foreign affiliate sales?

Year (XXXX) ☐

2.3 Please list the value of your organization's exports of goods and services from the United States to India during the years indicated below. **Your best estimates are acceptable**. If you did not have any such exports, please leave these question response areas blank.

#	Category	2007	2010	2013
1	Total exports of goods to India from U.S. operations (in full-figures, not in millions or other format)			
2	Total exports of services to India from U.S. operations (in full-figures, not in millions or other format)			

Note: Total exports should include all exports that originated in the United States and whose final destination was India. The value should include exports to both affiliated and unaffiliated organizations in India, as well as any exports directly to final consumers. If your organization exported a product that combined or bundled a service, please allocate the values across the two categories.

2.4 A. Do Indian firms produce goods or services that have equivalent quality and compete directly with your products or services in the Indian market ?

☐ Yes

☐ No

B. If yes, please indicate below how the price of the directly competing Indian goods or services compare, on average, with the goods or services sold by your firm in the Indian market. **Your best estimate is acceptable**.

☐ Prices are comparable

☐ Prices of your goods or services are higher than Indian goods or services by [ ] percent

☐ Prices of your goods or services are lower than Indian goods or services by [ ] percent

2.5 Please list the value of your organization's equity investment in Indian affiliates and the value of sales by those affiliates during the years indicated below. **Your best estimates are acceptable**. If you did not have any such investment or sales, please leave these question response areas blank.

#	Category	2007	2010	2013
1	Total investment into India (in full-figures, not millions or other format)			
	Foreign affiliate sales:			
2	Total foreign affiliate sales of goods in India (in full-figures, not in millions or other format)			
3	Total foreign affiliate sales of services in India (in full-figures, not in millions or other format)			
4	Total foreign affiliate sales			

Note: Total investment should include the cumulative value of debt, equity, and reinvested earnings invested into the foreign affiliate as of the end of the year. For both investment and sales, include only entities in which your organization controls 10 percent or more of the voting stock. If your organization sold a product that combined or bundled a service, please allocate the values across the two categories.

2.6 Please indicate the states in India in which your organization had establishments at the end of 2013. If you had no such establishments, please leave the question response check box(es) blank.

An establishment is a single physical location at which business is conducted and/or services are provided. It is not necessarily identical with a company or enterprise, which may consist of one or more establishments. The main objective of the site should be to conduct business. Independent contractors or employees working out of their homes should be excluded.

Region	State	Check if you have establishments in the state	State	Check if you have establishments in the state
North India:				
	Delhi National Capital Territory	☐	Madhya Pradesh	☐
	Chandigarh	☐	Punjab	☐
	Chhattisgarh	☐	Rajasthan	☐
	Haryana	☐	Uttar Pradesh	☐
	Himachal Pradesh	☐	Uttarakhand	☐
	Jammu and Kashmir	☐		
West India:				
	Goa	☐	Karnataka	☐
	Gujarat	☐	Maharashtra	☐
South India:				
	Andra Pradesh	☐	Tamil Nadu	☐
	Kerala	☐		
East India:				
	Bihar	☐	Odisha	☐
	Jharkhand	☐	West Bengal	☐
North East India, Islands, and other Union Territories:				
	Andaman and Nicobar Islands	☐	Meghalaya	☐
	Arunachal Pradesh	☐	Mizoram	☐
	Assam	☐	Nagaland	☐
	Dadra and Nagar Haveli	☐	Puducherry	☐
	Daman and Diu	☐	Sikkim	☐
	Lakshadweep	☐	Tripura	☐
	Manipur	☐		

Section 3: Exports of Goods To India

3.1 Did your organization **export goods** from the United States to India at any point during 2007-2013?

- ☐ Yes
- ☐ No

If you answered "Yes" to question 3.1, please go to the next question.

If you answered "No" to question 3.1, please go to section 4.

3.2 What types of goods did your organization export from the United States to India during 2007-2013? Check all that apply.

- ☐ Agricultural products, manufactured food products, alcohol, tobacco
- ☐ Mineral products (e.g., petroleum, ores), precious stones (e.g., diamonds), or metals (e.g., gold)
- ☐ Manufactured goods (other than manufactured food products, alcohol, and tobacco products)

3.3 Were your exports of goods from the United States to India affected by any of the following issues during the years indicated below? For each issue faced, please rate how severely it affected your organization's exports to India (0 = did not face it; 1 = existed but had no effect; 2 = existed but had minimal effect; 3 = moderate effect; 4 = severe effect; 5 = prohibitive effect). Also, please indicate how the issue affects your organization as compared with Indian firms, and how policies in Indian states compare with Indian national policies in 2013 (Yes/No/unknown). If you have multiple lines of business, report the average effect.

#	Issue	Check if not faced during 2007-2013	Severity of effect in 2007 (rate 0-5)	Severity of effect in 2010 (rate 0-5)	Severity of effect in 2013 (rate 0-5)	Your organization more affected than Indian firms? (Y/N/UNK)	Indian state-level policies nega-tively affected your organization more than Indian national policies? (Y/N/UNK)
1	High import duties	☐					
2	High taxes (excluding duties)	☐					
3	Inconsistent, variable, or non-transparent duties or taxes	☐					
4	Uncertainty or inconsistency of implementation of current or draft Indian regulations	☐					
5	Requirements that items you sell in India contain domestic Indian content (including local "working" requirements)	☐					
6	Subsidies, price supports, or other assistance given to your Indian-owned competitors by the Indian government	☐					
7	Inadequate protection of intellectual property	☐					
8	Inadequate protection of regulatory test data	☐					
9	Involuntary technology transfer (including compulsory licensing)	☐					
10	Import bans on specific products (including bans on genetically modified organisms)	☐					
11	Customs administration problems (e.g., transparency of rules, documentation requirements, valuation of goods)	☐					
12	Difficulty complying with Indian standards, sanitary and phytosanitary rules, or regulations on product characteristics; or problems obtaining or maintaining certifications	☐					
13	Difficulty complying with consumer labeling requirements	☐					
14	Market control by state trading enterprises	☐					
15	Other (specify):	☐					

3.4 If your organization has experienced specific instances of the issues listed in question 3.3, please provide more detail on the type of measure you have faced. Please focus on those that pose the most significant challenges (those that you rated as a 4 or 5 in 2013). First write-in the issue from question 3.3 in the first column below (up to a maximum of two), then enter comments in the adjacent column.

#	Write-in issue (pick from list in question 3.3)	Comment
1		
2		

3.5 Write-in the subsector (using those listed in question 1.6) that was **most** affected by the issues listed in question 3.3 in 2013 in the first column below, and then list the exports of this product as a share of your organization's total exports of goods from the United States to India that you reported on line 1 of question 2.2. **Your best estimates are acceptable**. If you did not have any exports to India in a given year, do not enter a share for that year.

#	Write-in subsector (pick from list in question 1.6)	Exports of subsector as a share of your organization's total exports of goods to India (percent)		
		2007	2010	2013
1				

Section 4: Foreign Affiliate Sales of Goods in India

4.1 Did your organization sell goods through a foreign affiliate in India during 2007-2013?

- ☐ Yes
- ☐ No

If you answered "Yes" to question 4.1, please go to the next question.

If you answered "No" to question 4.1, please go to section 5.

4.2 Were your organization's sales of goods by your Indian affiliates affected by any of the following issues during the years indicated below? For each issue faced, please rate how severely it affected your organization's exports to India (0 = did not face it; 1 = existed but had no effect; 2 = existed but had minimal effect; 3 = moderate effect; 4 = severe effect; 5 = prohibitive effect). Also, please indicate how the issue affects your organization as compared with Indian firms, and how policies in Indian states compare with Indian national policies in 2013 (Yes/No/unknown). If you have multiple lines of business, report the average effect.

#	Issue	Check if not faced during 2007-2013	Severity of effect in 2007 (rate 0-5)	Severity of effect in 2010 (rate 0-5)	Severity of effect in 2013 (rate 0-5)	Your organization more affected than Indian firms? (Y/N/UNK)	Indian state-level policies negatively affected your organization more than Indian national policies? (Y/N/UNK)
1	High taxes (excluding duties)	☐					
2	Inconsistent, variable, or nontransparent taxes	☐					
3	Uncertainty or inconsistency of implementation of current or draft Indian regulations	☐					
4	Requirements that items you sell in India must contain domestic Indian content (including local "working" requirements)	☐					
5	Subsidies, price supports, or other assistance given to your Indian-owned competitors by the Indian government	☐					
6	Inadequate protection of intellectual property	☐					
7	Inadequate protection of regulatory test data	☐					
8	Involuntary technology transfer (including compulsory licensing)	☐					
9	Difficulty importing intermediate inputs into India or other problems with customs administration	☐					
10	Difficulty getting required permits/approvals/ licenses for investment from the Indian government	☐					
11	Requirement that a share of goods you produce in an Indian affiliate must be exported	☐					
12	Requirements that certain staff or a share of staff must be Indian citizens	☐					
13	Difficulty complying with Indian standards, sanitary and phytosanitary rules, or regulations on product characteristics; or problems obtaining or maintaining certifications	☐					

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4.2 Continued from previous page:

Were your organization's sales of goods by your Indian affiliates affected by any of the following issues during the years indicated below? For each issue faced, please rate how severely it affected your organization's exports to India (0 = did not face it; 1 = existed but had no effect; 2 = existed but had minimal effect; 3 = moderate effect; 4 = severe effect; 5 = prohibitive effect). Also, please indicate how the issue affects your organization as compared with Indian firms, and how policies in Indian states compare with Indian national policies in 2013 (Yes/No/unknown). If you have multiple lines of business, report the average effect.

#	Issue	Check if not faced during 2007-2013	Severity of effect in 2007 (rate 0-5)	Severity of effect in 2010 (rate 0-5)	Severity of effect in 2013 (rate 0-5)	Your organization more affected than Indian firms? (Y/N/UNK)	Indian state-level policies negatively affected your organization more than Indian national policies? (Y/N/UNK)
14	Restrictions on the share of an investment in India that can be owned by a foreign firm, or requirements to enter into a joint venture with an Indian firm	☐					
15	Requirements that investments must be of a minimum amount in order to obtain approval	☐					
16	Financial requirements that limit what your firm may do with profits earned in India (e.g., you reinvest in India, divest to an Indian partner)	☐					
17	Restrictions on buying or using land	☐					
18	Other (specify):	☐					

4.3 If your organization has experienced specific instances of the issues listed in question 4.2, please provide more detail on the type of measure you have faced. Please focus on those that pose the most significant challenges (those that you rated as a 4 or 5 in 2013). First write-in the issue from question 4.2 in the first column below (up to a maximum of two), then enter comments in the adjacent column.

#	Write-in issue (pick from list in question 4.2)	Comment
1		
2		

4.4 Write-in the subsector (picking from those listed in question 1.6) that was most affected by the issues listed in question 4.2 in 2013 in the first column below, and then list the sales of this product by your foreign affiliate in India as a share of this affiliate's total sales of goods in India that you reported on line 2 of question 2.2. **Your best estimates are acceptable**. If you did not have any foreign affiliate sales in India in a given year, do not enter a share for that year

#	Write-in subsector (pick from list in question 1.6)	Foreign affiliate sales of specific product in India as a share of your organization's total Indian affiliate sales of goods (percent)		
		2007	2010	2013
1				

4.5 In 2013, have Indian state-level policies affected where your foreign affiliates are located? If this varies by state and product, report the average effect. Check one.

- ☐ State-level policies are irrelevant. Location decisions are based on other factors (e.g., proximity to the United States, local job market).
- ☐ State-level policies have a minimal effect
- ☐ State-level policies have a moderate effect
- ☐ State-level policies have a substantial effect

Section 5: Services Trade with India

5.1 Did your organization export services to India **or** sell services through a foreign affiliate in India during 2007-2013?

- ☐ Yes
- ☐ No

If you answered "Yes" to question 5.1, please go to the next question.

If you answered "No" to question 5.1, please go to section 6.

5.2 Were your organization's exports of services or sales of services by your Indian affiliates affected by any of the following issues during the years indicated below? For each issue faced, please rate how severely it affected your organization's exports to India (0 = did not face it; 1 = existed but had no effect; 2 = existed but had minimal effect; 3 = moderate effect; 4 = severe effect; 5 = prohibitive effect). Also, please indicate how the issue affects your organization as compared with Indian firms, and how policies in Indian states compare with Indian national policies in 2013 (Yes/No/unknown). If you have multiple lines of business, report the average effect.

#	Issue	Check if not faced during 2007-2013	Severity of effect in 2007 (rate 0-5)	Severity of effect in 2010 (rate 0-5)	Severity of effect in 2013 (rate 0-5)	Your organization more affected than Indian firms? (Y/N/UNK)	Indian state-level policies negatively affected your organization more than Indian national policies? (Y/N/UNK)
1	High taxes (excluding duties)	☐					
2	Inconsistent, variable, or nontransparent taxes	☐					
3	Uncertainty or inconsistency of implementation of current or draft Indian regulations	☐					
4	Requirements that items sold or used in the provision of a service contain domestic Indian content (including local "working" requirements)	☐					
5	Subsidies, price supports, or other assistance given to your Indian-owned competitors by the Indian government	☐					
6	Inadequate protection of intellectual property	☐					
7	Inadequate protection of regulatory test data	☐					
8	Involuntary technology transfer (including compulsory licensing)	☐					
9	Difficulty importing intermediate inputs into India or other problems with customs administration	☐					
10	Difficulty getting required permits/approvals/licenses for investment from the Indian government	☐					
11	Restrictions on the share of an investment in India that can be owned by a foreign firm, or requirements to enter into a joint venture with an Indian firm	☐					
12	Policies other than equity caps (including limitations on juridical form, ability to apply for a license, limits on number of licenses) that restrict investment	☐					
13	Limits on geographic expansion within India	☐					
14	Requirements that investments must be of a minimum amount in order to obtain approval	☐					

Continued on next page.

5.2 Continued from previous page:

Were your organization's exports of services or sales of services by your Indian affiliates affected by any of the following issues during the years indicated below? For each issue faced, please rate how severely it affected your organization's exports to India (0 = did not face it; 1 = existed but had no effect; 2 = existed but had minimal effect; 3 = moderate effect; 4 = severe effect; 5 = prohibitive effect). Also, please indicate how the issue affects your organization as compared with Indian firms, and how policies in Indian states compare with Indian national policies in 2013 (Yes/No/unknown). If you have multiple lines of business, report the average effect.

#	Issue	Check if not faced during 2007-2013	Severity of effect in 2007 (rate 0-5)	Severity of effect in 2010 (rate 0-5)	Severity of effect in 2013 (rate 0-5)	Your organization more affected than Indian firms? (Y/N/UNK)	Indian state-level policies negatively affected your organization more than Indian national policies? (Y/N/UNK)
15	Requirements that certain staff or a share of staff must be Indian citizens	☐					
16	Financial requirements that limit what your organization may do with profits earned in India (e.g., reinvest in India, divest to an Indian partner)	☐					
17	Inability of non-Indian staff to be licensed/ certified in India	☐					
18	Restriction on cross-border transmission of data	☐					
19	Unclear legal liability	☐					
20	Other (specify):	☐					

5.3 If your organization has experienced specific instances of the issues listed in question 5.2, please provide more detail on the type of measure you have faced. Please focus on those that pose the most significant challenges (those that you rated as a 4 or 5 in 2013). First write-in the issue from question 5.2 in the first column below (up to a maximum of two), then enter comments in the adjacent column.

#	Write-in issue (pick from list in question 5.2)	Comment
1		
2		

5.4 Write-in the exported service subsector (using those listed in question 1.6) that was most affected by the issues listed in question 5.2 in 2013 in the first column below, and then list the value of your organization's exports from the United States to India of this service as a share of your organization's total exports of services that you reported on line 2 of question 2.2. **Your best estimates are acceptable**. If you did not have any services exports to India in a given year, do not enter a share for that year. If you did not export services, please leave these question response areas blank.

#	Write-in subsector (pick from list in question 1.6)	Exports of specific service subsector as a share of total exports of services to India (percent)		
		2007	2010	2013
1				

5.5 Write-in the service subsector (using those listed in question 1.6) sold by your Indian affiliate that was most affected by the issues shown in question 5.2 in 2013 in the first below, and then list the value of sales of this service by your foreign affiliate in India as a share of the value of that affiliate's total sales of services that you reported on line 3 of question 2.3. **Your best estimates are acceptable**. If you did not have any foreign affiliate sales in India in a given year, do not enter a share for that year. If you did not have foreign affiliate sales, please leave these question response areas blank.

#	Write-in subsector (pick from list in question 1.6)	Indian affiliate sales of specific service subsector as a share of total Indian affiliate sales (percent)		
		2007	2010	2013
1				

5.6 In 2013, have Indian state-level policies affected where your foreign affiliates are located? If this varies by state and product, report the average effect. Check one.

- ☐ State-level policies are irrelevant. Location decisions are based on other issues (e.g., proximity to the United States, local job market).
- ☐ State-level policies have a minimal effect
- ☐ State-level policies have a moderate effect
- ☐ State-level policies have a substantial effect

Section 6: Effects of Indian Policies and Policy-Related Issues

In the preceding section(s), you were asked to identify Indian policies and policy-related issues. In this section, you will be asked to estimate the total effect of the changes in these issues between 2007 and 2013--as you have identified in the sections above--on your organization's activities in 2013. Please do not include effects from policies or market conditions not described in sections 3-5.

Example 1 (decrease): Suppose you believe that your firm could have exported $5 million in total exports to India in 2013, but lost out on approximately $200,000 of orders due to changes in Indian policies that occurred between 2007 and 2013. In that case, the percent effect is calculated:

Effect on exports in 2013 = $200,000/$5 million = 0.04 = 4 percent **decrease**

(Note that this calculation should agree with responses to question 2.3. In this case, actual 2013 exports should be listed as $4.8 million ($5 million less $200,000).)

Example 2 (increase): Suppose you believe that your firm would have had foreign affiliate sales of $10 million in 2013, but due to a relaxation of Indian policies pertaining to foreign affiliates that occurred between 2007 and 2013, your firm's sales increased by $2 million (for a total of $12 million). The percent effect is calculated:

Effect on foreign affiliate sales in 2013 = $2 million/$10 million = 0.20 = 20 percent **increase**

6.1 Please estimate the total effect of the changes in all Indian policies and policy-related issues on your organization's 2013 exports and foreign affiliate sales.

#	Item	Cannot estimate	Would decrease by 10 percent or more	Would decrease by more than 5 but less than 10 percent	Would decrease by 5 percent or less	No effect	Would increase by 5 percent or less	Would increase by more than 5 but less than 10 percent	Would increase by 10 percent or more
1	Exports of goods and services from the United States to India	☐	☐	☐	☐	☐	☐	☐	☐
2	Foreign affiliate sales of goods and services in India	☐	☐	☐	☐	☐	☐	☐	☐

6.2 Considering your estimates in the previous question, estimate the total effect of changes in Indian policies and policy-related issues on your organization's U.S. operations in 2013. If you did not have any U.S. sales, please base your response on U.S. revenue, net margin interest, or similar measure instead of sales.

#	Item	Cannot estimate	Would decrease by 4 percent or more	Would decrease by more than 2 but less than 4 percent	Would decrease by 2 percent or less	No effect	Would increase by 2 percent or less	Would increase by more than 2 but less than 4 percent	Would increase by 4 percent or more
1	U.S. sales	☐	☐	☐	☐	☐	☐	☐	☐
2	U.S. employment	☐	☐	☐	☐	☐	☐	☐	☐

6.3 How did you obtain the estimates provided in questions 6.1 and 6.2? Check all that apply or check not applicable.

- ☐ Compared with earlier projections
- ☐ Compared with organization's performance in other countries
- ☐ Relied on industry or trade association publication or estimates
- ☐ Other (specify): _____
- ☐ Not applicable

6.4 To the extent the effect of changes in policy or policy-related issues cannot be exactly quantified for your organization, but there was a notable effect on your organization, please describe these effects.

6.5 If you reported that you faced regulatory impediments since 2007 (as described in sections 3 through 5), did you make any strategic changes in response? Check all that apply.

- ☐ Have not faced regulatory impediments since 2007
- ☐ Made no changes despite facing regulatory impediments
- ☐ Directed less attention/fewer resources to Indian export market
- ☐ Directed less attention/fewer resources to affiliates in India
- ☐ Increased investment in affiliates in India to comply with local-content requirements or other regulations
- ☐ Halted or slowed plans for affiliate expansion
- ☐ Shifted business operations from one state within India to another
- ☐ Shifted business operations from one product or business line within India to another
- ☐ Reduced or limited the scope of work done in R&D facilities in India
- ☐ Changed Indian partners
- ☐ Halted all exports to and/or affiliate activity in India (exited Indian market)
- ☐ Other (specify): _____

6.6 Please list the value of your organization's sales in the United States and number of your U.S. employees in 2013. **Your best estimates are acceptable**. If your organization is an affiliate of a foreign organization, include only U.S. sales and employment that can be directly attributed to your organization's U.S. affiliate. See p. 4 for definitions of sales and employees. If you did not have sales, please list revenue, net interest margin, or similar measure instead of sales.

#	Item	2013
1	U.S. sales (in full-figure dollars, not in millions or other format)	
2	Number of U.S. employees (in full-figures, not in millions or other format)	

6.7 Were your organization's exports or foreign affiliate sales in India affected by any of the following issues during the years indicated below? For each issue faced, please rate how severely it affected on your organization's affiliate sales in India (0 = did not face it; 1 = existed but had no effect; 2 = existed but had minimal effect; 3 = moderate effect; 4 = severe effect; 5 = prohibitive effect). If you have multiple lines of business, report the average effect.

#	Issue	Check if not faced during 2007-2013	Severity of effect in 2007 (rate 0-5)	Severity of effect in 2010 (rate 0-5)	Severity of effect in 2013 (rate 0-5)
1	Corruption, informal payments	☐			
2	Inadequate legal system	☐			
3	Judicial delays	☐			
4	Bureaucratic or regulatory delays or other red tape	☐			
5	Poor physical infrastructure	☐			
6	Poor communications infrastructure	☐			
7	Insufficient/unstable electricity supply	☐			
8	Lack of trained workforce	☐			
9	Labor market regulations	☐			
10	Government price controls on specific products	☐			
11	Other (specify):	☐			

6.8 Overall, was your organization affected more by infrastructure and other issues (as reported in question 6.7) or policy and regulatory issues as reported in sections 3 through 5)? Please select one for each of the years in which you were active in India.

#	Item	Issue (check one per year if applicable)
1	Policy issues with greatest effect on your business in 2007	☐ Infrastructure and other issues ☐ Policy and regulatory issues
2	Policy issues with greatest effect on your business in 2010	☐ Infrastructure and other issues ☐ Policy and regulatory issues
3	Policy issues with greatest effect on your business in 2013	☐ Infrastructure and other issues ☐ Policy and regulatory issues

Section 7: Barriers Suppressing Trade

7.1 Was your ability to source goods and services through global supply chains in countries other than the United States and India suppressed by Indian policies? Please indicate the effects below.

- ☐ Do not supply India through third countries
- ☐ Policies existed but had no effect
- ☐ Policies had minimal effects
- ☐ Policies had moderate effect
- ☐ Policies had severe effects
- ☐ Policies had prohibitive effects

7.2 Was your organization prevented or deterred from conducting business in India, or deterred from exporting to or selling certain products in India, at any point during 2007-2013 as a direct result of Indian policy barriers?

- ☐ Yes
- ☐ No

If you answered "Yes" to question 7.2, please proceed to the next question.

If you answered "No" to question 7.2, please proceed to section 8.

7.3 In the checklist below, please indicate which type(s) of activity you were prevented or deterred from doing during the years indicated below because of Indian policy barriers. Check all that apply.

#	Type of activity	2007	2010	2013
1	Completely unable to export from the United States to India	☐	☐	☐
2	Unable to export certain products from the United States to India	☐	☐	☐
3	Completely unable to export from countries other than the United States to India	☐	☐	☐
4	Unable to export certain products from countries other than the United States to India	☐	☐	☐
5	Completely unable to operate foreign affiliates in India	☐	☐	☐
6	Unable to sell certain products via affiliates in India	☐	☐	☐
7	Other (specify):	☐	☐	☐

7.4 If the specific prohibitive barrier(s) in India that you face were removed, but the business environment and other policies in India remained the same, what is the likelihood that you would begin to export or establish a foreign affiliate (or begin to export or sell additional product lines) in India within the next 12 months? Check one.

- ☐ Highly unlikely
- ☐ Unlikely
- ☐ Likely
- ☐ Highly likely
- ☐ Not sure

7.5 Which of the following issues did your organization find prohibitive with respect to exports to India or foreign affiliate sales in India during 2007-2013? Check all that apply.

#	Issue	
1	High import duties	☐
2	High taxes (excluding duties)	☐
3	Inconsistent, variable, or nontransparent duties or taxes	☐
4	Uncertainty or inconsistency of implementation of current or draft Indian regulations	☐
5	Requirements that items you sell in India must contain domestic Indian content (including local "working" requirements)	☐
6	Requirements that items sold or used in the provision of a service contain domestic Indian content (including local "working" requirements)	☐
7	Subsidies, price supports, or other assistance given to your Indian-owned competitors by the Indian government	☐
8	Inadequate protection of intellectual property	☐
9	Inadequate protection of regulatory test data	☐
10	Involuntary technology transfer (including compulsory licensing)	☐
11	Difficulty importing intermediate inputs into India or other problems with customs administration	☐
12	Difficulty getting required permits/approvals/licenses for investment from the Indian government	☐
13	Import bans on specific products (including bans on genetically modified organisms)	☐
14	Customs administration problems (e.g., transparency of rules, documentation requirements, valuation of goods)	☐
15	Requirement that a share of goods you produce in an Indian affiliate must be exported	☐
16	Restrictions on the share of an investment in India that can be owned by a foreign firm, or requirements to enter into a joint venture with an Indian firm	☐
17	Policies other than equity caps (including limitations on juridical form, ability to apply for a license, limits on number of licenses) that restrict investment	☐
18	Limits on geographic expansion within India	☐
19	Difficulty complying with Indian standards, sanitary and phytosanitary rules, or regulations on product characteristics; or problems obtaining or maintaining certifications	☐
20	Requirements that certain staff or a share of staff must be Indian citizens	☐
21	Difficulty complying with consumer labeling requirements	☐
22	Market control by state trading enterprises	☐
23	Inability of non-Indian staff to be licensed/certified in India	☐
24	Requirements that investments must be of a minimum amount in order to obtain approval	☐
25	Financial requirements that limit what your firm may do with profits earned in India (e.g., you reinvest in India, divest to an Indian partner)	☐
26	Restriction on cross-border transmission of data	☐
27	Restrictions on buying or using land	☐
28	Regulations governing liability in clinical trials	☐
29	Other (specify):	☐

Section 8. Other Information

8.1 If your organization would like to further explain any of the responses in this questionnaire, use the space below.

8.2 If your organization would like to give more details about any other negative effects of trade barriers in India, use the space below.

8.3 If your organization would like to give us a written submission for the public record, go to the link below to view the *Federal Register* notice about this investigation and go to page 2 of this notice for instructions. All written submissions are due by April 11, 2014.

http://www.usitc.gov/secretary/fed_reg_notices/332/332_543_notice09022013.pdf

Section 9. Certification

The undersigned certifies that the information supplied herein in response to this questionnaire is complete and correct to the best of his/her knowledge and belief and understands that the information submitted is subject to audit and verification by the USITC.

Section 332(g) of the Tariff Act of 1930 (19 U.S.C. 1332(g)) provides that the Commission may not release information which it considers to be confidential business information unless the party submitting such information had notice, at the time of submission, that such information would be released by the Commission, or such party subsequently consents to the release of the information. The undersigned acknowledges that information submitted in this questionnaire response and throughout this investigation may be used by the USITC, its employees, and contract personnel who are acting in the capacity of USITC employees, for the purposes of developing or maintaining the records of this investigation or related proceedings for which this information is submitted, or in internal audits, evaluations, and in investigations relating to the programs and operations of the USITC, including under 5 U.S.C. Appendix 3. The undersigned understands that all contract personnel will sign nondisclosure agreements.

The information your organization provides in response to this questionnaire will be treated by the Commission as confidential and will not be disclosed to the public unless required by law. The information will be aggregated with information from other questionnaire responses and will not be published in a manner that would reveal the operations of your organization. The House Committee on Ways and Means and the Senate Committee on Finance have asked that the Commission not include any confidential business information in the report it transmits to them.

Certifier's name and title	Date of certification (m/d/y)

Certifier's signature (not necessary if submitting electronically)

If submitting an electronic version of this certificate to the Commission, check the box below in place of a written signature to indicate that the authorized official listed has certified the information provided.

☐ Certified

Section 10. Submitting the Questionnaire

10.1 Before submitting your organization's completed questionnaire, please report the actual number of hours required and the cost to your organization of completing this questionnaire, including all preparatory activities.

Hours _____ Cost ($) _____

10.2 Please make sure that all numeric data are in full-figures, not in thousands, millions, or similar format.

10.3 For a final quality check, please make sure you have done the following:

- ☐ Provided a contact name and telephone number in question 1.1.
- ☐ Provided employee data for each year in question 1.5
- ☐ Indicated a primary sector in question 1.6
- ☐ Indicated a subsector in question 1.6
- ☐ A year has been entered in question 2.2.
- ☐ If you indicated that you export goods to India in question 3.1, then you should have checked the first box in question 1.8.
- ☐ If you indicated that you sell goods through a foreign affiliate in India in question 4.1, then you should of checked the second box in question 1.8.
- ☐ If you responded "Yes" to question 2.4A, then you should have completed question 2.4B.

10.4 Mail or fax the completed questionnaire to us (see address and fax number below). Sending the questionnaire by U.S. mail is not recommended because this type of mail undergoes additional processing to screen for hazardous material that will likely substantially delay the delivery. Overnight mail service is recommended.

United States International Trade Commission
Attention: India Survey Project Team
Office of Industries, Room 511-G
500 E Street, SW, Washington, DC 20436
Fax: 202-205-2217

Appendix F
Description of the Commission's Survey Methodology

Description of the Commission's Survey Methodology

Survey Methods

In their letter to the Commission, the Senate Committee on Finance and the House Committee on Ways and Means requested that the U.S. International Trade Commission (Commission or USITC) examine India's industrial policies affecting trade and investment. The study was to use, among other sources, primary data collected from a stratified random survey of U.S. companies. To comply with this request, the Commission developed a questionnaire to collect information on the operations of companies in industries particularly affected by Indian industrial policies. The Commission field-tested its questionnaire with companies in August 2013, and submitted it to the U.S. Office of Management and Budget for approval in December 2013. After receiving approval in October 2013, the Commission sent the questionnaire to a sample of 8,000 U.S. companies.

Surveying for this study consisted of four major steps. First, the Commission used research to select industries that were particularly affected by Indian industrial policies. Second, it generated a list of U.S. companies in the relevant industries (the sampling frame). Third, it decided on a method of selecting individual companies from that list to survey, and sent questionnaires to those companies. Finally, the Commission combined the responses from individual questionnaires to produce statistically representative estimates of U.S. companies' perceptions of Indian policies and the effect those policies have on company operations.

Sampling Frame

The first step in determining which companies would receive the survey was generating the sampling frame, which is a list of companies from which the sample was selected. The list is formed with the goal of identifying—to the extent possible—U.S. companies engaged in the Indian market, either by exporting to India or by having 10 percent or more equity in an Indian company, in industries affected by Indian industrial policies. As described in chapter 1, the Commission chose the industries and measures included in this report through a screening process conducted in fall 2013. This research yielded the following set of nine industries that were deemed to be the most affected by Indian industrial policies:

- Agricultural and food products
- Natural resources and metals
- Chemicals and textiles
- Other manufactured goods and equipment
- Financial services

- Retail and wholesale services
- Content and media providers
- Other services companies, such as transportation, legal, and accounting services
- Information and communications technology (ICT)[955]

The industries were defined by the North American Industry Classification System (NAICS). The Commission assigned each company included in the USITC survey to one of these NAICS-based industries based on its primary activity. (The NAICS codes that make up each industry are listed in table F.1.) The Commission used five primary sources of data to select companies from within each of these industries: the Orbis database, the ktMINE database, the Piers database, a proprietary Indian industry association membership list, and a database of companies associated with each industry compiled from Commission staff research.

Table F.1: Industries affected by Indian industrial policies and selected NAICS codes

Industry	Selected NAICS codes
Agriculture and food	111110, 111140, 111150, 111160, 111199, 1112, 1113, 11142, 11211, 112120, 112210, 1123, 115210, 311222, 311223, 311225, 3114, 311611, 311612, 311615, 3119, 312130, 312140
Natural resources	1133, 2111, 2121, 2122, 2131, 3211, 3212, 32191, 32192, 321992, 321999, 327125, 3311, 3313, 3314, 3321, 3331, 3339, 423520
Chemicals and textiles	314, 315, 316, 325
Other manufacturing[a]	326211, 332410, 333611, 3341, 3342, 3343, 334413, 334417, 334419, 334510, 334511, 3353, 3359, 3361, 3363, 336510, 3391, 33993
Retail and wholesale	4231, 4236, 4243, 4244, 4245, 4248, 4431, 4441, 4451, 4452, 4453, 4481, 4482, 4483, 4521, 4532, 4541
Financial services	52221, 522320, 52392, 5241, 52421
Content and media[a]	5111, 5112, 51211, 51212, 512131, 51219, 5122, 5151, 5152, 517, 51911, 51913, 51919
Other services[a]	2362, 2371, 2373, 2379, 481111, 481112, 483111, 483112, 488119, 48819, 4883, 488510, 4921, 5331, 5411, 5412, 54133, 5414, 5415, 541614, 541712, 54181, 54182, 54183, 54184, 54185, 54187, 54189, 54191, 541922, 54193, 54194, 54199, 561520, 6113, 6114, 6221

Source: Compiled by the Commission.
[a] Contains subsectors that comprise the ICT industry.

The data sources were varied, and included companies with activities relevant to the study, such as exporting to India or having intellectual property agreements with Indian partners. The Orbis database is a commercial database produced by Bureau van Dijk that consolidates company-level descriptive and financial information. The ktMINE database is a global database of information on intellectual property licensing agreements. The Piers database contains

[955] ICT companies were initially part of subsectors within the other manufacturers and content and media industries. The differences in these companies' characteristics from others in their original industries led to the separation. As such, ICT does not explicitly show up in the stratification that is described in appendix F.

information on U.S. company-level international trade transactions. The proprietary Indian industry association membership list contained companies that are members of an association that focuses on representing companies doing business in India.

The final source (the "industry association list") was a database compiled through Commission staff research and industry analyst knowledge, as well as public data from various industry associations and industry directories. Some of the latter sources focused on companies that have engaged in trade with India, while others generally focus on global companies. The lists were screened for duplicates so that the company's probability of selection was not erroneously increased.

The Commission used stratified random sampling to select companies from the population. In a stratified sampling process, the population is first divided into distinct strata (subpopulations), and then companies are independently selected from each stratum. By constructing strata that contain relatively homogeneous (similar) companies, stratified sampling can produce statistical estimates with lower standard errors than simple random sampling, in which all companies in the list have the same probability of being selected. Companies in this study were stratified by three criteria: the source of the company's information, the company's size, and the industry to which the company belonged. The source of the company information was used to classify how likely companies from that source were to do business in India. This led to companies falling into one of six classifications: multinational corporations, India-specific companies, exporters to countries other than India, companies from Orbis with less than 499 employees, companies from Orbis with 500 or more employees, and companies from the industry association list. This led to up to six strata for each of the eight industries. Because the lists pertaining to likely exporters and the industry association list did not have data for all industries in the sample frame, there were a total of 43 strata.

Companies sourced from the Orbis database that were not multinational corporations were stratified by both industry and size, since the database was too large to stratify by only one dimension. To reduce the burden on small companies, the Commission created minimum employee thresholds for each industry. Companies with fewer employees than the threshold for their particular industry were not included in the survey population (table F.2).

After the strata were defined, a specific number of companies from each stratum were selected to be sent a questionnaire. Allocation in this survey was based on a two-part procedure designed to maximize the statistical precision of the survey estimates. First, companies identified by the Orbis database were optimally allocated across size and industry strata based

Table F.2: Minimum employee requirements by NAICS code

Minimum employees per company	NAICS codes
20	1112, 1113, 1123, 11142, 11211, 111110, 112120, 112210, 311222, 311225, 311615, 312130, 312140, 424480, 424820
50	314, 315, 316, 325, 512, 517, 1133, 2111, 2121, 2122, 2131, 3114, 3119, 3211, 3212, 3219, 3311, 3313, 3314, 3321, 3331, 3339, 3341, 3342, 3343, 3353, 3359, 3361, 3363, 3391, 4831, 4881, 4883, 4921, 5111, 5112, 5151, 5152, 5191, 5241, 5331, 5411, 5412, 5414, 5415, 5418, 5419, 6114, 6221, 7111, 33993, 52221, 52392, 52421, 54133, 111140, 111150, 111160, 111199, 311223, 311611, 311612, 326211, 327125, 332410, 333611, 334413, 334417, 334419, 334510, 334511, 336510, 423520, 481111, 481112, 488111, 488510, 522320, 541614, 541712, 561520
100	237, 2362, 6113

Source: Compiled by the Commission.

on a modified Neyman allocation method. Using this method, strata with companies that were very heterogeneous in size, as determined by the variance in employment across companies in the stratum, were sampled at relatively high rates, while strata that were relatively homogeneous were sampled at lower rates.[956] Second, organizations identified in the other four classifications (multinational corporations, India-specific companies, exporters to countries other than India, and companies from the industry association list) were sampled at a higher rate than organizations from the Orbis database, to reflect the higher expected prevalence of companies that are engaged in India in those data sources. The relative sampling rates for each industry were based on presurvey estimates of the share of organizations in each industry that are so engaged.[957]

The sample allocation procedure resulted in sampling rates that differed depending on a company's stratum. The sampling rate was highest in the "other manufacturers" industry, as these companies are relatively heterogeneous. Table F.3 presents a simplified version of the sampling frame, showing the number of companies sampled within each industry segment.

[956] The sample allocation is proportional to the product of a stratum's population and the coefficient of variation of company employment within that stratum (i.e., strata with a higher coefficient of variation were allocated a higher share of sampling units).

[957] Shares are based on the Commission's assessment of the likelihood of engagement in India. For calculation of disproportionate sampling rates, see Christman, "Sampling of Rare Populations," 2009, 112; Kalton, "Methods for Oversampling Rare Subpopulations in Social Surveys," 2009, 127.

Table F.3: Sample selection rates, by industry

Data source and industry	Population (number of companies)	Sample size (number of companies)	Sampling rate (percent)
Agriculture and food	5,352	624	11.7
Natural resources	5,259	676	12.9
Chemicals and textiles	3,666	568	15.5
Other manufacturing	5,133	1,108	21.6
Retail and wholesale	4,975	568	11.4
Financial services	3,312	547	16.5
Content and media	4,746	862	18.2
Other services	20,296	2,471	12.2
Total	52,739	7,424	14.1

Source: Compiled by the Commission.

Response Rates

Based on the Commission's authority under section 332(g) of the Tariff Act of 1930 (19 U.S.C. 1333(a)), all companies that received a questionnaire were legally required to complete it. The companies included in the sample received an initial mailing notifying them of the forthcoming questionnaire, a letter containing instructions for completing it within 30 days, and two follow-up mailings reminding them to complete the questionnaire.

The survey had an overall response rate of 47.0 percent. This response rate reflects all of the adjustments that were made to the survey sample and population. Such adjustments were required in order to account for companies that were unreachable, no longer in business, or were otherwise exempt from the survey. Of the 8,000 questionnaires mailed to companies in the sampling frame, 345 were returned as undeliverable by the U.S. Post Office (table F.4). In addition, 214 companies contacted the Commission and were exempted from the survey. The majority of these companies were either too small (had less than 10 employees) or were out of business. Nineteen responses stated that a recipient had received duplicate surveys; in these cases, multiple surveys had been sent to separate affiliates of a single company that reported survey results on a consolidated basis. Two responses were received in addition to the original sample from companies in the sampling frame that returned multiple questionnaires for affiliated companies without consolidating them.[958] After all adjustments, there were 7,424 companies in the sample.

[958] Questionnaires returned by companies that were not affiliated with any company in the sampling frame were excluded from the analysis.

Table F.4: Adjustments to the sample size and number of respondents

	Sample	Respondents
Initial number of companies	8,000	3,722
Less undeliverables	-345	[a]
Less exemptions	-214	-214
Less duplicates	-19	-19
Plus additions	+2	+2
Final number of companies	7,424	3,491

Source: Compiled by the Commission.
[a] Not applicable.

After adjusting for the issues described above, the Commission received a total of 3,491 complete and timely responses.[959] Hence, among active companies in applicable industries, including both those that were engaged in India and those that were not, the resulting overall adjusted response rate was 47.0 percent (i.e., 3,491 of 7,424 companies). These 3,491 responses form the basis for all survey estimates in the report. Table F.5 presents the adjusted response rate for each stratum.

Table F.5: Response rates by stratum, percent

				Companies in Orbis			
Industry	Multinational corporations	India-specific companies	Exporters to countries other than India	Up to 499 employees	500+ employees	Industry association lists	Total
Agriculture and food	60.9	52.6	50.9	39.6	46.0	61.3	43.8
Natural resources	44.0	55.4	—[a]	43.3	61.1	60.4	48.2
Chemicals and textiles	41.2	53.3	55.2	39.1	53.3	—[a]	46.5
Other manufacturing	49.6	44.7	61.7	49.1	52.7	61.4	50.4
Retail and wholesale	68.8	58.5	34.2	49.3	57.4	64.9	56.0
Financial services	55.6	57.1	—[a]	37.9	53.7	56.2	51.6
Content and media	39.4	40.0	—[a]	32.1	46.5	44.9	39.2
Other services	46.1	50.7	39.8	41.7	55.0	—[a]	45.8
Total	47.0	50.3	44.6	41.4	54.1	55.4	47.0

Source: Compiled by the Commission.
[a] Stratum did not contain companies.

[959] Responses that were received by June 30, 2014, were able to be used. Those that were received afterwards could not be added due to time constraints.

Weighting and Analysis of Responses

Once the Commission received completed questionnaires, they were reviewed by Commission staff to ensure that respondents had properly reported all data. In cases where data were missing or appeared inconsistent, staff contacted the respondents to obtain corrected data.

After the data were collected and reviewed, Commission staff combined the responses from individual companies to produce statistically valid estimates of India activity in the selected industries. As noted above, the sampling rate differed by stratum, and so did the response rates. As a result, Commission staff weighted the responses of companies in different strata to produce the estimates that would represent the entire population.

Weights were determined by two factors: the sample selection weight and a nonresponse adjustment factor. The sample selection weight was used to account for companies that were not sampled; the specific weight depended on the sampling rate. Strata with the lowest sampling rates (e.g., companies in the Orbis database with 50–499 employees) received the highest sample selection weights, since each survey respondent in these strata represented more companies in the overarching population than respondents in other strata.[960]

The nonresponse adjustment factor was used to account for companies that did not respond to the survey. The propensity cell adjustment approach was used to account for nonresponse. This approach assigned a nonresponse rate to each company that is equal to the reciprocal of the estimated probability that the company participated in the survey.[961]

The probability of survey participation was estimated in a logistic regression of responses on company characteristics. These characteristics include revenue; number of employees; firm size by data source; location in border or coastal states; and industry by data source information.[962] These variables had statistically significant effects on response rates, as shown in the results of the logistic regression (table F.6) and subsequent marginal effect coefficients (table F.7). The tables show that these variables had economically significant effects as well. For example, companies identified from data sources other than the Orbis database were 7.9 percent more likely to respond. After controlling for companies' size category, a 1 percent increase in employees increased participation by 3.4 percent. In accordance with standard econometric

[960] Weighting is also adjusted for duplicates, as discussed in USITC, *Remanufactured Goods*, 2012, appendix F.
[961] For details, see Heeringa, West, and Berglund, *Applied Survey Data Analysis*, 2010, 39–42.
[962] Estimated probabilities, or propensity scores, from this analysis were used to match companies into quintiles, representing the probability of responding. This matching was done separately for each industry to preserve counts at the industry and higher level.

Table F.6: Determinants of survey participation: Logistic regression

	Logistic regression		
Company characteristic	**Coefficient**		**Standard error**
Log of revenues	0.032	***	0.012
Log of employees	0.144	***	0.039
Interaction between data source and size[a]			
Medium-sized companies from other data sources	0.411	**	0.207
Medium-sized companies from Orbis database	0.062		0.119
Large companies from other data sources	0.345	**	0.143
Headquartered on U.S. coast or border	-0.126		0.083
Interaction between data source and NAICS-based industry[b]			
Natural resources and metals from Orbis database	-0.545	***	0.162
Chemicals and textiles from Orbis database	-0.722	***	0.194
Other manufacturing from Orbis database	0.549	***	0.135
Retail/wholesale from Orbis database	0.509	***	0.159
Finance and insurance services from Orbis database	-0.039		0.177
Information services from Orbis database	-0.460	***	0.151
Other services from Orbis database	0.085		0.109
Agriculture, food, and beverages from other data sources	0.943	***	0.155
Natural resources and metals from other data sources	0.057		0.148
Chemicals and textiles from other data sources	-0.625	***	0.179
Other manufacturing from other data sources	0.194	*	0.100
Retail/wholesale from other data sources	-0.800	***	0.145
Finance and insurance services from other data sources	0.162		0.174
Information services from other data sources	-0.416	***	0.105
Other services from other data sources	0.000		[c]
Constant	-1.500	***	0.313
Number of observations	6,814		

Source: Compiled by the Commission.
Note: Stars indicate level of statistical significance: 1 percent (***), 5 percent (**), and 10 percent (*); lower percentages indicate greater significance.

[a] Relative to the omitted category (large companies from the Orbis database).
[b] Relative to the omitted category (agriculture, food, and beverages from the Orbis database).
[c] Omitted.

Table F.7: Determinants of survey participation: Marginal effects

Company characteristic	Marginal effects: Coefficient (dy/dx)		Marginal effects: Standard error
Log of revenues	0.008	***	0.003
Log of employees	0.034	***	0.009
Medium-sized	0.015		0.028
Company from other data sources	0.079	***	0.019
Headquartered on U.S. coast or border	-0.029		0.019
NAICS-based industry[a]			
Natural resources, metals, and related downstream products	-0.128	***	0.034
Chemicals and textiles manufacturers	-0.171	***	0.038
Other manufacturers	0.118	***	0.031
Retail, wholesale, and related services	0.097	***	0.037
Financial services	-0.018		0.040
Digital content providers	-0.117	***	0.032
Other services	0.008		0.025
Number of observations	6,814		

Source: Compiled by the Commission.
Note: Stars indicate level of statistical significance: 1 percent (***), 5 percent (**), and 10 percent (*).
[a] Relative to the omitted category (agriculture, food, and beverages).

techniques, among categorical explanatory variables, one category is omitted to avoid perfect collinearity with the constant term. In this case, among the surveyed industries, the agriculture products, processed foods, and beverages industry was omitted; hence, the results in table F.7 for the industry covariates are relative to that industry. For example, the response rate for companies in the natural resources, metals, and downstream products industry was 12.8 percent lower than that of companies in the agriculture products, processed foods, and beverages industry.

A third factor, post-stratification adjustment, was considered but determined to be inappropriate for this study due to a lack of relatable official population information on a NAICS basis. Although official data are available from the U.S. Census Bureau (Census) for many of the NAICS codes in the survey population, preliminary estimates of post-stratification weighting showed that there was large variability between the number of companies that Census reported in the surveyed NAICS codes and the number reported by Orbis. This was particularly the case for the retail, wholesale, and related services and the “other services” industries. The reason for the discrepancy in the preliminary estimates was twofold: (1) Companies classify themselves in different NAICS industries in both Census and Orbis, at anywhere between the 3- and 6-digit level; and (2) Census may be categorizing a number of these companies in NAICS codes other than the ones that have been included in the sampling frame. Since the NAICS

classifications between Orbis, Census, and the companies themselves (as reported in the Commission survey) are not aligned, developing official statistics on the survey population is fraught with inaccuracy; hence, post-stratification is not appropriate.

The final weight for each observation was calculated by combining the sample selection weight and the nonresponse weight for each respondent. These weights ranged from 1.2 to 184.7, with an average weight of 15.1.[963] Average weights for each stratum are presented in table F.8.

Table F.8: Average final weight, by stratum

Industry	Multinational corporations	India-specific companies	Exporters to countries other than India	Companies in Orbis		Industry association lists
				Up to 499 employees	500+ employees	
Agriculture and food	1.7	1.4	2.9	31.1	5.1	1.8
Natural resources	4.2	2.2	—[a]	69.0	16.1	3.1
Chemicals and textiles	6.4	3.6	10.8	99.0	21.8	—[a]
Other manufacturing	2.1	1.8	3.2	25.7	7.1	2.1
Retail and wholesale	2.2	3.9	10.1	37.4	8.9	2.3
Financial services	3.4	2.7	—[a]	38.1	12.9	4.3
Content and media	2.8	2.5	—[a]	56.8	7.4	2.8
Other services	2.3	2.2	5.0	36.1	7.6	—[a]

Source: Compiled by the Commission.
[a] Stratum did not contain companies.

Grouping of Questionnaire Items into Broad Policy Groups

As discussed in chapter 3, the Commission questionnaire covered policy- and non-policy-related issues that were fairly specific in their scope. To generalize the issues for simplicity of analysis, the Commission grouped each policy item into broader groups based on the characteristics of the policies. The groupings for policy barriers were tariffs and customs procedures, foreign direct investment (FDI), intellectual property and local-content requirements (IP and LCR), taxes and financial regulations, sanitary and phytosanitary measures and technical barriers to trade (SPS and TBT), and miscellaneous policy issues not otherwise categorized. Table F.9 shows the

[963] As noted above, nonresponse and final weights may vary by organization within a stratum, so table F.8 reports the average value for each stratum.

Table F.9: Detailed groupings for Commission questionnaire items related to policy issues

			Survey Item in Section			
Group	**Corresponding chapter**	**Description**	**3**	**4**	**5**	**7**
Tariffs and customs procedures	4	High import duties	1			1
		Difficulty importing intermediate inputs into India or other problems with customs administration		9	9	11
		Customs administration problems (e.g., transparency of rules, documentation requirements, valuation of goods)	11			14
IP and LCR	5 and 6	Requirements that items you sell in India contain domestic Indian content (including local "working" requirements)	5		4	5
		Requirements that items sold or used in the provision of a service contain domestic Indian content (including local "working" requirements)		4		6
		Inadequate protection of intellectual property	7	6	6	8
		Inadequate protection of regulatory test data	8	7	7	9
		Involuntary technology transfer (including compulsory licensing)	9	8	8	10
FDI	7	Difficulty getting required permits/approvals/licenses for investment from the Indian government		10	10	12
		Requirement that a share of goods you produce in an Indian affiliate must be exported		11		15
		Restrictions on the share of an investment in India that can be owned by a foreign firm, or requirements to enter into a joint venture with an Indian firm		14	11	16
		Policies other than equity caps (including limitations on juridical form, ability to apply for a license, limits on number of licenses) that restrict investment			12	17
		Limits on geographic expansion within India			13	18
		Requirements that investments must be of a minimum amount in order to obtain approval		15	14	24
		Restrictions on buying or using land		17		27

			Survey Item in Section			
Group	**Corresponding chapter**	**Description**	**3**	**4**	**5**	**7**
Other issues not otherwise categorized	8	Uncertainty or inconsistency of implementation of current or draft Indian regulations	4	3	3	4
		Subsidies, price supports, or other assistance given to your Indian-owned competitors by the Indian government	6	5	5	7
		Requirements that certain staff or a share of staff must be Indian citizens		12	15	20
		Market control by state trading enterprises	14			22
		Inability of non-Indian staff to be licensed/certified in India			17	23
		Restriction on cross-border transmission of data			18	26
		Unclear legal liability or regulations governing liability in clinical trials			19	28
Taxes and financial regulations	8	High taxes (excluding duties)	2	1	1	2
		Inconsistent, variable, or nontransparent duties or taxes	3	2	2	3
		Financial requirements that limit what your firm may do with profits earned in India (e.g., you reinvest in India, divest to an Indian partner)		16	16	25
SPS and TBT	8	Import bans on specific products (including bans on genetically modified organisms)	10			13
		Difficulty complying with Indian standards, sanitary and phytosanitary rules, or regulations on product characteristics; or problems obtaining or maintaining certifications	12	13		19
		Difficulty complying with consumer labeling requirements	13			21

Source: Compiled by the Commission.

questionnaire items related to policy issues in sections 3, 4, 5, and 7 that correspond to these groupings. Table F.10 shows the questionnaire items related to policy issues in section 6 that correspond to non-policy issues.

Table F.10: Detailed groupings for Commission questionnaire items related to non-policy issue

Group	Description	Survey Item in Section 6
Corruption	Corruption, informal payments	1
Employing workers	Lack of trained workforce	8
	Labor market regulations	9
Infrastructure	Poor physical infrastructure	5
	Poor communications infrastructure	6
	Insufficient/unstable electricity supply	7
Judicial and administrative efficiency	Inadequate legal system	2
	Judicial delays	3
	Bureaucratic or regulatory delays or other red tape	4

Source: Compiled by the Commission.

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Appendix G
Simulation Inputs and Model Methods

Simulation Inputs and Model Methods

As noted in chapter 1, the empirical approach employed in this study uses econometric methods to calculate inputs into the computable general equilibrium (CGE) model. This appendix provides technical details about the econometrically estimated inputs and model presented in this report. The first section discusses the calculation of model inputs for the intellectual property rights (IPR) and foreign direct investment (FDI) policy simulations. The second section discusses the details of the CGE model used for the simulations.

Econometric Methods

The study uses econometric methods to estimate the effects of two types of Indian policies (affecting IPR and FDI) on trade and investment flows. For both policies, the econometric specifications are based on the so-called gravity model of trade. This model has been used extensively in the literature to estimate trade flows, using a set of trade flow determinants to control for variation across countries.[964] In addition to the general literature on gravity, there is literature focused on the topics of IPR and FDI. For the IPR policies, the estimation of effects of IPR protection on exports and foreign affiliate sales follows the literature of gravity models of trade flows.[965] For FDI, the econometric estimates follow Bergstrand and Egger's 2007 paper, which constructed a model that estimated FDI and foreign affiliate sales in a similar way to gravity models of trade.[966]

Computation of Inputs for IPR Simulation

Policy Index

The primary measure used to measure the level of protection for intellectual property (IP) was an index constructed by the Economist Intelligence Unit (EIU). This measure was selected because it attempts to capture actual enforcement of IPR rather than simply legal rights, which are enforced to varying degrees across countries. The EIU index is an annual survey, produced by the EIU's network of regional experts. This measure necessarily requires qualitative assessments by experts rather than quantitative measures in order to capture actual levels of protection (de facto) rather than simply laws on the books (de jure). The EIU index depends on the strictness and enforcement of regulations, the efficiency of courts in dealing with violations, and the coverage of the regulations and enforcement of the various forms of IP, such as

[964] See Head and Mayer, "Gravity Equations: Workhorse, Toolkit, and Cookbook," 2014.
[965] See Shapiro and Mathur, "How India Can Attract More Foreign Direct Investment," 2014; USITC, *China: Effects of Intellectual Property Infringement*, 2011.
[966] Bergstrand and Egger, "A Knowledge-and-Physical-Capital Model," 2007.

trademarks, patents, and copyrights. The EIU index scores countries from 1 (poor IPR enforcement) to 5 (high IPR enforcement). The score for India in 2013 is 3; the score for the United States is 5.

Econometric Specification

In addition to the measures of IPR protection discussed above, the econometric specification includes variables on determinants of trade from the gravity model, as shown in equation 1:

$$\begin{aligned}\ln(X)_{ijkt} = \ & \alpha + \beta_1 ln(\mathrm{GDP})_{jt} + \beta_2 ln(\mathrm{GDPROW})_{ijt} + \beta_3 \mathrm{MRDistance}_{ij} \\ & + \beta_4 \mathrm{MRLanguage}_{ij} + \beta_5 \mathrm{IPR\ protection}_{jt} + \beta_6 \mathrm{IPR} \times \mathrm{R\&D\ share}_{jkt} \\ & + \beta_7 \ln(\mathrm{value\ added})_{jkt} + \varepsilon_{jkt}\end{aligned} \tag{1}$$

where *i* is the exporting country (or source country for foreign affiliates)[967], *j* is the importing country (or host country), *k* is the industry, and *t* represents time.

For the regression on exports, the dependent variable *X* represents U.S. exports. The independent variables include measures of the importing country's economic size (its gross domestic product, or GDP) and a measure of the rest-of-world GDP (GDPROW).[968] Value added controls for the economic size of each sector, and was obtained from the World Input-Output Database (WIOD).[969] Bilateral trade cost variables were included: distance between exporter and importer, and a language dummy variable. The Centre d'Études Prospectives et d'Informations Internationales (CEPII) database of gravity variables was used for these variables.[970] Similarly, for the regression on foreign affiliate sales, the dependent variable *X* represents U.S. foreign affiliate sales. Independent variables remain as in the exports regression.

Trade between two countries relies on the costs of trade between the two countries as well as the costs they face with their other trading partners. To capture this, the weighted average trade cost between a country and its trade partners is calculated for each identified bilateral

[967] In each case this is the United States.
[968] The United States is the only exporter in the dataset, so the exporter GDP is not included. Similarly, bilateral fixed effects cannot be estimated in this model.
[969] Timmer, "The World Input-Output Database," 2012.
[970] CEPII, Gravity Database, accessed August 11, 2014.

trade cost (in this case, distance and language).[971] These terms are called multilateral resistance terms. These were calculated for each trade cost and combined with the original variable.[972]

Export values and foreign affiliate sales values are obtained from the Bureau of Economic Analysis (BEA) of the U.S. Department of Commerce. The observations cover five years, from 2008 to 2012.

In addition to the main variable measuring IPR, the IPR variable is interacted with a variable that measures the relative importance of research and development (R&D) in each sector. The intensity of R&D in a sector is taken as a proxy for a sector's IP intensity, which is not directly observed. This variable is obtained from sector-level estimates of R&D expenditures divided by sector value added.[973] The model therefore assumes that protection of IP in a country has a positive effect on exports to that country, particularly in sectors with high levels of R&D. In this specification, the IP terms are treated as a measure of country- and sector-specific demand, whose influence on exports and foreign affiliate sales is like that of GDP. These IP terms are not treated as a trade cost, which would require a multilateral resistance term. The simulation handles them much as it would handle a shift in demand rather than an ad valorem tariff equivalent.

Econometric Results

In the regression for U.S. exports, most coefficients are of the expected sign. The exception is distance, whose coefficient is not significant (table G.1). The variables of interest behave as expected: the IPR coefficient is positive, while the coefficient on the interaction term (IPR and R&D) is also positive. This indicates that IP-intensive sectors tend to be more affected by IPR in the importing country than sectors that are less IP-intensive. This result, though statistically significant, is not economically large, as discussed below.

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[971] There is no multilateral resistance term for the IPR protection variable. Levels of IPR protection can be considered a feature of a country's economy that, like the GDP term, is associated with the attraction of exports of foreign affiliate sales.

[972] Multilateral resistance terms are sometimes represented as two separate variables: the trade cost itself (e.g., distance) and the multilateral resistance term. But it can also be represented as a single variable, since the theoretically expected coefficients are expected to be the same but with opposite signs. See Baier and Bergstrand, "Bonus Vetus OLS," 2009, for details on the approach.

[973] Sector-level R&D estimates are taken from the NSF Business Research and Development and Innovation Survey. Sectoral value added is available in the World Input-Output Database; see Timmer, "The World Input-Output Database," 2012.

Table G.1: Econometric estimates of the effect of IPR protection on exports

Independent variables	Coefficients
ln(GDP importer)	1.0048***
	(0.0434)
ln (GDPROW)	-2.111***
	(0.4724)
MR—distance	-0.005
	(0.0045)
MR—language	0.8924***
	(0.0587)
IPREIU interacted with RDshare	2.0522***
	(0.0643)
IPREIU	0.0542**
	(0.0274)
ln(value added)	0.7390
	(0.0272)

Source: USITC calculations.
Notes: Dependent variable is ln(exports). Estimation uses ordinary least squares (OLS). *** denotes significance at the 1 percent level; ** significance at the 5 percent level. Robust standard errors in parentheses. Distance and language incorporate terms for multilateral resistance.

The model inputs that result from this econometric analysis are reported in table G.2. The simulation assumes that India achieves the same level of IP protection as that of the United States, so that the EIU index increases from 3 to 5. This two-unit change is multiplied by the sum of the coefficients for the IPREIU index and the interaction to produce the model inputs.

Table G.2: Estimated effect of improvement of IPR protection by India on U.S. exports

Sector	Percent effect
Agriculture and food	23.2[a]
Natural resources	13.4
Chemicals and textiles	67.1
Pharmaceuticals	172.1
Other manufacturing	85.0
Content and media	11.4
ICT	77.3
Retail trade	38.8
Financial services	38.8
Other services	29.2

Source: USITC estimates.
[a] This estimated effect applies only to the food processing sectors.

The foreign affiliate sales results are similar in nature (table G.3). This regression yields a positive association between foreign affiliate sales and the IPR coefficient, along with a positive coefficient on the interaction term between IPR and R&D.

Table G.3: Econometric estimates of the effect of IPR protection on foreign affiliate sales

Independent variables	Coefficients
ln(GDP host)	0.7823***
	(0.0999)
ln(GDPROW)	-1.301
	(1.1675)
MR—distance	0.0064
	(0.0090)
MR—language	0.2826**
	(0.1273)
IPREIU interacted with RDshare	0.8985***
	(0.0963)
IPREIU	0.4613***
	(0.0486)
ln(value added)	0.5615***
	(0.0539)

Source: USITC estimates.
Notes: Dependent variable is ln(foreign affiliate sales). Estimation uses OLS. *** denotes significance at the 1 percent level, ** denotes significance at the 5 percent level. Robust standard errors in parentheses. Distance and language incorporate terms for multilateral resistance.

The model inputs that result from this econometric analysis are reported in table G.4. As above, the model inputs are calculated using the 2-unit change in the EIU index, and the coefficients on the IPREIU index and the interaction term.

Table G.4: Estimated effect of improvement of IPR protection by India on U.S. foreign affiliate sales

Sector	Percent effect
Agriculture and food	99.7
Natural resources	97.2
Chemicals and textiles	138.9
Pharmaceuticals	169.4
Other manufacturing	135.0
Content and media	113.3
ICT	113.3
Retail trade	113.1
Financial services	113.1
Other services	33.2

Source: USITC estimates.

When constructing the model simulation, both changes in exports and changes in foreign affiliate sales are targeted to the size of the barriers estimated econometrically (the model inputs). The model inputs reported in tables G.2 and G.4 are therefore by design close to the model results of changes in U.S. exports and foreign affiliate sales reported in tables 3.17 and 3.18.[974]

Computation of Inputs for FDI Simulation

Policy Index

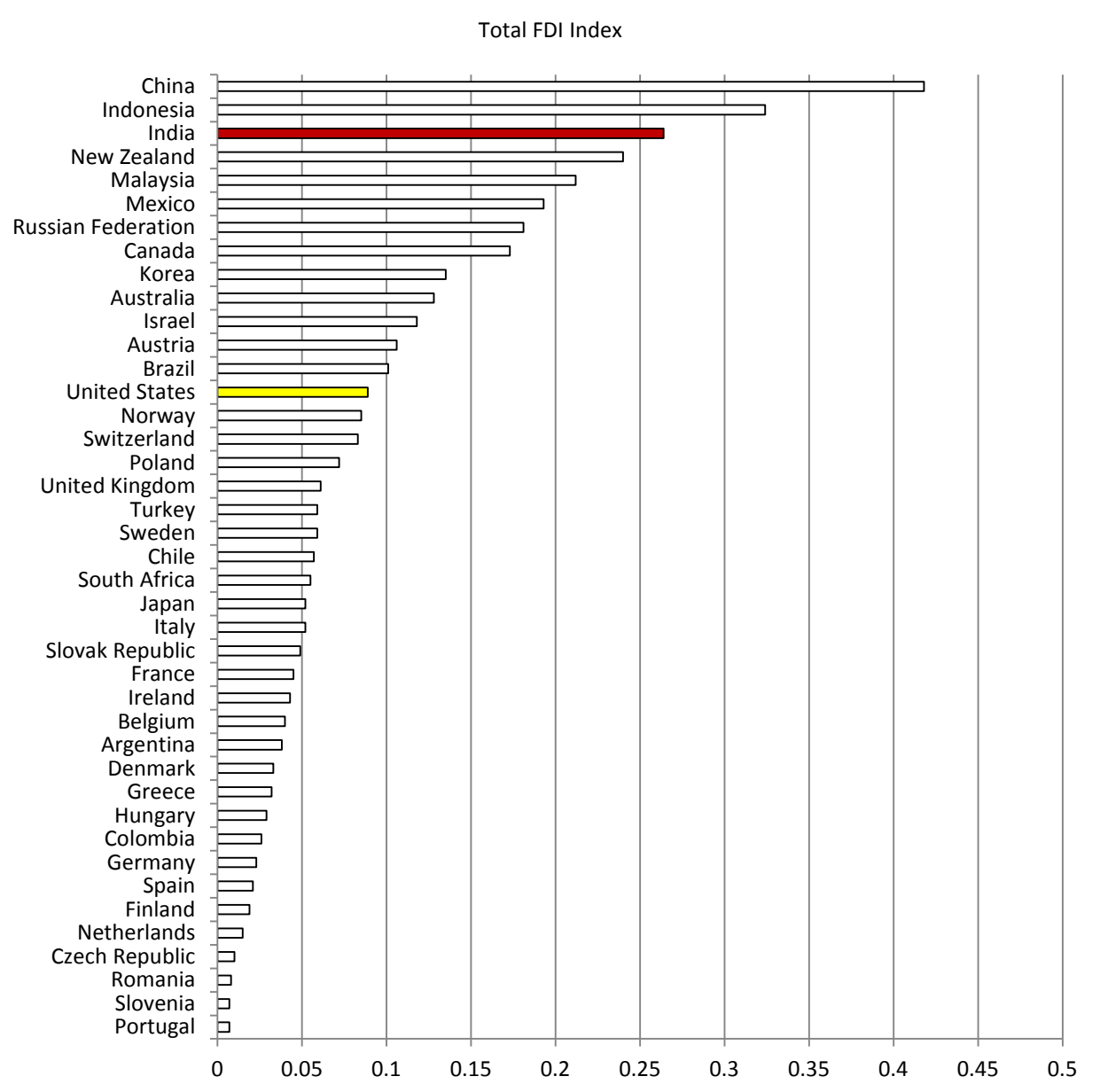
The Organisation for Economic Co-operation and Development (OECD) has constructed an index that measures restrictions on FDI by country, as well as by sector within each country, over time. Values for the OECD restrictiveness index range from 0 to 1, with 0 indicating that an economy is fully free of regulatory restrictions, and 1 indicating the highest level of restrictiveness. India's overall 2013 level of FDI restrictiveness is 0.264, which makes it one of the more restricted countries analyzed under the OECD's restrictiveness measure (figure G.1). Chapters 2 and 7 discuss the restrictiveness of specific Indian sectors, as measured by the OECD (see table 2.1 and figure 7.1).

Policies are scored on criteria that include foreign equity limits, screening and approval; restrictions on key foreign personnel; and certain other restrictions (table G.5).[975] Foreign equity restrictions are by far the most important, according to the scoring of the restrictiveness index. The weight given to equity restrictions is 5 to 10 times that given to other FDI

[974] There are some slight differences due to interaction effects within the model. The original model results, along with the estimation equations that produced them, appear in tables G.2 and G.4 in appendix G.
[975] Although local-content requirements were initially part of the OECD's FDI Regulatory Restrictiveness Index, they have not been included since 2010.

restrictions, such as requirements for approval of FDI or limitations on foreign employees (table G.1). If foreign equity limits are sufficiently low, this will trump all other forms of openness.

Figure G.1: OECD FDI Regulatory Restrictiveness Index, by country, 2013



Source: OECD, FDI Regulatory Restrictiveness Index database (accessed August 15, 2014).

Table G.5: Scoring of the OECD FDI Regulatory Restrictiveness Index (0 is fully open, 1 is fully closed)

Measure	Notes	Condition to receive highest score	Weight range
Foreign equity limits	Restrictions on the share of equity from foreign investors. Different scales depending on whether the limits apply to start-ups or acquisitions.	No foreign equity allowed in either start-up or acquisition	0 to 1
Screening and approval	Approval required for new FDI, excludes national security concerns.	Approval required for less than $100 million or less than 50%	0 to 0.2
Restrictions on key foreign personnel	Limitations on employees, board of directors. Time limits on foreign employees. Economic needs test for foreign employees. National/residence requirements. Does not include general movement of people	Foreign key personnel not permitted	0 to 0.1
Other restrictions	E.g., restrictions on branches, profit repatriation, land ownership	Reciprocity requirement, profit/capital repatriation, acquisition of land for business purposes	0 to 0.1

Source: Kalinova, Palerm, and Thomsen, "OECD's FDI Restrictiveness Index," 2010.

Econometric Specification

As with IPR, the econometric specification for FDI policies includes variables on determinants of trade from the gravity model, as shown in equation 2:

$$\begin{aligned}\ln(X)_{ijkt} = \ & \alpha + \beta_1 \ln(\mathrm{GDP})_{jt} + \beta_2 \mathrm{MRDistance}_{ij} + \beta_3 \mathrm{MRLanguage}_{ij} \\ & + \beta_4 \mathrm{Investment\ Freedom}_j + \beta_5 \ln(\mathrm{value\ added})_{jkt} \\ & + \beta_6 \mathrm{FDI\ Restrictiveness\ Index}_{jkt} + \varepsilon_{jkt}\end{aligned} \tag{2}$$

where *i* is the source country, *j* is the host country, *k* is the industry, and *t* represents time.

The dependent variable represents sales by U.S. affiliates abroad. Similar to the IPR specification, this specification included country-specific trade freedom levels from the Heritage Foundation, and bilateral trade-costs terms such as the distance between exporter and importer and a language dummy variable. The CEPII database of gravity variables was again used for the first two variables. Value added by sector controls for sector effects, and was obtained from the WIOD database. Figures for investment freedom are obtained from the Heritage Foundation's index of economic freedom, which is an assessment of the host country's overall level of investment openness. The observations cover three years, from 2009 through 2011. The data for foreign affiliate sales are obtained from the BEA. All data are for U.S. foreign affiliate sales located abroad.

Econometric Results

The specification used was an ordinary least squares (OLS) regression with robust standard errors. The estimates are in table G.6. The key variable of interest is negative: as restrictions decline, the level of foreign sales increases.

Table G.6: Econometric estimates of the effect of FDI restrictions on foreign affiliate sales

Independent variables	Coefficients
ln(host GDP)	0.3121***
	(0.0680)
MR—distance	-0.575***
	(0.0749)
MR—language	1.0347***
	(0.1739)
Investment freedom	0.0225***
	(0.0029)
ln(Value added)	0.7494
	(0.0543)
FDI Regulatory Restrictiveness Index	-1.828***
	(0.4359)

Source: USITC estimates.
Notes: Estimation uses ordinary least squares (OLS). *** denotes significance at the 1 percent level, ** denotes significance at the 5 percent level. Robust standard errors in parentheses. Bilateral fixed effects are dropped, as there is only one source country, the United States. The specification is robust to the use of sector dummies instead of sector value added.

The coefficient on the restrictiveness index can be interpreted as the change in foreign affiliate sales for each unit change in FDI policy. The model inputs that result from this econometric analysis are reported in table G.7. The simulation assumes a full removal of the FDI barriers, so that the FDI index is reduced from its current levels to zero for each sector. The model inputs are then calculated by multiplying this reduction in barriers with the coefficient on the restrictiveness index.

Table G.7: Estimated effect of full liberalization of FDI policies by India on U.S. foreign affiliate sales

Industry	Percent effect
Agriculture and food	21.0
Natural resources	7.2
Chemicals and textiles	16.8
Other manufacturing	0.7
Content and media	72.2
ICT	31.6
Retail trade	86.8
Financial services	75.8
Other services	27.3

Source: USITC estimates.

As with the IP simulation, the changes in foreign affiliate sales are targeted to the size of the barriers estimated econometrically (the model inputs). The model inputs reported in table G.7 are therefore by design close to the model results of changes in U.S. foreign affiliate sales reported in table 3.20.[976]

GTAP Analysis of Effects

The CGE model is based on the standard Global Trade Analysis Project (GTAP) model, extended to include FDI. The model has also been extended to treat the labor force as an endogenous variable. There is a constant-elasticity labor supply curve for each region. The simulations are described in chapter 1. The simulations use GTAP version 8, with a 2007 baseline. Projections by the International Monetary Fund were used to bring the baseline forward to 2014. Splits to the sectors were constructed using trade shares of GTAP aggregate sectors. The 129 regions of the original GTAP model were aggregated into 7: the United States, India, the European Union, Japan, China, Australia and New Zealand, and the rest of the world. For reporting purposes, the 57 GTAP sectors were disaggregated into 64 sectors. Model inputs were placed into the model at this level of disaggregation, and then for presentation aggregated to the 9 sectors used throughout the report.

FDI Extension

The FDI extension permits the researcher to quantify results for foreign affiliates. In a standard GTAP model, industries are undifferentiated by ownership. Simulations affect all of the firms in a country the same way. The FDI-extended model can investigate policies that affect only foreign-owned firms. Moreover, the model can handle policies that are not inherently

[976] There are some slight differences due to interaction effects within the model. The original model results, along with the estimation equations that produced them, appear in tables G.2 and G.4 in appendix G.

discriminatory against foreign-owned firms (e.g., tariffs), which may have a different effect on foreign affiliates than on the rest of the firms in a given location. The effect on foreign-owned firms of such policies can now be traced explicitly.

Flexible Labor Supply

The version of the GTAP model used in this report assumes a flexible labor force. The model allows the number of workers in each country's labor force to change with a change in real wages. This assumption allows for adjustments to aggregate employment in each country. The standard version of the model does not allow for changes in aggregate labor. A labor supply elasticity of zero implies workers do not work more (either by working longer hours or by joining the labor force) in response to an increase in wages. By contrast, a labor supply elasticity greater than zero implies the labor supply will expand in response to a rise in wages. A labor supply elasticity of 0.2 was used for all countries in the modeling for this report. This elasticity implies that, for every 1 percent rise in U.S. wages, U.S. workers will increase their supply of labor by 0.2 percent. This value was selected based on estimated values obtained in a review by Robert McClelland and Sharon Mok of the Congressional Budget Office. Similar estimates have been used in previous Commission reports.[977] Other studies focused on macroeconomic changes report much higher labor elasticities, but these studies estimate changes in labor supply over the business cycle, which is not relevant to the analysis in this study.[978]

Limitations of the Model

One strength of the CGE model is that it can simultaneously estimate the effect of multiple policy changes, producing results consistent with constraints imposed by the macroeconomy. However, this can also be a weakness. In particular, it can be difficult to disentangle the effects of multiple policies, as policies implemented together may have different effects than the sum of each policy implemented individually. The model also presents problems of aggregation, where certain small industries with large effects are subsumed within larger industries without significant effects. Moreover, estimating model inputs is inexact. While tariff barriers can be precisely measured, FDI and IPR barriers must be estimated before they are incorporated into the model.[979] There also may be overlapping effects of different policies that are double-counted. Finally, the CGE model does not explicitly model all aspects of IPR, such as its monopoly characteristics, R&D investments, and royalties and licensing fees.

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[977] McClelland and Mok report a range of elasticities from 0 to 0.4. The midpoint was selected for this report for ease of exposition. See McClelland and Mok, "A Review of Recent Research on Labor Supply Elasticities," 2012; USITC, *Digital Trade in the U.S. and Global Economies, Part 2,* 2012, 70.
[978] Peterman, "Reconciling Micro and Macro Estimates of the Frisch Labor Supply Elasticity," 2014.
[979] Even for tariffs, some simplifying assumptions are necessary. See the discussion in chapter 3.

Simulation Implementation

The FDI model splits each industry into 129 subgroups, with each subgroup owned by a different region, including the domestic economy. In many instances, the size of a subgroup will be zero. These ownership-specific groups vary in their use of labor and capital, which depend partially on the country of ownership and partially on the location, while using the same intermediate inputs and imports as domestically owned firms.[980] The share of foreign-owned businesses varies by sector and region.

The first simulation examines the effects of Indian tariff liberalization on the U.S. economy. This is implemented in the model through the reduction of the exogenous variable *tms,* the source- and host-specific change in tax on imports. Tariffs are country-specific and vary based on trade weights and applied tariff rates.

The second simulation, for IPR, examines both the effect of IPR changes on exports and their effect on foreign affiliate sales. The export effects are implemented through an increase in the *ams* term, which is source- and host-specific import-augmenting technological change. Increasing the *ams* term assumes an increase in the technology of imports. Only one-tenth of the shock estimated by the econometric model is used to shock the *ams* term. This was done because technological improvement is expected to drive only a part of the increase in exports. The total exports are targeted to hit the export estimates through the use of the *twist* term, which represents a shift in demand rather than a technological improvement of imports. The foreign affiliate sales effects are implemented through increases in *aoall_mnc,* which are owner- and location-specific output-augmenting technological change.

When constructing the model simulation, the sales increases for foreign affiliates are targeted to the size of the barriers estimated econometrically (the model inputs). The model inputs are therefore by design close to the model results of changes in U.S. foreign affiliate sales reported in chapter 3.[981]

The third simulation, of FDI policies, examines their effect on foreign affiliate sales. This effect is also implemented using an assumed increase in *aoall_mnc,* although the amount of the increase and the sectors to which the increase is applied differ from the IPR policy experiment.

The combined simulation uses the model inputs for all three exogenous variables. The *aoall_mnc* terms were multiplied together to produce a compound effect representing both IPR and FDI.

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[980] Lakatos and Fukui, "The Liberalization of Retail Services in India," 2014.
[981] There are some slight differences due to interaction effects within the model.

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Appendix H
Additional Policy Information

Intellectual Property

Exports, Foreign Affiliate Sales and Investments by IP-intensive Companies

In the Commission survey, exports of goods to India by U.S. companies that rely heavily on intellectual property (IP-intensive companies) are largest in the manufacturing sectors, with IP-intensive "other manufacturing"[982] companies accounting for 48.9 percent of all U.S. goods exports by IP-intensive companies to India in 2013. The second-largest share of exports came from the IP-intensive chemicals and textiles sector, which exported 18.7 percent of total goods exports in 2013. All other sectors contributed about 8 percent or less (table H.1).

Table H.1: IP-intensive companies' shares of U.S. goods and services exports to and foreign affiliate sales in India

Company type and sector	Share of total U.S. goods exports to India	Share of total U.S. services exports to India	Share of U.S. affiliate sales of goods in India	Share of U.S. affiliate sales of services in India	Share of total U.S. company investment in India
IP-intensive companies					
Agriculture and food	4.8	0.0[a]	7.4	0.1	8.9
Natural resources	8.4	20.9[a]	1.1	0.0[a]	1.1
Chemicals and textiles	18.7	1.3[a]	32.9	3.2[a]	18.8
Other manufacturing	48.9	8.1	36.8	6.5	18.1
Retail and wholesale	2.8[a]	3.1[a]	3.5	0.1[a]	1.9
Financial services	0.0	18.7[a]	0.0	17.9	7.3
Content and media	1.0	21.3[a]	0.4	10.2	2.8
Other services	5.5	7.9	1.6	12.2	13.7
ICT	2.5	7.4	10.7[a]	25.0[a]	16.8[a]
All IP-intensive companies	92.3	88.7	94.5	75.9	89.2
Non-IP-intensive companies	7.7	11.3	5.5	24.1	10.8
All companies	100.0	100.0	100.0	100.0	100.0

Source: USITC calculations of weighted responses to the Commission questionnaire, (question 2.3).
[a] Low-precision estimate, with RSE over 50 percent.

Exports of services by U.S. IP-intensive companies are more evenly distributed, with the content and media sector exporting the largest share of services in 2013. The content and media,

[982] "Other manufacturing" includes manufacturing industries other than chemicals, textiles, and downstream natural resource products.

financial services, and natural resources sectors each accounted for about 20 percent of all U.S. services exports to India. IP-intensive other manufacturing, other services, and ICT each contributed 7 to 8 percent of services exports.[983]

Total foreign affiliate sales by U.S. IP-intensive companies were much larger than such companies' exports in 2013, but tended to have a similar distribution among sectors, with a few exceptions. The most notable exception was in the IP-intensive ICT sector, which accounted for 10.7 percent[984] of foreign affiliate goods sales and 25.5 percent[985] of foreign affiliate services sales by all U.S. companies. Other sectors with substantial sales of goods by U.S. foreign affiliates include the chemicals and textiles sector and the other manufacturing sector, which accounted for 32.9 and 36.8 percent of foreign affiliate goods sold by U.S. IP-intensive companies, respectively. Sales of services by IP-intensive companies were again more evenly distributed, with IP-intensive financial services companies accounting for 17.9 percent, the other services sector contributing 12.2 percent, and the content information sector contributing 10.2 percent of sales.[986]

Investment by IP-intensive companies also made up the vast majority of total U.S. investment into India. These companies accounted for 89.2 percent of total investment in India by U.S. companies in 2013.[987] Of all IP-intensive companies, the most substantial investors were companies in the chemicals and textiles, other manufacturing, and ICT sectors.

Foreign Direct Investment

The following tables present information on FDI restrictions that apply to investment in all industries (table H.2) and equity caps for specific industries (table H.3).

[983] USITC calculations of weighted responses to the Commission questionnaire, (question 2.3).
[984] Low-precision estimate, RSE over 50 percent.
[985] Low-precision estimate, RSE over 50 percent.
[986] USITC calculations of weighted responses to the Commission questionnaire, (question 2.3).
[987] USITC calculations of weighted responses to the Commission questionnaire, (questions 2.3–2.5).

Table H.2: FDI restrictions applicable to all industries

Short/descriptive name of measure	Official name of measure	Date effective	Description	Directly affected industries or companies
Limits on foreign institutional investors (FIIs)			FIIs limited to holding 10% of an Indian company, with an aggregate limit of 24%. Some sectors have higher caps.	All FIIs, all sectors
Limits on FIIs			Only nonresident Indians and FIIs registered with the Securities and Exchange Board of India (SEBI) can invest/trade through a registered broker in the capital Indian companies on Indian stock exchanges.	Financial services
Limits on qualified foreign investors (QFIs)	Scheme for Investment by QFIs in Indian Corporate Debt Securities, RBI/2012-13/134 A.P. (DIR Series) Circular No. 7	January 15, 2012	QFIs limited to 5% of paid-up capital of an Indian company, with aggregate limit of 10%.	All FIIs, all sectors
Special rules for non-resident Indians and persons of Indian origin (PIOs)			These people face fewer FDI restrictions than other foreign investors in India.	All FIIs, all sectors
Certain restrictions on FDI in trusts and LLPs, as well as on the types of instruments Indian companies can issue.				All FIIs, all sectors
Reserve Bank of India (RBI) modifications to policies for external commercial borrowing	RBI/2011-12/617 A.P. (DIR Series) Circular No. 134	June 25, 2012	RBI relaxed rules on external commercial borrowings for companies in manufacturing and infrastructure. They can now borrow up to aggregate $10 billion to repay rupee loans or for new capital expenditure, up to 50% of their average annual export earnings during the past 3 years.	
Limits on FIIs	RBI/2011-12/618 A.P. (DIR Series) Circular No. 135	June 25, 2012	RBI permitted FIIs to invest in the debt of Indian infrastructure companies, raised overall limits for bond emissions to $20 billion from $15 billion, relaxed conditions on investment in infrastructure debt by QFIs, and made other changes related to types of permitted bond investment.	

Short/descriptive name of measure	Official name of measure	Date effective	Description	Directly affected industries or companies
Limits on FIIs	RBI/2011-12/547 A.P. (DIR Series) Circular No. 124; RBI/2011-12/564 A.P. (DIR Series) Circular No. 128; RBI/2012-13/135 A.P. (DIR Series) Circular No. 8	May 10 and 16, 2012; July 18, 2012	Foreign exchange earners are required to convert 50% of foreign currency earnings into rupees; other restrictions on local use of foreign currency.	
Special guidelines for establishment/transfer of ownership in sectors with caps			Foreign Investment Promotion Board (FIPB) approval required for new establishment of Indian company with FDI when not controlled by an Indian resident, or when ownership passed to foreign entity. Does not apply to sectors with no FDI caps.	Defense production, air transport services, ground handling services, asset reconstruction, private sector banking, broadcasting, commodity exchanges, credit info companies, insurance, print media, tele-communications and satellites
FDI in holding companies requires prior FIPB approval			FDI in an Indian company that is only engaged in investing in other Indian companies requires prior approval from FIPB.	Holding companies/ financial services

Sources: Government of India, Consolidated FDI Policy 2013, April 5, 2013; OECD and UNCTAD, *Eighth Report on G20 Investment Measures*, October 31, 2012, 6–10.

Table H.3: Government of India, equity caps imposed on foreign direct investment, by sector, 2010–14

Sector	2010	2011	2012	2013	2014	Other conditions
Agriculture, including floriculture, horticulture, and apiculture; development and production of seeds and planting material; animal husbandry and aquaculture under controlled conditions; and services related to agriculture	100	100	100	100	100	Yes
Tea plantations	100	100	100	100	100	Yes
Mining and exploration of metal and non-metal ores	100	100	100	100	100	No
Coal and lignite	100	100	100	100	100	No
Mining and mineral separation of titanium-bearing minerals and ores	100	100	100	100	100	Yes
Petroleum and natural gas exploration and related activities, including marketing, pipelines, and liquefied natural gas facilities, subject to existing government regulations	100	100	100	100	100	No
Petroleum refining by the public sector undertakings (PSUs), without any disinvestment or dilution of domestic equity in existing PSUs.	49	49	49	49	49	Yes
Manufacturing	100	100	100	100	100	Yes
Defense industry	26	26	26	26	26	Yes
Cable networks (multisystem operators, or MSOs, undertaking upgrading of networks towards digitalization and addressability); mobile TV	[a]	[a]	[a]	74	74	Yes
Cable networks (other MSOs not undertaking upgrading of networks towards digitalization and addressability) and local cable operators (LCOs)	49	49	49	49	49	No
FM radio	20	26	26	26	26	Yes
Direct-to-home broadcasting	20	20	20	74	74	Yes
Headend-in-the-Sky broadcasting service	74	74	74	74	74	Yes
Setting up of uplinking hubs/teleports	49	49	49	74	74	Yes
Uplinking of “news and current affairs” TV channels	26	26	26	26	26	Yes
Uplinking of non-“news and current affairs” TV channels /downlinking of TV channels	100	100	100	100	100	Yes
Publishing of newspaper and periodicals dealing with news and current affairs	26	26	26	26	26	Yes
Publication of Indian editions of foreign magazines dealing with news and current affairs	26	26	26	26	26	Yes
Publishing/printing of scientific and technical magazines/specialty journals/periodicals, subject to compliance with relevant laws and guidelines issued by the Ministry of Information and Broadcasting	100	100	100	100	100	Yes
Publication of facsimile editions of foreign newspapers	100	100	100	100	100	Yes
Airports—greenfield and existing projects	100	100	100	100	100	No
Scheduled air transport service/domestic scheduled passenger airline	49	49	49	49	49	No

Sector	2010	2011	2012	2013	2014	Other conditions
Non-scheduled air transport service	74	74	74	74	74	No
Helicopter services/seaplane services requiring approval by the Directorate General of Civil Aviation (DGCA)	100	100	100	100	100	Yes
Ground handling services subject to sectoral regulations and security clearance	74	74	74	74	74	No
Maintenance and repair organizations; flying training institutes; and technical training institutions	100	100	100	100	100	No
Courier services for carrying packages, parcels, and other items which do not come within the ambit of the Indian Post Office Act (1898), excluding activity relating to the distribution of letters	100	100	100	100	100	Yes
Townships, housing, built-up infrastructure, and construction-development projects (including residential, commercial, and infrastructure projects)	100	100	100	100	100	Yes
An "industrial park," i.e., a project in which quality infrastructure is developed and made available to the included units for the purposes of industrial activity	100	100	100	100	100	Yes
Satellites (establishment and operation), subject to the sectoral guidelines of the Department of Space/ Indian Space Research Organization	74	74	74	74	74	No
Private security agencies	49	49	49	49	49	Yes
All telecommunication services, Internet, and value-added services, including infrastructure providers Category-I)[b]	74	74	74	74	100	Yes
Internet service providers	74	74	74	74	[b]	Yes
Value-added telecommunications services. Note: Investment is subject to the condition that such companies will divest 26% of their equity in favor of the Indian public in 5 years, if these companies are listed in other parts of the world	100	100	100	100	[b]	Yes
Wholesale trading (including sourcing from micro and small enterprises, or MSEs)	100	100	100	100	100	Yes
E-commerce activities	100	100	100	100	100	Yes
Trading for exports	100	[c]	[c]	[c]	[c]	
Trading of items sourced from MSEs	100	[c]	[c]	[c]	[c]	Yes
Test-marketing of items for which a company has approval to manufacture, provided the facility will operate for a period of two years, and investment in setting up a manufacturing facility commences simultaneously with test marketing	100	100	100	100		No
Single-brand retail trading	51	51	100	100	100	Yes
Multibrand retail trading	[d]	[d]	[d]	51	51	Yes
Asset reconstruction companies	49	49	49	74	100	Yes
Banking—private sector	74	74	74	74	74	Yes
Banking—public sector	20	20	20	20	20	Yes

Sector	2010	2011	2012	2013	2014	Other conditions
Commodity exchanges	26	26	26	26	49	Yes
Credit information companies (CIC)	49	49	49	49	74	Yes
Infrastructure companies in the securities market	49	49	49	49	49	Yes
Insurance	26	26	26	26	26	Yes
Non-banking finance companies (NBFC)	100	100	100	100	100	Yes
Pharmaceuticals—greenfield and brownfield	[c]	[c]	100	100	100	Yes
Power exchanges registered under the Central Electricity Regulatory Commission (Power Market) regulations, 2010	[c]	[c]	[c]	49	49	Yes
Electricity generation, transmission, distribution, and trading	100	[c]	[c]	[c]	[c]	Yes

Sources: Government of India, Department of Industrial Policy and Promotion (DIPP), *Consolidated FDI Policy*, 2013, http://dipp.nic.in/English/Policies/FDI_Circular_01_2013.pdf; Government of India, DIPP, *Consolidated FDI Policy*, 2014.

[a] Separated into different categories before 2013.

[b] Combined in telecom services after 2013.

[c] Data not available.

[d] Prohibited.

Appendix I
Data Tables

Table I.1: The growth in U.S. exports of goods to various partners, 2000–2013

Year	India	Other Asia-Pacific	All other countries
2000	100.0	100.0	100.0
2001	103.2	89.3	94.5
2002	112.2	88.3	89.0
2003	136.8	93.7	92.5
2004	167.5	103.9	104.9
2005	217.6	111.4	117.5
2006	265.4	127.6	133.6
2007	408.6	140.0	149.9
2008	484.5	151.5	170.4
2009	447.5	129.6	136.8
2010	524.9	165.2	161.7
2011	588.0	187.3	189.8
2012	604.8	192.1	198.9
2013	603.4	196.1	202.9

Source: USDOC, BEA, Table 2.3. U.S. International Trade in Goods, by Area and Country, Not Seasonally Adjusted Detail, released September 17, 2014; and USDOC, BEA, Table 2.2. U.S. International Trade in Services, by Type of Service and by Country or Affiliation, released October 24, 2014.
Note: Corresponds to Figure ES.1 and Figure 2.2.

Table I.2: The growth in U.S. exports of private services to various partners, 2000–2013

Year	India	Other Asia-Pacific	All other countries
2000	100.0	100.0	100.0
2001	112.5	89.4	96.2
2002	114.2	89.3	99.3
2003	135.2	90.5	103.0
2004	159.1	102.2	121.3
2005	187.1	114.4	133.1
2006	234.7	124.5	149.7
2007	310.3	139.1	177.6
2008	360.1	147.9	195.0
2009	357.7	151.2	184.0
2010	370.1	178.5	197.7
2011	422.4	201.1	219.3
2012	442.8	216.6	226.1
2013	483.0	227.8	236.9

Source: USDOC, BEA, Table 2.3. U.S. International Trade in Goods, by Area and Country, Not Seasonally Adjusted Detail, released September 17, 2014; and USDOC, BEA, Table 2.2. U.S. International Trade in Services, by Type of Service and by Country or Affiliation, released October 24, 2014.
Note: Corresponds to Figure ES.1 and Figure 2.2.

Table I.3: Average tariff rate applied to Indian imports of U.S. goods, 2000–2012

Year	Trade-weighted average
2000	25.3
2001	24.5
2002	22.1
2003	22.0
2004	21.8
2005	10.7
2006	8.5
2007	8.7
2008	6.2
2009	8.6
2010	6.5
2011	7.2
2012	7.8

Source: WTO Integrated Database (tariff and trade data for 2000–2001, 2006, 2008–2011; tariff data for 2002 and 2012) via the World Integrated Trade Solution (WITS); United Nations Conference on Trade and Development (UNCTAD) Trade Analysis and Information System (TRAINS) database, via WITS (tariff and trade data for 2004–2005 and 2007); and United Nations Commodity Trade (COMTRADE) Database, via WITS (trade data for 2002 and 2013), (accessed July 20, 2014).
Note: Not all data are available for all years. The 2003 average tariff is the simple average of the 2002 and 2004 values. The 2012 average is based on tariff data for 2012 and trade data for 2013.
Note: Corresponds to Figure ES.2 and Figure 2.1.

Table I.4: Share of U.S. companies engaged in India that are substantially affected by policy barriers, 2013, percent

Type of company	Tariffs and customs procedures	FDI	IP and LCR	SPS and TBT988	Taxes and financial regulations	Other	At least one policy
Goods producers	24.0	3.7	9.0	8.2	17.3	16.0	29.3
Services providers	9.4	5.7	7.2	1.7	14.9	9.9	21.7
All companies	17.9	4.5	8.2	5.5	16.3	13.4	26.1

Source: USITC calculations of weighted responses to the Commission questionnaire.
Note: Corresponds to Table ES.1.

Table I.5: Share of U.S. companies with foreign affiliates in India that are substantially affected by policy barriers, 2013, percent

Type of company	Tariffs and customs procedures	FDI	IP and LCR	SPS and TBT	Taxes and financial regulations	Other	At least one policy
Goods producers	47.0	11.8	14.8	13.6	39.3	35.9	61.0
Services providers	7.5	8.8	9.1	2.9	17.8	13.7	22.8
All companies with foreign affiliates	23.8	10.0	11.4	7.3	26.6	22.9	38.5

Source: USITC calculations of weighted responses to the Commission questionnaire.
Note: Corresponds to Table ES.2 and Table 3.4

Table I.6: Share of U.S. companies engaged in India that are substantially affected by policy barriers, by size, percent

Type of company	Tariffs and customs procedures	FDI	IP and LCR	SPS and TBT	Taxes and financial regulations	Oth er	At least one policy
Large	27.5	10.5	14.7	10.2	25.4	24.3	46.0
SME	14.8	2.6	6.2	4.0	13.4	10.0	19.8
All companies	17.9	4.5	8.2	5.5	16.3	13.4	26.1

Source: USITC calculations of weighted responses to the Commission questionnaire.
Note: Corresponds to Table ES.3 and Table 3.2.

Table I.7: Share of IP-intensive U.S. companies that are substantially affected by policy barriers, 2013, percent

Type of company	Tariffs and customs procedures	FDI	IP and LCR	SPS and TBT	Taxes and financial regulations	Other	At least one policy
Goods producers	29.8	5.1	12.9	9.2	21.2	20.0	37.2
Service providers	11.6	7.0	9.9	2.3	20.2	12.9	27.7
All IP-intensive companies	22.2	5.9	11.7	6.3	20.8	17.1	33.3

Source: USITC calculations of weighted responses to the Commission questionnaire (questions 1.7, 2.1, 3.3, 4.2, and 5.2).
Note: Corresponds to Table ES.4 and Table 3.5.

[988] Sanitary and phytosanitary (SPS) measures are regulations on agricultural goods that a country generally puts in place to promote human, animal, or plant life or health. Technical barriers to trade (TBT) are technical regulations and standards that may be applied to a wide range of goods.

Table I.8: Growth in stock of U.S. outbound FDI to various partners, 2000–2013 (goods)

Year	India	Other Asia-Pacific	All other countries
2000	100.0	100.0	100.0
2001	101.3	100.3	97.3
2002	155.6	95.3	102.1
2003	172.8	96.3	113.0
2004	204.5	112.4	127.7
2005	232.5	119.6	132.1
2006	285.0	132.3	135.7
2007	472.1	146.2	150.8
2008	476.2	151.5	148.3
2009	653.0	159.2	159.4
2010	639.9	172.7	163.4
2011	606.2	190.3	172.4
2012	729.1	212.9	184.9
2013	699.3	235.8	196.7

Source: USDOC, BEA, Table 2.3. U.S. International Trade in Goods, by Area and Country, Not Seasonally Adjusted Detail, released September 17, 2014; and USDOC, BEA, Table 2.2. U.S. International Trade in Services, by Type of Service and by Country or Affiliation, released October 24, 2014.
Note: Corresponds to Figure 2.4.

Table I. 9: Growth in stock of U.S. outbound FDI to various partners, 2000–2013 (private services)

Year	India	Other Asia-Pacific	All other countries
2000	100.0	100.0	100.0
2001	106.6	116.4	117.1
2002	188.2	153.3	129.7
2003	219.4	152.8	144.6
2004	376.5	224.8	175.3
2005	332.9	221.0	183.7
2006	467.6	233.2	208.9
2007	680.9	252.9	263.7
2008	908.8	279.7	290.3
2009	1,035.8	286.5	326.0
2010	1,221.4	330.1	338.4
2011	888.1	340.5	371.5
2012	1,066.3	371.1	401.5
2013	1,172.3	390.2	426.4

Source: USDOC, BEA, Table 2.3. U.S. International Trade in Goods, by Area and Country, Not Seasonally Adjusted Detail, released September 17, 2014; and USDOC, BEA, Table 2.2. U.S. International Trade in Services, by Type of Service and by Country or Affiliation, released October 24, 2014.
Note: Corresponds to Figure 2.4.

Table I.10: Average number of policy issues faced[a] by U.S. companies in 2007–13

Sector	2007	2010	2013
Agriculture and food	2.6	3.1	3.8
Natural resources	2.3	2.4	3.2
Chemicals and textiles	4.6	4.8	5.3
Other manufacturing	2.7	3.7	4.1
Retail and wholesale	2.4	3.4	4.6
Financial services	3.4	5.2	5.4
Content and media	2.9	3.2	3.7
ICT	3.2	4.5	4.8
Other services	2.2	2.7	3.7
All companies	3.1	3.7	4.3

Source: Source: USITC calculations of weighted responses to the Commission questionnaire (questions 2.1, 3.3, 4.2, and 5.2).
Note: Corresponds to Figure 3.1.
[a] Companies rating the effect of policy measures as a 1, 2, 3, 4, or 5. See box 3.1 for more details on definitions of severity.

Table I.11: Share of companies engaged in India that are substantially affected by policy barriers, by sector, percent[a]

Sector	Tariffs and customs procedures	FDI	IP and LCR	SPS and TBT	Taxes and financial regulations	Other	At least one policy
Agriculture and food	39.8	2.1	11.2[b]	27.9	14.7	24.1	44.1
Natural resources	12.1[b]	9.1[b]	7.7[b]	8.3[b]	9.8[b]	13.5[b]	17.5
Chemicals and textiles	26.3	2.0	7.5[b]	6.6[b]	21.6	19.3	28.7
Pharmaceuticals	18.2	11.8[b]	27.9	21.4	11.8[b]	24.7	37.5
Other manufacturing	25.8	4.2	11.7	5.8	17.8	13.8	34.1
Retail and wholesale	2.6	1.3	2.3[b]	2.6	4.9	2.7	7.7
Financial services	1.7[b]	23.4	16.0	0.0	19.5	22.4	37.8
Content and media	11.9[b]	3.4	17.0	2.9	16.7	7.5	29.8
ICT	11.0	4.6	4.5	5.7	14.9	7.3	20.4
Other services	10.5	5.8	5.7	0.8	15.3	11.7	21.6
Goods producers	24.0	3.7	9.0	8.2	17.3	16.0	29.3
Services providers	9.4	5.7	7.2	1.7	14.9	9.9	21.7
All companies	17.9	4.5	8.2	5.5	16.3	13.4	26.1

Source: USITC calculations of weighted responses to the Commission questionnaire (questions 2.1, 3.3, 4.2, and 5.2).
Note: Corresponds to Table 3.1.

[a] Reporting an effect of 3–5, indicating the policy had a moderate, severe, or prohibitive effect on activities in 2013. Colors correspond to the share of companies that are "substantially affected." Shares of less than 10 percent are assigned green; between 10 percent and 20 percent, yellow; greater than or equal to 20 percent, red. See box 3.1 for a more details on color coding of survey results.

[b] Low-precision estimate, with an RSE above 50 percent.

Table I. 12: Share of U.S. exporters to India that are substantially affected by policy barriers, percent[a]

Type of company	Tariffs and customs procedures	FDI	IP and LCR	SPS and TBT	Taxes and financial regulations	Other	At least one policy
Goods producers	24.5	3.4	9.0	8.5	17.4	16.0	29.2
Services providers	12.3	5.0	7.7	2.1	17.4	10.8	26.0
All exporters	20.2	3.9	8.5	6.3	17.4	14.2	28.1

Source: USITC calculations of weighted responses to the Commission questionnaire (questions 2.1, 3.3, 4.2, and 5.2).
Note: Corresponds to Table 3.3.

[a] Reporting an effect of 3–5, indicating the policy had a moderate, severe, or prohibitive effect on activities in 2013. Colors correspond to the share of companies substantially affected. Shares that are less than 10 percent are assigned green; between 10 percent and 20 percent, yellow; greater than or equal to 20 percent, red. See box 3.1 for a more details on color coding of survey results.

Table I.13: Share of companies engaged in India that are substantially affected by non-policy issues, percent[a]

Type of company	Corruption	Judicial and administrative efficiency	Labor market issues	Infrastructure	At least one issue
Goods producers	3.0	12.5	2.2	8.6	16.6
Services providers	1.2	10.7	2.8	6.2	13.3
All companies	2.2	11.8	2.5	7.6	15.2

Source: USITC calculations of weighted responses to the Commission questionnaire (questions 2.1 and 6.7).
Note: Corresponds to Table 3.8.

[a] Reporting an effect of 3–5, indicating the policy had a moderate, severe, or prohibitive effect on activities in 2013. Colors correspond to the share of companies substantially affected. Shares that are less than 10 percent are assigned green; between 10 percent and 20 percent, yellow; greater than or equal to 20 percent, red. See box 3.1 for a guide to understanding survey results.

Table I.14: Effect of Indian policy measures and "doing business" issues on companies engaged in India,[a] 2007–13

Policy issue	2007	2010	2013
Tariffs and customs procedures	2.6	2.9	3.3
Taxes and financial regulations	2.5	2.7	3.1
SPS and TBT	2.1	2.3	3.5
IP and LCR	2.1	2.5	2.8
Other policy issues	2.1	2.3	2.9
FDI	2.0	2.4	3.0
Judicial/administrative efficiency	2.0	2.6	3.1
Infastructure	2.1	2.6	2.5
Corruption	1.8	1.9	2.4
Employing workers	1.8	2.0	2.3

Source: USITC calculations of weighted responses to the Commission questionnaire (questions 2.1, 3.3, 4.2, 5.2 and 6.7).
Note: Corresponds to Figure 3.2.
[a] Companies rating the effect of policy measures as a 0, 1, 2, 3, 4, or 5. See box 3.1 for a guide to understanding survey results.

Table I.15: Distribution of effects[a] that changes in Indian policies have on U.S. companies' exports to or foreign affiliates sales in India, percent of U.S. companies engaged in India

Effect on exports or affiliate sales	2013 exports	2013 foreign affiliate sales
Would be higher by 10 percent or more	16.1	10.3
Would be higher than 5 percent, but less than 10 percent	1.2	0.7
Would be higher by 5 percent or less	1.6	1.2
No change	80.7	87.6
Would be lower	0.3[b]	0.2[b]

Source: USITC calculations of weighted responses to the Commission questionnaire (questions 6.1.1 and 6.1.2).
Note: Corresponds to Figure 3.3.
[a] Companies estimated where their 2013 exports to India or 2013 foreign affiliate sales in India would be absent the change in Indian policies between 2007 and 2013.
[b] Combined share of companies whose exports or foreign affiliate sales would be lower by "5 percent or less," "more than 5 but less than 10 percent," and "by more than 10 percent."

Table I.16: Likelihood that companies would engage in new business lines or begin engaging in India within the next 12 months if prohibitive policy barriers were removed, percent

Likelihood	Engaged in India	Prevented from engaging in India
Highly unlikely	3.0	3.8
Unlikely	5.9	13.9
Likely	28.4	40.4
Highly likely	48.1	17.4
Not sure	14.6	24.5

Source: USITC calculations of weighted responses to the Commission questionnaire (questions 7.2 and 7.4).
Note: Corresponds to Figure 3.4.

Table I.17: MFN tariff rates applied to Indian imports of U.S. goods by sector, 2000–2012, trade-weighted average, percent

Year	Agriculture	Manufacturing	Raw materials
2000	33.5	24.2	27.5
2001	20.6	23.7	29.6
2002	25.0	20.9	27.4
2003	26.1	20.4	28.0
2004	27.3	20.0	28.6
2005	34.9	9.1	15.6
2006	33.9	7.3	9.5
2007	34.9	7.4	13.2
2008	21.4	6.0	5.8
2009	36.9	6.8	9.7
2010	23.3	6.5	5.1
2011	31.4	7.0	5.9
2012	27.3	7.1	7.1

Source: World Trade Organization Integrated Database (tariff and trade data for 2000–2001, 2006, 2008–2011; tariff data for 2002 and 2012), Trade Analysis and Information System (tariff and trade data for 2004–2005 and 2007), and United Nations Commodity Trade Database (trade data for 2002 and 2013). Data accessed from WITS on various dates.
Notes: Because of missing tariff information and the use of non-ad valorem tariffs on certain imports at the six-digit level, approximately $2.0 billion in imports of U.S. goods (or 1.4 percent of total imports of U.S. goods from 2000–2012, excluding 2003) has not been included in the total import value for the period 2000–2012 ($142.2 billion). Not all data are available in all years. The 2003 average tariff is the simple average of the 2002 and 2004 values. The 2012 average is based on tariff data for 2012 and trade data for 2013. Corresponds to Figure 4.1.

Table I.18: Percent of companies that believe particular IP types are "very important" to their business

Type of IP	Not active in India	Active in India
Patents	14.0	36.7
Trademarks	23.9	48.0
Copyright	16.1	31.3
Trade secrets	25.2	56.4
Any IP type	36.0	68.4

Source: USITC calculations of weighted responses to the Commission questionnaire (questions 1.7 and 2.3).
Note: Corresponds to Figure 5.1.

Table I.19: How IP-intensive U.S. companies altered strategies in response to regulatory impediments in India, percent

Response to impediments	Mean
Other	8.0
Increased investment in affiliates to comply with requirements and regulations	8.2
Shifted business or product line	12.1
Reduced or halted activity in India	41.8
Did not alter strategy	39.0

Source: USITC calculations of weighted responses to the Commission questionnaire (question 6.5).
Note: Corresponds to Figure 5.2.

Table I.20: Percent of U.S. companies in the Indian market who consider patents and trade secret very important to their business, by sector

Sector	Patents	Trade secrets
Agriculture and food	14.3	24.2
Natural resources	24.2	61.0
Chemicals and textiles	31.7	57.5
Other manufacturing	56.5	64.3
Retail and wholesale	39.0	50.6
Financial services	13.2	71.3
Content and media	34.8	70.0
Other services	25.8	41.5
ICT	55.8	71.2

Source: USITC calculations of weighted responses to the Commission questionnaire.
Note: Corresponds to Figure 5.3.

Table I.21: Percent of U.S. companies in the Indian market who consider trademarks and copyrights very import to their business, by sector

Sector	Trademarks	Copyright
Agriculture and food	42.0	14.2
Natural resources	39.8	16.4
Chemicals and textiles	40.1	16.4
Other manufacturing	59.6	29.4
Retail and wholesale	54.5	45.7
Financial services	63.9	53.0
Content and media	79.2	80.0
Other services	40.1	34.4
ICT	41.8	38.9

Source: USITC calculations of weighted responses to the Commission questionnaire.
Note: Corresponds to Figure 5.4.

Table I.22: PV installations in India are growing, but the JNNSM is not the main driver, megawatts

Annual PV installations	2008	2009	2010	2011	2012	2013
India	40.0	30.0	60.0	300.0	980.0	1,115.0

Sources: EPIA, Global Outlook for Photovoltaics until 2016, May 2012, 50; EPIA, Global Market Outlook for Photovoltaics 2013–2017, 2013, 31; EPIA, Global Market Outlook for Photovoltaics 2014–2018, June 2014, 9; Government of India, MNRE, "Commissioning Status of Grid Connected Solar Power Projects," August 11, 2014.
Note: Corresponds to Figure 6.1.

Table I.23: Cumulative PV installations in India are growing, but the JNNSM is not the main driver, megawatts

Cumulative PV installations	Percent
State, other policies	2,063.2
JNNSM	674.4

Sources: EPIA, Global Outlook for Photovoltaics until 2016, May 2012, 50; EPIA, Global Market Outlook for Photovoltaics 2013–2017, 2013, 31; EPIA, Global Market Outlook for Photovoltaics 2014–2018, June 2014, 9; Government of India, MNRE, "Commissioning Status of Grid Connected Solar Power Projects," August 11, 2014.
Note: Corresponds to Figure 6.1.

Table I.24: Indian production of PV modules, 2007–13

	2007	2008	2009	2010	2011	2012	2013
India (megawatts)	113	191	216	463	594	559	627
Share of global production (percent)	2.8	2.6	1.9	2.0	1.6	1.4	1.6

Source: PVNews, "Global PV Module Production in 2013 Hits 39.8 GW," (May 2014), 8; GTIS, Global Trade Atlas database (accessed May 14, 2014).
Note: Corresponds to Figure 6.2.

Table I.25: Indian exports of cells and modules, 2007–13

	2007	2008	2009	2010	2011	2012	2013
Exports of PV cells and modules (million $)	185	479	312	510	251	103	211

Source: PVNews, "Global PV Module Production in 2013 Hits 39.8 GW," (May 2014), 8; GTIS, Global Trade Atlas database (accessed May 14, 2014).
Note: Corresponds to Figure 6.2.

Table I.26: U.S. exports of PV cells and modules, million $

	2008	2009	2010	2011	2012	2013
Modules	4.1	6.3	5.2	113.0	79.5	9.3
Cells	1.5	10.5	12.7	4.3	0.0	0.0

Source: EIA, "Solar Photovoltaic Cell/Module Shipments Report," various years; USITC DataWeb/USDOC (accessed March 22, 2014).
Note: Corresponds to Figure 6.3.

Table I.27: U.S. exports modules, megawatts

	2008	2009	2010	2011	2012	2013
Modules	1.1	14.8	4.0	81.3	151.5	

Source: EIA, "Solar Photovoltaic Cell/Module Shipments Report," various years; USITC DataWeb/USDOC (accessed March 22, 2014).
Note: Data on the volume of U.S. exports to India in 2013 are not yet available. Corresponds to Figure 6.3.

Table I.28: Chinese producers have increased their share of the market for imports, million $

	2008	2009	2010	2011	2012	2013
PV imports	341.8	262.6	232.6	1,152.5	723.4	917.0

Source: GTIS, Global Trade Atlas database (accessed March 22, 2014).
Note: Corresponds to Figure 6.4.

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Table I.29: Chinese producers have increased their share of the market for imports, percent

Country	2011	2012	2013
Malaysia	15.0	11.0	2.2
United States	8.5	18.0	5.0
China	38.6	44.9	75.6

Source: GTIS, Global Trade Atlas database (accessed March 22, 2014)
Note: Corresponds to Figure 6.4.

Table I.30: Breakdown of the investment of a 50 MW parabolic trough, percent

Product	Percent
Steel construction	20.3
Receivers	13.5
Mirrors	12.0
Power block	10.8
Balance of plant	10.8
HTF System	10.1
Grid connection	5.5
Electronics, controls, electrical, solar equip.	4.7
Foundations	4.1
Heat transfer fluid	4.1
Pylons	2.0
Swivel joints	1.4
Trackers	0.8

Source: "Ernst & Young and Fraunhofer, MENA Assessment of the Local Manufacturing Potential, 72–75, 2011; Mguni (2010); and World Bank, Development of Local Supply Chain, 2013, 1–38.
Note: Corresponds to Figure 6.5.

Table I.31: OECD FDI Regulatory Restrictive Index for India, by sector, 2013

Industry	FDI restrictiveness
Legal	1.0
Accounting and audit	1.0
Real estate investment	1.0
Agriculture	0.9
Fisheries	0.7
Air transport	0.5
Insurance services	0.5
Radio and TV broadcasting	0.4
Fixed telecoms	0.4
Mobile telecoms	0.4
Banking services	0.4
Other media	0.4
Retail	0.3
Engineering	0.3
Construction	0.2
Electricity generation	0.1
Oil refineries. and chemicals	0.1
Food and other	0.1
Other financial services	0.1
Mining (including Oil extracts)	0.1
Metals, machinery and other minerals	0.0
Electric, electronics and other instruments	0.0
Forestry	0.0
Transport equipment	0.0
Electricity distribution	0.0
Wholesale	0.0
Surface transport	0.0
Maritime transport	0.0
Hotels and restaurants	0.0
Architectural	0.0

Source: OECD, FDI Regulatory Restrictiveness Index (accessed May 15, 2014).
Note: Forestry, transport equipment, electricity distribution, wholesale, surface and maritime transport, hotels and restaurants, and architecture are listed as open to FDI, with scores of 0 on the index. Corresponds to Figure 7.1.

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Table I.32: Change in severity of barriers over time for sales of goods, 2007–13

Policy issue	Companies reporting for any year	Companies reporting for all 3 years
Difficulty getting permits	0.7	0.4
Required share of goods be exported	0.1	0.0
Equity cap or joint venture requirement	0.4	-0.1
Requirement for minimum investment amount	0.2	-0.1
Restrictions on buying or using land	1.2	0.9

Source: USITC calculations of weighted responses to the Commission questionnaire
Note: For companies reporting for all 3 years, there was no change in perceived effect over time for "Required share of goods be exported," so the bar is at 0.0. Corresponds to Figure 7.2.

Table I.33: Severity of FDI barriers faced by financial services companies with an Indian affiliate, 2007–13

Policy issue	2007	2010	2013
Difficulty getting required permits/approvals/ licenses for investment	1.5[a]	2.3	2.5
Restrictions on the share of an investment that can be owned by a foreign firm or requirements to enter into a joint venture	2.7	3.3	3
Policies other than equity caps that restrict investment	1.9	1.6	1.3
Requirement for minimum amount of investment	0.8	1.2	1.2

Source: USITC calculations of weighted responses to the Commission questionnaire.
Note: Results for limits on geographic expansion were not statistically precise. Corresponds to Figure 7.3.
[a] Low-precision estimate, with an RSE greater than 50 percent.

Table I.34: Severity of FDI barriers faced by ICT companies with an Indian affiliate, 2007–13

Policy issue	2007	2010	2013
Difficulty getting required permits/approvals/licenses for investment	1.5	3.2	3.2
Restrictions on the share of an investment that can be owned by a foreign firm or requirements to enter into a joint venture	2.4	3	2.1
Policies other than equity caps that restrict investment	1.6	2.8	2.6
Limits on Geographic Expansion	1.7[a]	2.5	1.7[a]
Requirement for minimum amount of investment	1.6	1.9	1.6

Source: USITC calculations of weighted responses to the Commission questionnaire.
Note: Corresponds to Figure 7.4.
[a] Low-precision estimate, with an RSE greater than 50 percent.

Table I.35: Companies with Indian affiliates but no affiliate sales, by industry of parent, percent

Sector	Percent
Agriculture and food	1.7
Natural resources	6.2
Chemicals and textiles	14.3
Other manufacturing	15.1
Retail and wholesale	2.7
Financial services	4.0
Content and media	10.9
ICT	20.6
Other services	24.6

Source: USITC calculations of weighted responses to the Commission questionnaire (questions 1.6 and 2.5).
Note: Corresponds to Figure 7.5.

Table I.36: Budget expenditures for major subsidies, FY 2003/04 to FY 2007/08, million $

Subsidy	2003–04	2004–05	2005–06	2006–07	2007–08
Fertilizer	2,567	3,486	3,897	4,958	7,580
Food	5,484	5,742	5,240	5,345	7,839
Petroleum	1,430	791	662	615	716
Total	9,482	10,019	9,799	10,918	16,135

Source: Government of India, Expenditure Budget, Non-Plan Expenditure by Broad Categories, various years.
Note: 2003–04 to 2007–08 expenditures are revised estimated expenditures. Later data are reported actual expenditures.
Corresponds to Figure 8.1.

Table I.37: Budget expenditures for major subsidies, FY 2008/09 to FY 2012/13, million $

Subsidy	2008–09	2009–10	2010–11	2011–12	2012–13
Fertilizer	16,683	12,920	13,670	14,609	12,059
Food	9,528	12,325	14,008	15,196	15,622
Petroleum	621	3,153	8,419	14,290	17,806
Total	26,832	28,399	36,097	44,096	45,487

Source: Government of India, Expenditure Budget, Non-Plan Expenditure by Broad Categories, various years.
Note: Corresponds to Figure 8.1.

Table I.38: Share of U.S. companies producing goods or services that have equivalent quality to and compete directly with those of Indian competitors in the Indian market, by sector, percent

Sector	Percent
Natural resources	72.3
Financial services	61.8
Chemicals and textiles	56.3
All companies	38.1
Other manufacturing	32.1
Other services	27.7
Retail and wholesale	26.8
ICT	26.0
Agricultural and food	21.7
Content and media	17.4

Source: USITC calculations of weighted responses to the Commission questionnaire (question 2.4A).
Note: Corresponds to Figure 9.1.

Table I.39: Shares of U.S. companies with prices lower, comparable, or higher than equivalent Indian goods and services, percent

Sector	Lower	Comparable	Higher	Price difference
Natural resources	1.0	15.5	83.5	27.5
Other manufacturing	12.4	27.7	59.9	17.5
Other services	0.3	42.3	57.4	87.9
Agricultural and food	2.1	41.6	56.3	50.1
All companies	2.8	42.7	54.5	28.0
Chemicals and textiles	0.2	47.6	52.2	13.7
Retail and wholesale	0.0	58.0	42.0	8.0[a]
Content and media	6.7	58.8	34.5	11.7
ICT	3.1	83.6	13.2	3.3
Financial services	4.0	89.4	6.6	5.6[a]

Source: USITC calculations of weighted responses to the Commission questionnaire (question 2.4B).
Note: Corresponds to Figure 9.2.
[a] Low-precision estimate, with RSE greater than 50 percent

Appendix J
Economic Complexity Analysis

Economic Complexity Analysis

The Complexity of Industries Affected by Indian Industrial Policies

The request letter for this study asked the Commission to describe the competitiveness of sectors in the Indian economy that are subject to identified restrictive policies. Chapter 9 of the report looked at the competitiveness factors and survey results related to competitiveness. But it is also possible to analyze some aspects of competitiveness using the theory of economic complexity.[989]

The economic complexity analysis, explained below, examines two aspects of the products produced in India: their complexity, and how closely they are related to other sectors in which India has a comparative advantage. The Commission applied these concepts to all of the goods-producing industries sampled in its survey, to compare the competitiveness of Indian industries subject to identified restrictions. The analysis shows that, while overall India does not have a tendency to impose industrial policies on particularly complex industries, the industries in which U.S. companies are most affected are substantially more complex than the average in India. U.S. companies are more affected when Indian policy targets more complex products, such as motor vehicles and manufactured chemicals, likely because those products compete more directly with advanced U.S. goods and services. The analysis also shows that India does not have a tendency to impose policies on industries in which it has a particular comparative advantage. In other words, Indian policies do not favor industries in which Indian companies could become competitive more quickly or more cheaply.

The Concepts of Economic Complexity

At its core, "economic complexity" embodies the idea that for a country to produce a good, it must accumulate productive knowledge. Production requires a diversity of knowledge across individuals and "the ability to combine this knowledge and make use of it through complex webs of interaction."[990] If a country is missing a piece of knowledge or lacks the ability to aggregate all parts, then production in that country—especially of more sophisticated goods—

[989] For detailed technical explanations of the analytical approach encompassing economic complexity, see Hidalgo and Hausmann, "The Building Blocks of Economic Complexity," June 30, 2009, 10570–75; Hidalgo et al., "The Product Space Conditions the Development of Nations," 2007; Hausmann et al., *The Atlas of Economic Complexity*, 2011.

[990] Hausmann et al., *The Atlas of Economic Complexity*, 2011, 15.

will be constrained. In other words, "countries do not simply make the products and services they need. They make the ones they can."[991]

"Complexity" embodies many of the factors of competitiveness discussed in chapter 9, such as workforce skill level and technology, since the complexity of a good depends on the extent of productive knowledge needed to produce it.[992] Productive knowledge encompasses a society's infrastructure, institutions, and experience with similar production, as well as a workforce skilled in related types of production that are required to make and then export new products.

The concept of "distance" measures how close two or more products are to each other (figuratively speaking), based on whether they require similar know-how or capabilities to manufacture.[993] Distance reflects how much a product is like other products produced with comparative advantage at home and in similar economies abroad. Comparative advantage is, in turn, determined by the factors of competitiveness, such as those discussed in chapter 9.

Economic complexity can be gauged by measuring how diversified the export basket of a given country is and how many other countries export the same products. The theory of economic complexity combines measures of a country's product diversity and of the "ubiquity" of products—i.e., the number of countries that produce it—to rank the complexity of a country's exports. More complex economies are members of a relatively small set of well-diversified countries.

The complexity of the Indian economy overall is determined by the complexity of the products it makes. The complexity of a specific product or industry can be measured using a Product Complexity Index (PCI) value. The PCI depends on how many countries export the product in question and how diversified those exporters are. Products that are exported by a small set of highly diversified countries are classified as more complex and have a higher PCI.[994] PCI is scaled so that the product with average complexity receives a score of zero. By this measure, a

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[991] Hausmann et al., *The Atlas of Economic Complexity*, 2011.

[992] Economic complexity analysis examines which countries export a product, and then examines which other products are also exported by the countries that export the original product. The results determine a product-specific level of complexity or sophistication (i.e., more complex products are exported by only a few countries, which also export other complex products as well as a wide range of less complex ones; and less complex products are exported by many countries who predominantly export a relatively limited range of products). Hausmann et al., *The Atlas of Economic Complexity*, 2011.

[993] If the unique productive knowledge (or capabilities) needed to make a specific good do not already exist in a country, it will prove highly difficult for the country to manufacture it. Instead, countries adapt existing capabilities to produce goods that require capabilities similar to those needed to produce the products already manufactured; these products are said to be nearby or of close distance. When a country has an abundance of nearby products, it has an easier path to capability acquisition, product diversification, and development.

[994] The theory of economic complexity assumes that to make complex products, countries require multiple capabilities, which are available only in a small set of highly diversified countries. The mathematical definition of PCI and how it is measured are given in technical box 2.1 in Hausmann et al., *The Atlas of Economic Complexity*, 2011, 24.

product like T-shirts, which is exported by many countries (and hence is ubiquitous) that have relatively concentrated export baskets (i.e., low diversity), has a low PCI of -2.27. But a product like a liquid crystal device, which is produced by only a few countries that have diversified export baskets, has a much higher PCI of 3.71. The complexity of products made by India varies widely, from -5.8 to +5.7 (table J.1).

Table J.1: Complexity of Indian industries in 2012

	All industries	Not-surveyed industries	Surveyed industries	Substantially affected industries
Number of industries	1,239	987	252	51
Mean PCI	0.90	0.98	0.58	2.10
Minimum PCI	-5.83	-5.83	-5.20	-3.53
Maximum PCI	5.71	5.71	3.70	3.58

Source: USITC calculations of responses to the Commission questionnaire.

Complexity and Competitiveness in Identified Industries

Complexity

India's industrial policies affect a wide variety of goods. As noted in chapter 1, the Commission included a given Indian industry in its survey if primary or secondary sources indicated the existence of an industrial policy or other measure that could potentially disadvantage foreign companies in the Indian market. The statistics in table J.1 suggest that the products made by the Indian industries included in the Commission's survey are less complex (with mean PCI of 0.58) than those of Indian industries overall (with mean PCI of 0.90).[995] Thus, while India's industrial policies are implemented in industries of all levels of complexity, the lower average PCI in industries identified by the screening process provides some evidence that the Indian government may apply its industrial policy to less complex industries.

The implications change, however, when looking at the complexity of industries that were "substantially affected" by Indian policy measures in the Commission survey. For the purposes of this analysis, an industry was categorized as "substantially affected" if more than 25 percent of the companies in that industry were substantially affected by one or more Indian policy.[996] Using this criterion, the Commission identified the 51 industries most affected by Indian

[995] Industries are defined as groups of companies categorized by "HTS4 codes"—that is, the rather broad classes defined using the 4-digit code levels of the Harmonized Tariff Schedule of the United States (HTS). Since companies were selected using "NAIC6 codes"—6-digit codes found in the North America Industry Classification System (NAICS)—they were matched to HTS4 codes using a NAIC6-HTS4 concordance that was based on a 2007 NAIC6–HTS10 concordance. In cases where a NAIC6 code was associated with more than one HTS4 code, the two HTS4 codes with the largest export values for India were ultimately selected.

[996] As in the rest of the report, a company was categorized as "substantially affected" by an Indian policy if it reported that the policy had a moderate, severe, or prohibitive effect on the company's operations in India.

policies. The complexity of these 51 industries is substantially higher than average, with an average PCI of 2.1. That is, U.S. companies are more affected by Indian policies targeting complex products. Likely this is true because those products compete more directly with advanced U.S. goods and services, such as magnetic storage drives and wireless communications equipment.

Distance

The economic complexity literature also discusses another indicator—"distance"—that relates to competitiveness.[997] As noted earlier, products with lower distance are more like the products that a country is currently exporting and in which it has comparative advantage than an overall average product.[998] Goods with lower distance are less costly for a country to develop into viable exports, as they require productive knowledge similar to that for goods already being produced.

On average, differences in "distance" indicators between industries included in the Commission's survey and those excluded are so small that they are practically negligible (table J.2). In other words, the industries identified through the Commission's screening process are no more or less likely to have comparative advantage than other industries. There is also essentially no difference when looking at industries that were substantially affected by Indian policies. Indian policymakers thus do not generally seem to consider whether a product is more or less similar to other products that India exports when they apply industrial policies. Likewise, the "distance" measure offers no evidence that India applies industrial policies to foster industries that would require less effort to develop. In other words, using the results of this measure, India does not appear to be targeting industrial policies to its potentially more competitive industries.

Table J.2: Distance of industries to the products exported by India in 2011

	All industries	Not-surveyed industries	Surveyed industries	Substantially affected industries
Number of industries	1,239	987	252	51
Mean distance	0.71	0.71	0.71	0.72
Minimum distance	0.47	0.47	0.60	0.60
Maximum distance	0.83	0.83	0.74	0.74

Source: USITC calculations of responses to the Commission questionnaire.

[997] The mathematical definition of "distance" and how it is measured are given in technical box 5.4 in Hausmann et al., *The Atlas of Economic Complexity*, 2011, 62.
[998] Comparative advantage is measured by the revealed comparative advantage of exports. Similarity is determined by the export baskets of other countries producing the goods in question.

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