



United States  
International Trade Commission

# Recent Trends in U.S. Services Trade

## 2014 Annual Report

May 2014  
Publication Number: 4463  
Investigation Number: 332-345

# United States International Trade Commission

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# Preface

This report is the 18th in a series of annual reports on recent trends in U.S. services trade that the U.S. International Trade Commission (the Commission or USITC) has published. The Commission also publishes an annual companion report on U.S. merchandise trade, titled *Shifts in U.S. Merchandise Trade*. These annual reports are the product of a recurring investigation instituted by the Commission in 1993 under section 332(b) of the Tariff Act of 1930.<sup>1</sup> The information contained in this report reflects the knowledge, industry contacts, and analytic skills that are used by the Commission in providing expert analyses of service industries in its statutory investigations and in apprising its customers of global industry trends, regional developments, and competitiveness issues.

In addition to the *Recent Trends* series, the Commission has published two reports on the services sector within the past year: *Environmental and Related Services*<sup>2</sup> and *Renewable Energy and Related Services: Recent Developments*.<sup>3</sup> Other recent Commission publications that include a significant discussion of the services sector include *Digital Trade in the U.S. and Global Economies, Part 1*,<sup>4</sup> *Economic Effects of U.S. Import Restraints (Eighth Update)*<sup>5</sup> and *Trade Barriers that U.S. Small and Medium-Sized Enterprises Perceive as Affecting Exports to the European Union*.<sup>6</sup> Two other reports with high services content, *Digital Trade in the U.S. and Global Economies, Part 2*, and *Trade, Investment, and Industrial Policies in India: Effects on the U.S. Economy*, are forthcoming.<sup>7</sup>

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<sup>1</sup> On August 27, 1993, on its own motion and pursuant to section 332(b) of the Tariff Act of 1930 (19 U.S.C. 1332(b)), the USITC instituted investigation no. 332-345, *Annual Reports on U.S. Trade Shifts in Selected Industries*. On December 20, 1994, the Commission on its own motion expanded the scope of this report to include more detailed coverage of service industries. Under the expanded scope, the Commission publishes two annual reports, *Shifts in U.S. Merchandise Trade* and *Recent Trends in U.S. Services Trade*. Services trade is presented in a separate report in order to provide more comprehensive and timely coverage of the sector's performance. The current report format was developed by the USITC in response to Congressional interest in establishing a systematic means of examining and reporting on the significance of major trade developments, by product, and with leading U.S. trading partners, in the services, agriculture, and manufacturing sectors.

<sup>2</sup> USITC Publication 4389, March 2013.

<sup>3</sup> USITC Publication 4421, August 2013

<sup>4</sup> USITC Publication 4415, July 2013.

<sup>5</sup> USITC Publication 4440, December 2013.

<sup>6</sup> USITC Publication 4455, March 2014.

<sup>7</sup> *Digital Trade in the U.S. and Global Economies, Part 2* will be published in July 2014. *Trade, Investment, and Industrial Policies in India: Effects on the U.S. Economy* is scheduled to be published in December 2014.

# Abstract

*Recent Trends in U.S. Services Trade: 2014 Annual Report* focuses on exports and imports of electronic services—in particular, audiovisual, computer, and telecommunication services. The United States generated a cross-border trade surplus in these industries of nearly \$7.1 billion in 2012. The contribution of U.S. electronic services to U.S. GDP was \$822 billion in 2012, or 6 percent of total U.S. GDP. Electronic services employed 3.3 million full-time equivalent (FTE) employees in 2012, accounting for 3 percent of total U.S. private sector employment. During that year, average wages in each of the electronic services industries covered in this report were substantially higher than the U.S. private sector average.

Although they remain global leaders, the U.S. audiovisual, computer, and telecommunication services industries have faced challenges brought about by rapid technological change. In particular, the growing demand for and prevalence of Internet-enabled devices, and the use of these devices by consumers to communicate and access a variety of content, has meant that U.S. electronic services firms have had to work efficiently and innovatively to keep pace with rapidly evolving market conditions. Overall, the importance of electronic services to the U.S. and global economies is expected to grow, as they continue to play a key role in enhancing productivity and facilitating trade.<sup>8</sup>

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<sup>8</sup> Internet-related services are examined in *Digital Trade in the U.S. and Global Economies, Part 1*, USITC Publication 4415, July 2013.

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# Acronyms and Abbreviations

Acronyms	Term
2-D	Two dimensional; also three dimensional (3-D)
2G	Second generation; also third generation (3G); fourth generation (4G)
App	Application
ARPU	Average revenue per user
BEA	Bureau of Economic Analysis
BRIC	Brazil, Russia, India, and China
C4ISR	Command, Control, Communications, Computers, Intelligence, and Reconnaissance
CAGR	Compound annual growth rate
CFCC	China Film Co-Production Group
CSI	Coalition of Services Industries
DECE	Digital Entertainment Content Ecosystem
DVD	Digital video disc
EAO	European Audiovisual Observatory
EIU	Economist Intelligence Unit
EST	Electronic sell-through outlet
EU	European Union
FSA	Fundo Setorial do Audiovisual (Federal Audiovisual Fund)
FCC	United States Federal Communications Commission
FIFA	Fédération Internationale de Football Association
FTE	Full-time equivalent
GAAP	U.S. Generally Accepted Accounting Procedures
GATS	General Agreement on Trade in Services
GATT	General Agreement on Tariffs and Trade
GDP	Gross domestic product
IaaS	Infrastructure-as-a-Service
ICT	Information and communications technology
IFRS	International Financial Reporting Standards
IMAX	Image MAXimum
iPaaS	Integration-Platform-as-a-Service
ISP	Internet service provider
IT	Information technology
ITA	Information Technology Agreement
LTE	Long term evolution
M&A	Merger and acquisition
MPAA	Motion Picture Association of America
NAICS	North American Industry Classification System
NIST	National Institute of Standards and Technology
OECD	Organisation for Economic Co-operation and Development

<b>Acronyms</b>	<b>Term</b>
PaaS	Platform-as-a-Service
SaaS	Software-as-a-Service
SARFT	China's State Administration of Radio, Film and Television
SMEs	Small and medium-sized enterprises
TIA	Telecommunications Industry Association
TISA	Trade in Services Agreement
TPP	Trans-Pacific Partnership
TTIP	Transatlantic Trade and Investment Partnership
UEFA	United European Football Association
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
USDOC	U.S. Department of Commerce
USITC	U.S. International Trade Commission
VOD	Video on demand
VoIP	Voice over Internet Protocol
UV	Ultraviolet
WiMax	Wireless Interoperability for Microwave Access
WTO	World Trade Organization
IPTV	Internet protocol television

# Executive Summary

The United States is the world's largest services market, and was the world's leading cross-border exporter and importer of services in 2012.<sup>9</sup> The United States continued to remain highly competitive in the global services market during that year, with U.S. exports and imports demonstrating a rapid increase (figure ES.1).

The 2014 *Recent Trends in U.S. Services Trade* report, part of an annual series prepared by the U.S. International Trade Commission (Commission or USITC), provides an overview of U.S. trade in services. This year's report chiefly focuses on recent developments in the following three electronic services:<sup>10</sup> audiovisual, computer, and telecommunication services.<sup>11</sup> These industries encompass high levels of technology; provide critical linkages for global flows of information and data; and foster economic growth and innovation. In addition, electronic services allow many service providers to overcome the "proximity burden" of supply (i.e., the requirement for face-to-face transactions); in fact, they have fundamentally changed the structure and pattern of global trade by enabling the fragmentation (geographic dispersion) of services production. In 2012, the U.S. electronic services industry recorded a trade surplus of \$7.1 billion.

Electronic services have profoundly affected trade in other service industries. Many professional services, such as legal services, can now be digitized and transmitted over telecommunications networks. Education and training are also being delivered efficiently and easily online with increasing frequency. In addition, the growth of broadband Internet has substantially increased demand for and trade in audiovisual services, including news and entertainment, which can be watched conveniently at nearly any location using a mobile device. At the same time, the rapid rise of electronic services technology, including the Internet, has brought a host of new challenges and barriers that current trade agreements, largely negotiated before the Internet age, do not specifically address.

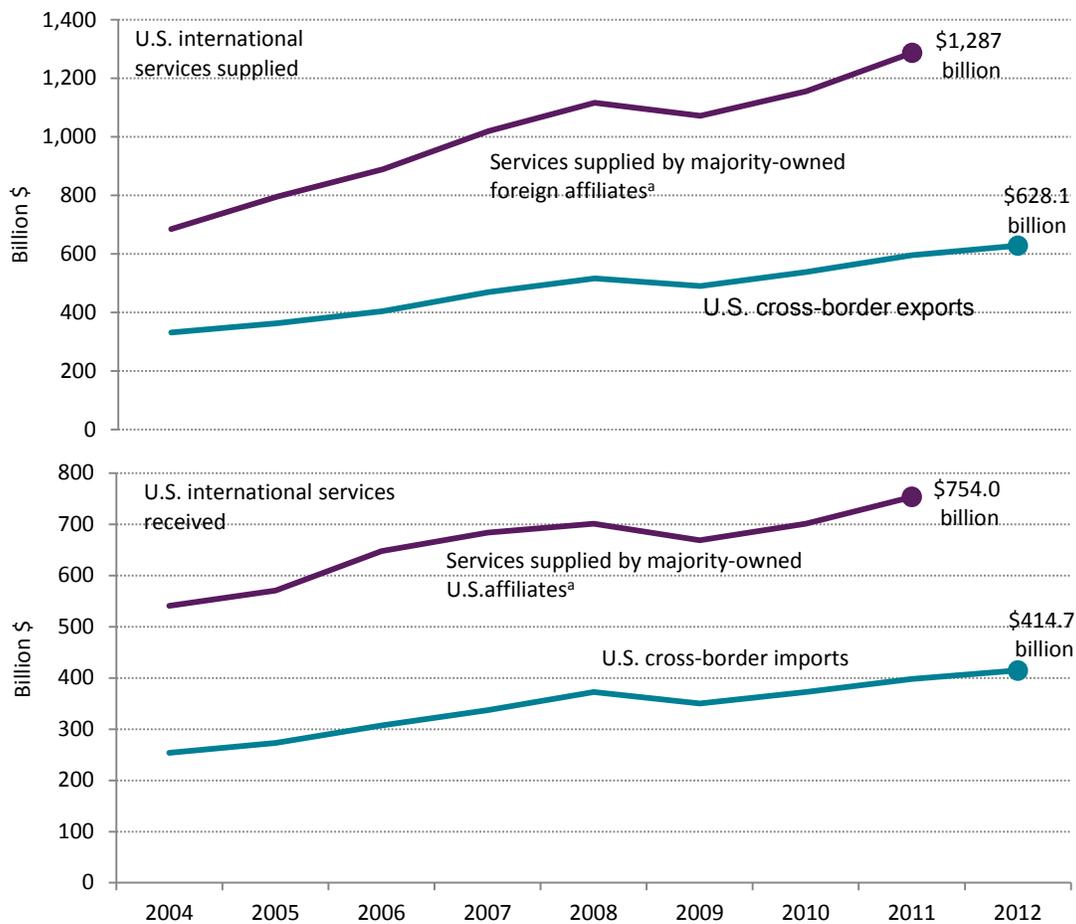
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<sup>9</sup> This report uses timeframes based on data availability. For example, BEA annual data on cross-border trade are available through 2012, while data on affiliate transactions are available only through 2011. Cross-border trade occurs when suppliers in one country sell services to consumers in another country, with people, information, or money crossing national boundaries in the process. Affiliate trade occurs when firms provide services to foreign consumers through affiliates established in the host (i.e., foreign) countries. For a more detailed description of the different modes of services trade, see box 1.1.

<sup>10</sup> Beginning with its publication in 2013, *Recent Trends* covers three industries per year, rotating on a four-year basis between professional services (education, healthcare, and legal or management consulting services); electronic services (audiovisual, computer, and telecommunication services); financial services (banking, insurance, and securities or leasing services); and distribution services (logistics, retail, and transportation services). The 2013 *Recent Trends* report focused on professional services.

<sup>11</sup> Audiovisual services include broadcasting, and motion picture and sound recording services. Computer services include computer data and processing services, and computer systems design and related services. Telecommunication services include basic wireline and wireless services, as well as value-added services (e.g., email and voicemail services). For a more detailed description of each of these service industries, see boxes 3.2, 4.2, and 5.2.

**Figure ES.1** The United States posted large increases in cross-border and affiliate trade in recent years



Source: USDOC, BEA, *Survey of Current Business*, October 2013, 42–62.

Notes: Data prior to 2004 were calculated differently and therefore not included in this figure.

<sup>a</sup>Data are available only through 2011.

## Key Findings

### Total U.S. Trade in Services

**The United States was the leading global services supplier in 2011–12.**

In 2012, services accounted for \$10.3 trillion, or 78 percent, of U.S. private sector gross domestic product (GDP) and accounted for 85 million (82 percent) private sector employees. The United States is the world’s largest single-country exporter and importer of services. In 2012, U.S. commercial services exports were \$621 billion, or 14 percent of global cross-border

exports, while imports were \$411 billion, or 10 percent of global imports.<sup>12</sup> Other leading services exporters were the United Kingdom and Germany (accounting for 6 percent each of the global total). Travel services and passenger fares represented the largest share of U.S. services trade in 2012, accounting for 26 percent of exports and 28 percent of imports. Professional services were the second-largest traded service category, accounting for 23 percent of total services exports and 20 percent of imports. Preliminary data for 2013 suggest that the United States' services exports, services imports, and surplus in services trade all continued to grow that year. Annual services exports in 2013 exceeded those in 2012 by 5 percent or \$31.8 billion. Annual services imports in 2013 exceeded those in 2012 by 3 percent, or \$12.9 billion.

Sales by foreign affiliates of U.S. firms, the leading channel by which many U.S. services are delivered to foreign markets, increased by a robust 11 percent to almost \$1.3 trillion in 2011. Distribution services (including wholesale, retail, and transportation and warehousing services) led affiliate sales, accounting for \$394 billion or 31 percent of the total. Electronic services accounted for \$193 billion, or 15 percent. Leading U.S. markets for affiliate sales were the United Kingdom, Canada, Japan, and Ireland. Purchases from U.S. affiliates of foreign firms were \$754 billion in 2011, an increase of 8 percent, as the U.S. economy continued to improve. The United Kingdom was the leading supplier of such services (14 percent), and 54 percent of these services were purchased from foreign-owned affiliates of firms based in the European Union (EU).

## Electronic Services

### **Cross-border exports of audiovisual services accounted for the majority of U.S. trade in electronic services during 2011–12.**

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Electronic services accounted for 7 percent of U.S. cross-border services exports in 2012 and 8 percent of cross-border services imports. In that year, U.S. electronic services achieved a trade surplus of \$7.1 billion, with exports reaching \$41.5 billion and imports, \$34.4 billion. In 2012, leading electronic services exports, by share, were audiovisual services (39 percent), telecommunication services (34 percent), and computer and data processing services (27 percent). The United Kingdom was the largest destination for U.S. exports of audiovisual services (24 percent) and computer and data processing services (18 percent) in 2012, whereas Brazil (26 percent) was the top destination for U.S. exports of telecommunication services.

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<sup>12</sup> This discussion draws on WTO trade data to help compare U.S. trends with those of other countries. The term “commercial services,” used by the WTO, is roughly equivalent to “private services” as used by the BEA: both refer to services offered by the private, rather than the public, sector. However, there are slight differences between the two values (see figure ES.1). These differences are the result of a lagged time period used for the WTO estimate and small differences in the activities captured by the two measures. USDOC, BEA representative, telephone interview by USITC staff, February 23, 2012.

The majority of U.S. electronic services trade occurs through affiliate transactions.<sup>13</sup> In 2011, electronic services accounted for 15 percent, or \$193 billion, of total services supplied overseas by U.S. foreign affiliates (i.e., U.S.-owned companies located abroad). Of this total, foreign affiliate sales by computer system design and related services firms represented 42 percent, followed by Internet service providers and web search portal services at 26 percent. The United Kingdom was the principal market for foreign affiliate sales of electronic services abroad in 2011. By contrast, electronic services purchased from U.S. affiliates of foreign firms (i.e., foreign-owned companies located in the United States) totaled \$59 billion in 2011, and were almost evenly divided between telecommunication services (53 percent) and computer system design and related services (47 percent).

### **Electronic services' GDP contribution, employment, and wages grew in 2012.**

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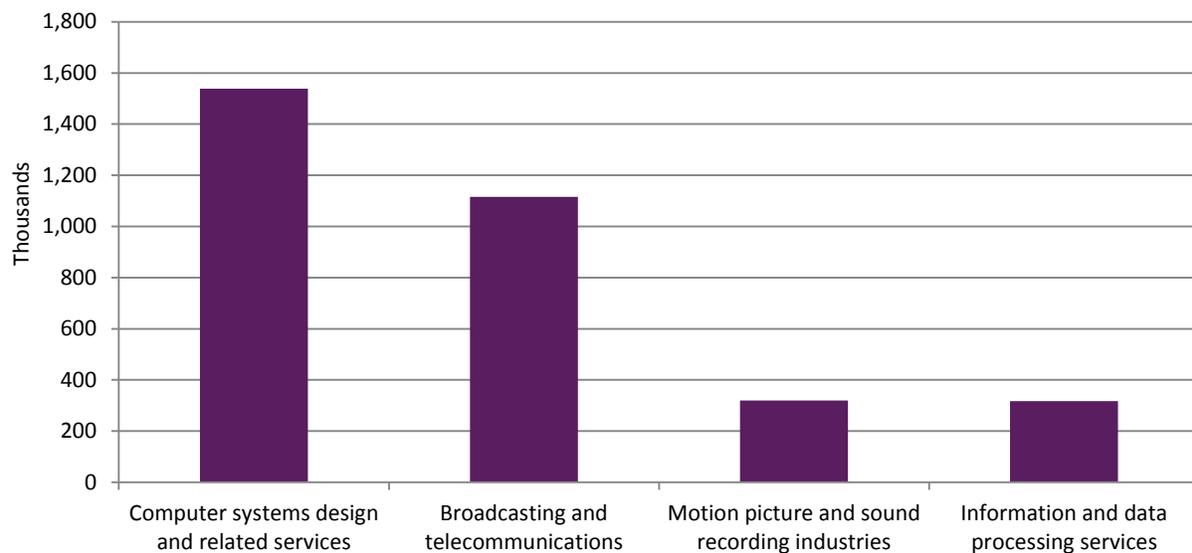
The contribution of U.S. electronic services to U.S. GDP was \$822 billion in 2012, accounting for roughly 6 percent of total services GDP. The output of electronic services grew by nearly 7 percent in 2012, outpacing total GDP growth in the private sector (3 percent). Among electronic service industries, two segments—computer systems design and related services, and information and data processing services—had the fastest GDP growth in 2012 (about 13 percent each). By contrast, during 2007–11 these two industries had experienced GDP growth of roughly 6 percent and 3 percent, respectively.

Electronic services employed 3.3 million full-time equivalent (FTE) employees in 2012, accounting for 3 percent of total U.S. private sector employment. Employment in computer systems design and related services as well as in broadcasting and telecommunication services together represented 81 percent of this total, whereas employment in information and data processing services, along with motion picture and sound recording services, accounted for the remaining 19 percent. In 2012, employment growth in electronic services varied substantially by industry. For instance, employment in computer systems design and related services grew to more than 1.5 million FTEs in 2012, representing a 5 percent increase over the previous year (figure ES.2). By contrast, motion picture and sound recording industries employed just over 300,000 FTEs in 2012, with employment declining (by 0.3 percent) during that year. Average annual salaries in electronic services, measured in wages per FTE, were highest for computer systems design and related services (\$110,223). On the other hand, motion picture and sound recording industries reported the lowest average annual salary (\$78,529) in electronic services in 2012, though this amount was still well above the total private sector average of \$54,996.

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<sup>13</sup>For the purposes of this report, affiliate transactions in electronic services include broadcasting (except Internet) services; computer systems design and related services; Internet service providers, web search portals, data processing, Internet publishing and broadcasting, and other information services; motion picture and sound recording services; and telecommunication services.

**Figure ES.2** Employment in computer systems design and related services led all electronic services in 2012



Source: USDOC, BEA, "Full-Time Equivalent Employees by Industry," interactive tables, September 24, 2013.

### **Electronic services are important in U.S. trade negotiations.**

Electronic services are important in U.S. trade negotiations because barriers that restrict trade in electronic services may also impact a much broader scope of services and goods that are traded internationally. Impediments to trade in electronic services include regulations mandating domestic content and rules requiring that computer storage servers or cloud computer services be located within national borders. Restrictions on cross-border data flows are another example; these may include data and privacy protection measures, such as EU policies regarding online privacy rights. Limits on foreign investment and on competition are prominent in some countries' telecommunications sectors, where former monopolies limit access to domestic networks. Noteworthy impediments affecting audiovisual services trade include, for example, quotas on imported films in such markets as France and China, Internet piracy of copyrighted intellectual property (e.g., selling copies of pirated films recorded with camcorders), and censorship.

## **Audiovisual Services**

### **The United States is the largest global market for audiovisual services.**

The United States remained the largest single audiovisual market in 2012, earning roughly \$9.8 billion in box office revenue—an increase of more than 5 percent from 2011. A handful of large U.S.-based movie studios account for nearly 80 percent of domestic and 60 percent of global box office receipts. Important to the success of these studios is the fact that they have

large film budgets, are vertically integrated, and often undertake large-scale advertising and marketing campaigns. U.S. film studios rely increasingly on overseas audiences for the majority of their box office revenue, amid a saturated U.S. domestic film market. For example, of the top 10 grossing movies in the world during 2012 (all produced in whole or in part by U.S. studios), nearly 70 percent of total box office sales came from foreign moviegoers. Europe is the most significant market for U.S. films, accounting for about 61 percent of U.S. audiovisual services exports in 2012.

### **U.S. exports and imports of audiovisual services saw significant growth in 2012.**

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The U.S. trade surplus in audiovisual services reached \$13.6 billion in 2012. In that year, U.S. cross-border exports of audiovisual services rose by 11.4 percent over 2011, a much higher rate than the 0.2 percent average growth recorded during 2007–11. The United Kingdom was the single largest U.S. export market for audiovisual services in 2012, accounting for \$3.9 billion. Other important export markets were Canada (\$1.5 billion), the Netherlands (\$1.4 billion), Germany (\$1.2 billion), and Australia (\$906 million). Cross-border imports of audiovisual services grew by 28 percent from the previous year. Brazil (\$1.2 billion) was the largest source of audiovisual services imports in 2012, followed by the United Kingdom (\$443 million) and Mexico (\$316 million).

## **Computer Services**

### **U.S. computer services firms still dominate the global industry, but face increasing competition from abroad.**

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Despite difficult global economic conditions, the computer services industry was successful in the five years leading up to 2013: worldwide spending on computer services rose from \$745 billion in 2008 to \$906 billion in 2012. Computer services' spending is forecast to exceed \$1.1 trillion by 2017.<sup>14</sup> U.S. firms such as Hewlett-Packard and IBM continue to rank high in terms of revenue among global computer services providers, although they are facing stronger competition from foreign firms. In particular, the growth of Indian computer services firms has altered the traditional mix of leaders in the global industry. In 2011, India-based Tata Consultancy Services became one of the world's largest computer services firms, and in 2012, the revenues of the top five India-based computer services providers grew by roughly 13 percent, far exceeding the worldwide computer services industry growth rate of 2 percent.

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<sup>14</sup> Gartner, "Worldwide IT Spending Forecast, 3Q13 Update," October 8, 2013, 1.

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**In 2012, sales by foreign affiliates of U.S.-based computer services firms outpaced U.S. cross-border exports of computer services.**

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In 2012, while U.S. cross-border exports of computer and data processing services totaled \$11.3 billion, cross-border imports totaled \$23.8 billion, creating a trade deficit of \$12.5 billion. The United States ran a deficit in cross-border trade in computer and data processing services each year from 2008 through 2012. Slightly more than half of U.S. exports of computer and data processing services went to Europe (chiefly the United Kingdom) in 2012; the Asia-Pacific region (24 percent) was the next-largest regional market for U.S. exports. By contrast, India was the largest source of U.S. imports of computer and data processing services in 2012 (42 percent), followed by Canada (18 percent). In 2011, sales by U.S.-owned foreign affiliates reached \$81.2 billion, or more than seven times the value of U.S. cross-border exports of computer services. The top countries for U.S. affiliate sales in 2011 were, in descending order, the United Kingdom, Canada, Australia, and Japan.

## **Telecommunication Services**

**Merger and acquisition (M&A) activity in the global telecommunication services market has increased since 2010.**

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Although M&A activity in the telecommunication services industry declined as a result of the economic recession in 2008–09, improving market conditions led to a resurgence of M&A deals in the telecommunication sector starting in 2010. Notable deals during 2011 include CenturyLink’s \$10.6 billion purchase of Qwest, and the \$5.5 billion buyout by the Vodafone Group (U.K.) of its joint venture partner (Essar) in the Indian mobile telecommunications firm, Vodafone Essar Limited. In 2013, the telecommunications sector represented the largest share of the global M&A market, accounting for 14 percent of total M&A volume. The largest transaction was Verizon Group’s \$130 billion buyout of its partner, Vodafone, in their joint venture Verizon Wireless. Overall, there were 883 deals during January–November 2013 (compared to 960 deals during the same period in 2012). The largest number of deals took place in North America (55 percent), followed by Europe (33 percent).

**Growth in U.S. cross-border exports of telecommunication services slowed somewhat in 2012 compared to 2007–11, whereas affiliate sales by U.S. firms rose.**

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In 2012, U.S. exports of telecommunication services totaled \$14 billion, while imports totaled \$8.0 billion, yielding a trade surplus of \$6 billion. Exports increased by 9 percent in 2012, slower than the annual growth rate of 12 percent recorded during 2007–11. In 2012, the top-five cross-border export markets for U.S. telecommunication services were Brazil (which accounted for 26 percent of the total); the United Kingdom (12 percent); Argentina and Venezuela (8 percent each); and Canada (5 percent). In that same year, the top sources of U.S. telecommunication services imports were the United Kingdom (24 percent), the Netherlands

(8 percent), Mexico (7 percent), Canada (5 percent), and India (4 percent). In 2011, sales by the foreign affiliates of U.S. telecommunication service companies totaled \$34.7 billion, 12 percent higher than such sales in 2010. In the near term, the rate of revenue growth among global telecommunication service companies is expected to decline slightly, from 6.4 percent in 2013 to 5.6 percent in 2016, largely due to the maturation of basic wireline and wireless services in many countries.<sup>15</sup>

## Recent USITC Roundtable Discussion

The Commission hosted its seventh annual services roundtable on November 14, 2013, with USITC Chairman Irving A. Williamson presiding and Commissioner Meredith Broadbent moderating. The roundtable focused on recent services negotiations and the assessment of services commitments, as well as middle-income job opportunities for non-degree holders in service industries. Participants from industry, government, and academia discussed how the Trade in Services Agreement (TISA), as well as the services components of the Trans-Pacific Partnership (TPP) and the Transatlantic Trade and Investment Partnership (TTIP), may serve as templates for future services negotiations under the World Trade Organization. Participants highlighted the fact that TISA is intended to encourage a small group of like-minded countries to make meaningful commitments within a services-oriented agreement, and that other countries may sign onto the agreement once it is established. Participants also discussed, more broadly, the importance of including trade facilitation and supply chain measures in future services agreements and the way that liberalizing these areas could lead to greater overall gains in services trade. Finally, participants considered the question of whether improved trade in services could spur growth in middle-income jobs for U.S. workers. Participants noted that the absence of accurate and complete services trade data makes it difficult to quantify the impact that trade has had on the labor market, particularly in the services sector.

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<sup>15</sup> Calculated by USITC using data reported in TIA, *TIA's 2013 ICT Market Review and Forecast*, 2013, 6-3 to 6-6.

# Chapter 1

## Introduction

The United States continues to be the world leader in private sector services trade. As an integral part of the country's economy, services accounted for 78 percent of U.S. gross domestic product (GDP) and 82 percent of employment in 2012. The World Trade Organization (WTO) reports that the U.S. services trade surplus in 2012 (\$210.1 billion) was the world's highest, followed by that of the United Kingdom (\$106.1 billion).<sup>16</sup> This annual report provides an overview of U.S. services trade; identifies important U.S. trading partners; and analyzes global market conditions in selected industries. This year it focuses on electronic services, which for the purposes of the report include audiovisual services, computer services, and telecommunication services.<sup>17</sup> This sector has continued to grow in importance both at home and abroad. In 2012, electronic services represented 6 percent of U.S. GDP; since 2007, export growth in the industry has outpaced export growth in the U.S. private sector as a whole.<sup>18</sup>

## Data and Organization

The U.S. International Trade Commission (Commission or USITC) draws much of the services trade data used throughout this report from the Bureau of Economic Analysis (BEA) at the U.S. Department of Commerce (USDOC). The BEA collects services trade data through a number of surveys, which under most conditions require respondents with more than \$2 million in exports or \$1 million in imports to furnish details about their international services transactions. The BEA estimates trade flow data using these survey results.<sup>19</sup> For this report, the Commission has supplemented the BEA data with information from other sources, including individual firms, trade associations, industry and academic journals and reports, international organizations, and other government agencies.

This introductory chapter examines the U.S. services sector, global trade in services, and U.S. trade in services. It looks at both cross-border trade in services from 2007 through 2012 and

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<sup>16</sup> WTO, *International Trade Statistics 2013*, table A9 (accessed November 6, 2013).

<sup>17</sup> In 2013, *Recent Trends* began covering three industries per year, rotating on a four-year basis between professional services (education, healthcare, and legal or management consulting services); electronic services (audiovisual, computer, and telecommunication services); financial services (banking, insurance, and securities or leasing services); and distribution services (logistics, retail, and transportation services). The 2013 *Recent Trends* report focused on professional services.

<sup>18</sup> In this study, all multiyear growth rates are calculated as compound annual growth rates. For more information on the U.S. service economy, see USDOC, BEA, *Survey of Current Business*, October 2013.

<sup>19</sup> For more information on the BEA's data collection methods, see USDOC, BEA, *Survey of Current Business*, October 2013, 39.

affiliate firms' sales of services from 2007 through 2011,<sup>20</sup> comparing the trade picture in recent years with previous trends. Chapter 2 focuses on trends affecting electronic service industries and discusses the contribution of these industries to economic output, employment, labor productivity, and trade. Chapters 3, 4, and 5 examine the audiovisual services, computer services, and telecommunication services industries, respectively. These chapters give an overview of market conditions, demand and supply factors, and recent trends in U.S. cross-border and affiliate trade for each industry. Chapter 6 summarizes the information presented and the views expressed at the seventh annual USITC services trade roundtable, hosted by the Commission in November 2013. Appendix A provides a snapshot of recent services research conducted by Commission staff.

## The U.S. Services Sector

Service industries account for a large majority of U.S. production and employment. In 2012, U.S. services industries accounted for 78 percent (or \$10.3 trillion) of total U.S. GDP and for 82 percent (or 85 million) of U.S. private sector full-time employees, compared to 21 percent and 18 percent, respectively, for the goods-producing sectors. Recent trends in the U.S. services sector have mirrored overall trends in the U.S. economy, since average annual increases in services sector GDP, employment, and wages were within 1 percent of the annual growth rates registered for the United States as a whole from 2007 through 2012.<sup>21</sup>

## Global Services Trade

The United States remains highly competitive in the global services market. As the world's top exporter of services, the United States accounted for \$621.2 billion, or 14 percent, of global cross-border commercial services exports in 2012 (figure 1.1).<sup>22</sup> Other top single-country exporters included the United Kingdom and Germany, which accounted for about 6 percent

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<sup>20</sup> "Affiliate firms" includes both firms overseas that are owned by U.S. companies and firms in the United States that are owned by foreign companies. Note that data on affiliate transactions lag those on cross-border services trade by one year. Thus, while analyses of cross-border trade data compare performance in 2012 (the most recent year for which data are available) with trends from 2007 through 2011, analyses of affiliate transactions compare performance in 2011 with trends from 2007 through 2010. Note also that in 2009, the BEA changed its method of reporting affiliate trade data. These data now report "services supplied," a measure that better reflects services output than the prior measure, "sales of services." The change was retroactive for data from 2005 through 2008. For more information, see USDOC, BEA, *Survey of Current Business*, October 2009, 34–36.

<sup>21</sup> USDOC, BEA, "Real Value Added by Industry," April 25, 2013; USDOC, BEA, Table 6.5D, "Full-Time Equivalent Employees by Industry," August 7, 2013; USDOC, BEA, Table 6.3D, "Wage and Salary Accruals," August 7, 2013. Value added is a measure of an industry's contribution to GDP; it is the difference between the value of an industry's gross output and the cost of its intermediate inputs.

<sup>22</sup> This discussion draws on WTO trade data to help compare U.S. trends with those of other countries. The term "commercial services," used by the WTO, is roughly equivalent to "private services" used by the BEA: both refer to services offered by the private, rather than the public, sector. However, there are differences between the two values. These differences are the result of a lagged time period used for the WTO estimate and small differences in the activities captured by the two measures. USDOC, BEA representative, telephone interview by USITC staff, February 23, 2012.

each, or \$280.0 and \$257.2 billion respectively. Although most of the world's top 10 services exporters in 2012 were developed countries, China was the fifth-largest services exporter (a drop from fourth in 2011), and India ranked seventh (up from eighth in 2011). Overall, the top 10 exporting countries accounted for approximately 51 percent of global cross-border services exports in 2012.<sup>23</sup>

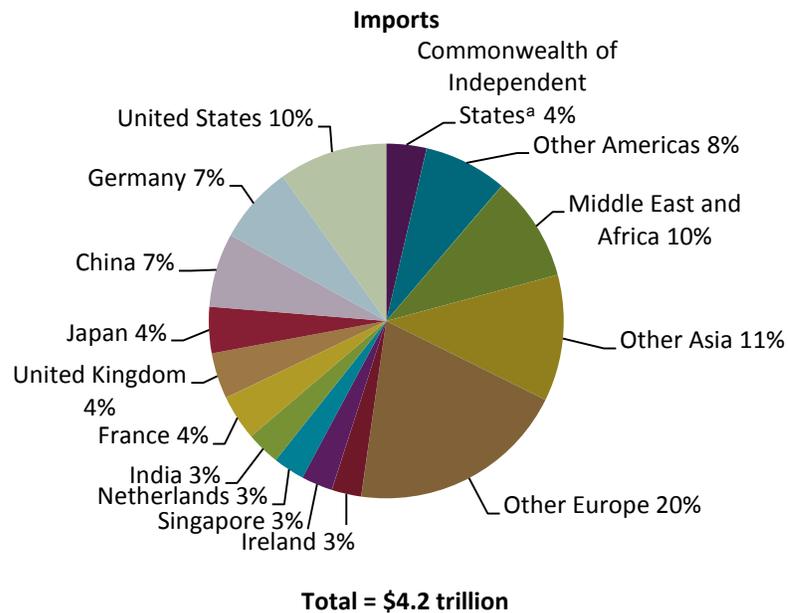
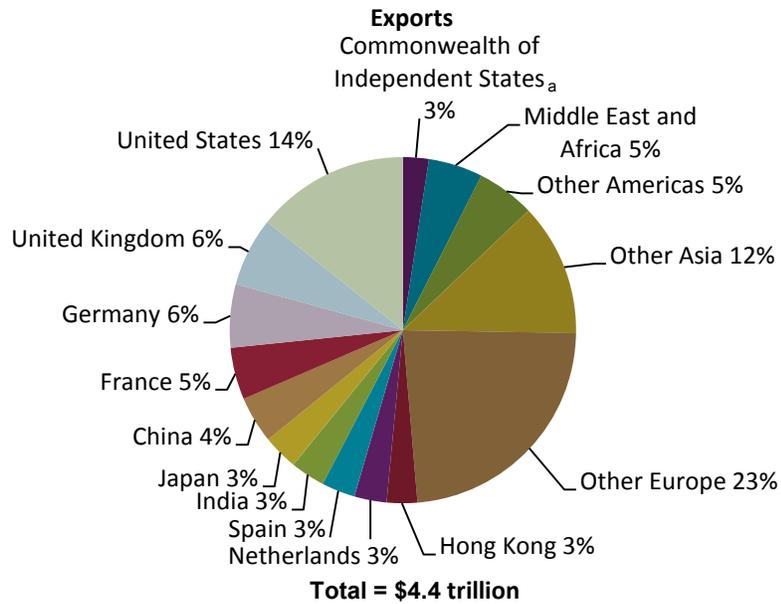
The United States was also the world's largest services importer in 2012, with \$411.1 billion, or 10 percent, of global commercial services imports. During this period, Germany was the second-largest importer, accounting for 7 percent of total services imports. China was the third-largest importer of commercial services in 2012, and India was the seventh largest. The top 10 importing countries together accounted for 48 percent of global commercial services imports.<sup>24</sup>

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<sup>23</sup> WTO, *International Trade Statistics 2013*, 2013, table A8.

<sup>24</sup> *Ibid.*, table A9.

**Figure 1.1** Global services: The United States led the world in cross-border exports and imports of services in 2012



Source: WTO, International Trade Statistics 2013, 2013, tables A8 and A9.

Notes: Excludes public-sector transactions. Figures may not total to 100 percent due to rounding.

<sup>a</sup>The WTO includes the following countries under the Commonwealth of Independent States: Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Russia, Tajikistan, Turkmenistan, Ukraine, and Uzbekistan.

## U.S. Trade in Services

The BEA annually publishes data on both cross-border trade and affiliate transactions in services, which together account for a substantial portion of the services provided through all four “modes of supply” specified in the General Agreement on Trade in Services (GATS) (box 1.1). The BEA publishes these data at the highest level of detail that its surveys allow. The agency also publishes quarterly cross-border trade data in highly aggregated form.

### **Box 1.1** Services trade “modes of supply” under the General Agreement on Trade in Services (GATS)

The GATS identifies four “modes of supply” for services trade—i.e., four ways that services can be traded:

**Mode 1** is cross-border supply. In this mode, a service is supplied by an individual or firm in one country to an individual or firm in another (i.e., the service crosses national borders). An example would be a digital file of a final architectural design emailed to a foreign client. WTO data for this mode of supply do not completely overlap with BEA’s data for cross-border trade (see discussion below).

**Mode 2** is consumption abroad. In this mode, an individual from one country travels to another country and consumes a service in that country. An example would be foreign nationals visiting the United States for medical care.

**Mode 3** is commercial presence. In this mode, a firm based in one country establishes an affiliate in another country and supplies services from that locally established affiliate. An example would be a U.S.-based law firm providing legal services to citizens of a foreign country from its affiliated office located in that country.

**Mode 4** is the temporary presence of natural persons. In this mode, an individual service supplier from one country travels to another country on a short-term basis to supply a service there—for example, as a consultant, contract employee, or intracompany transferee at an affiliate in the host country.<sup>a</sup> An example would be U.S.-based engineers traveling to a foreign country to help local staff on a construction project.

The BEA’s data categories for services trade—i.e., cross-border trade and affiliate transactions—do not correspond exactly to the channels of service delivery described in the GATS.<sup>b</sup> The BEA notes that the GATS’ mode 1 and mode 2 transactions, as well as some mode 4 transactions, generally are grouped together in the BEA’s data on cross-border trade, while mode 3 transactions are included, with some exceptions, in the BEA’s affiliate transactions data.

Notes: <sup>a</sup> USDOC, BEA, *Survey of Current Business*, October 2009, 40–43, tables 1 and 2.

<sup>b</sup> For more information on the four modes of supply under the GATS, see WTO, “Chapter 1: Basic Purpose and Concepts,” n.d. (accessed April 7, 2009).

According to the BEA, “cross-border trade” occurs when suppliers in one country sell services to consumers in another country, with people, information, or money crossing national boundaries in the process. Such transactions appear as imports and exports in a country’s balance of payments. Firms also provide services to foreign consumers through affiliates established in host (i.e., foreign) countries; the income generated through “affiliate transactions” appears as direct investment income in the balance of payments.

The channel of delivery that service providers use is primarily determined by the nature of the service. For example, computer and telecommunication services are generally supplied through affiliates located close to consumers. In contrast, audiovisual services are predominantly traded across borders, as domestic markets tend to be heavily regulated for cultural and other social objectives. Regardless, affiliate transactions (i.e., services provided by U.S. affiliates abroad) remain the principal means of providing services to overseas markets (box 1.2).

**Box 1.2** The rise of affiliate transactions

Since 1986, when the U.S. Department of Commerce began collecting statistics on U.S. services trade, the relative importance of cross-border trade and affiliate transactions has shifted significantly. In each of the 10 years from 1986 through 1995, U.S. cross-border exports of services exceeded sales by U.S. majority-owned foreign affiliates of U.S. firms. Since 1996, however, sales by U.S. firms' foreign affiliates have exceeded exports of cross-border services. In 2011, services supplied by U.S. firms' affiliates abroad (\$1.3 trillion) were more than double the value of U.S. cross-border exports of services (\$595.7 billion). Similarly, services supplied to U.S. citizens by foreign-owned affiliates have exceeded cross-border services imports since 1989. In 2011, the value of services supplied to U.S. citizens by the U.S. affiliates of foreign companies (\$754.0 billion) was nearly twice the value of U.S. services imports (\$398.4 billion).<sup>a</sup>

The growing predominance of affiliate transactions largely reflects the global spread of service firms, facilitated by liberalization—the removal or lessening of barriers to trade—in investment and services. Liberalization first occurred in developed countries and has occurred more recently in a growing number of low- and middle-income countries.

Note: <sup>a</sup> USDOC, BEA, *Survey of Current Business*, October 2013, 25.

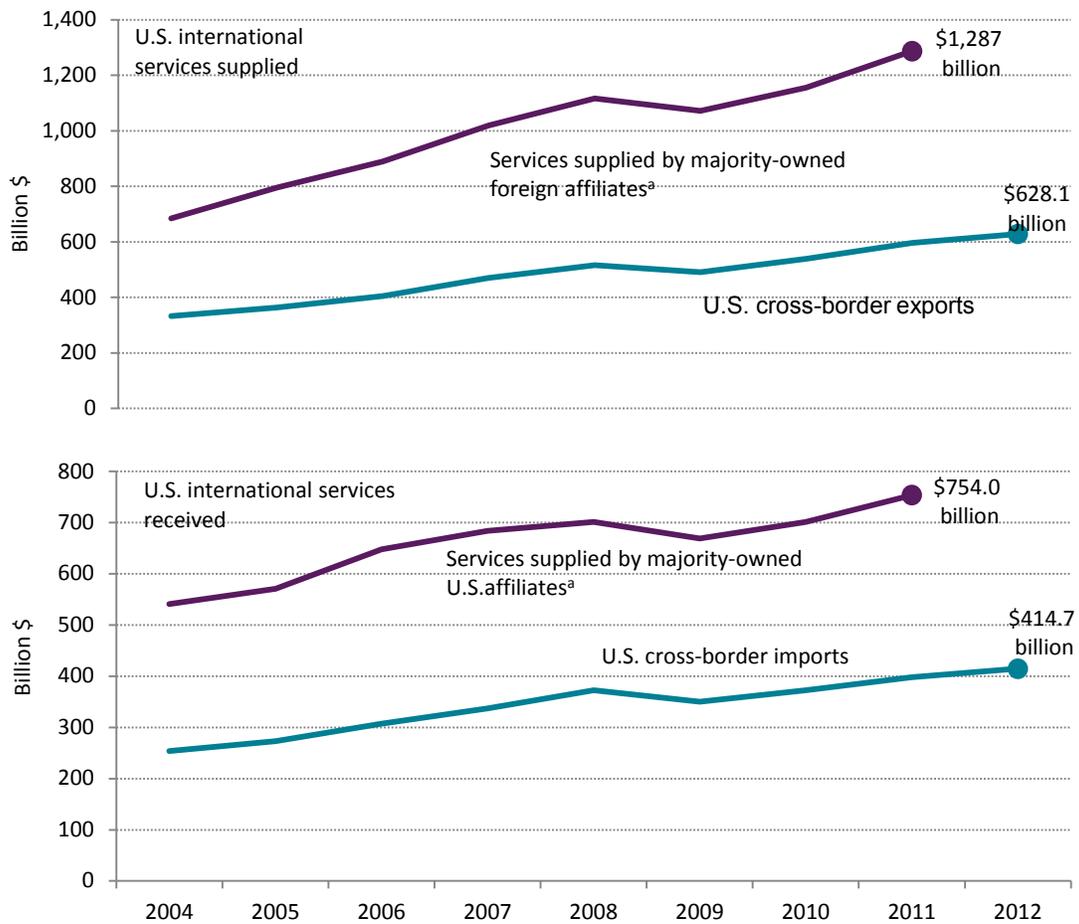
## Cross-border Trade, 2012

U.S. cross-border exports of private sector services totaled \$628.1 billion in 2012, while U.S. imports totaled \$414.7 billion, resulting in a \$213.4 billion trade surplus (figure 1.2).<sup>25</sup> As in previous years, travel services and passenger fares accounted for the largest share of U.S. services trade in 2012, representing 26 percent of U.S. exports and 28 percent of U.S. imports.<sup>26</sup> Electronic services accounted for 7 percent of exports and 8 percent of imports (figure 1.3), resulting in a trade surplus of \$7.1 billion in 2012.

<sup>25</sup> USDOC, BEA, *Survey of Current Business*, October 2013, 42–43.

<sup>26</sup> Ibid. Travel services are measured through foreign nationals' purchases of goods and services, such as food, lodging, recreation, local transportation, and entertainment, while traveling abroad.

**Figure 1.2** Affiliate transactions continue to predominate as a means of trading services

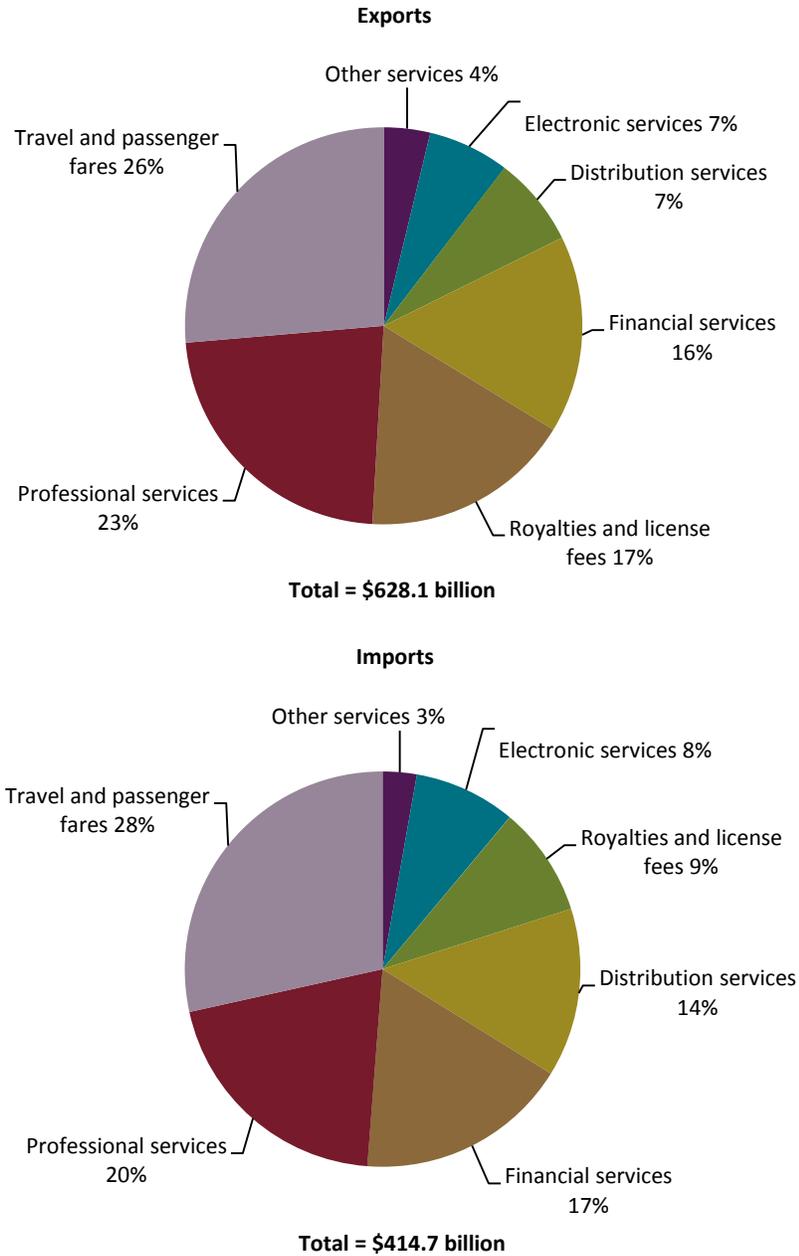


Source: USDOC, BEA, *Survey of Current Business*, October 2013, 42–62.

Notes: Data prior to 2004 were calculated differently and therefore not included in this figure.

<sup>a</sup>Data are available only through 2011.

**Figure 1.3** U.S. services: Travel and passenger fares accounted for the largest share of U.S. cross-border trade in 2012



Source: USDOC, BEA, *Survey of Current Business*, October 2013, 42–43.  
 Note: Figures may not total to 100 percent due to rounding.

In 2012, U.S. cross-border services exports rose by 5 percent, which was a smaller increase than the previous year's increase of almost 11 percent.<sup>27</sup> Growth was distributed across a number of service industries, led by mining services (36 percent); architectural, engineering, and other technical services (30 percent); trade-related services (25 percent); and advertising (21 percent). Concurrently, the value of U.S. services imports grew by 4 percent in 2012, albeit at a slower rate than the previous year (7 percent). Import growth was particularly high for sports and performing arts services (57 percent); construction services (44 percent); audiovisual services (28 percent); and operational leasing services (23 percent).<sup>28</sup> Growth in imports of audiovisual services was a result of increased payments made for the right to broadcast and record live events, particularly the 2012 London Summer Olympics.<sup>29</sup> By contrast, the largest import decline in 2012 was in training services, an industry within the professional services sector, by 22 percent.

As in previous years, the majority of U.S. service industries registered cross-border trade surpluses in 2012. Royalties and license fees for sales of intellectual property achieved the largest surplus in 2012 (\$70.7 billion), followed by travel services (\$47.5 billion), financial services (\$28.6 billion), and education services (\$18.7 billion). Service industries with cross-border trade deficits in 2012 included insurance services (\$36.5 billion); computer and data processing services (\$12.5 billion); transportation services (\$11.6 billion); accounting, auditing, and bookkeeping services (\$1.0 billion);<sup>30</sup> and sports and performing arts (\$0.07 billion).<sup>31</sup>

Deficits were recorded for a variety of reasons. The deficit in insurance services principally reflects U.S. primary insurers' payments to European and Bermudian reinsurers<sup>32</sup> in return for their assuming a portion of large risks. The deficit in transportation services (i.e., freight transport and port fees) is a result of the U.S. deficit in manufactured goods trade.<sup>33</sup> The deficit in computer and data processing services largely reflects U.S. firms offshoring many of these services to foreign providers, particularly those in India. For example, the United States imported \$9.9 billion in computer and data processing services from India in 2012, an increase of almost 7 percent over the previous year. Similarly, the deficit in accounting, auditing, and bookkeeping services firms may also reflect the offshoring of certain internal operations to offset the industry's high labor costs.<sup>34</sup>

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<sup>27</sup> Cross-border services trade, as reported in the current account, includes both private and public sector transactions. The latter principally reflect operations of the U.S. military and embassies abroad. However, because public sector transactions are not considered to reflect U.S. service industries' competitiveness and may introduce anomalies resulting from events such as international peacekeeping missions, this report will focus solely on private sector transactions, except as noted.

<sup>28</sup> USDOC, BEA, *Survey of Current Business*, October 2013, 42–43, table 1.

<sup>29</sup> *Ibid.*, 27.

<sup>30</sup> Accounting services have recorded a cross-border trade deficit since (and possibly before) 2007.

<sup>31</sup> USDOC, BEA, *Survey of Current Business*, October 2013, 42–43, table 1.

<sup>32</sup> Reinsurance is a form of risk management whereby insurance companies buy insurance contracts from other insurers to protect themselves from unexpected large claims.

<sup>33</sup> For example, Chinese shipments of manufactured goods to the United States typically exceed U.S. shipments of goods to China, and payments to Chinese or other foreign shippers for transporting U.S. merchandise imports are recorded by the BEA as U.S. imports of transportation services.

<sup>34</sup> IBISWorld, *Accounting Services in the U.S.*, November 2013, 10.

Major U.S. trading partners in services have not significantly changed from 2011. A small number of developed countries continue to account for a substantial share of U.S. cross-border services trade. Canada, the United Kingdom, and Japan collectively received 26 percent of total U.S. cross-border services exports in 2012. Likewise, the United Kingdom (11 percent), Canada (7 percent), and Japan and Bermuda (6 percent each) supplied the largest shares of U.S. services imports. In 2012, the European Union (EU) accounted for 32 percent of U.S. services exports and 35 percent of U.S. imports.<sup>35</sup>

## Cross-border Trade, 2013

Preliminary data for 2013 suggest that the United States' services exports, services imports, and surplus in services trade all continued to grow that year. Annual services exports in 2013 exceeded those in 2012 by 5 percent or \$31.8 billion (table 1.1). Annual services imports in 2013 exceeded those in 2012 by 3 percent, or \$12.9 billion.

## Affiliate Transactions

In 2011, services supplied by U.S.-owned foreign affiliates<sup>36</sup> increased by 11 percent to almost \$1.3 trillion.<sup>37</sup> Distribution services—including wholesale trade, retail trade, and transportation and warehousing services—led sales of all other services, accounting for approximately 31 percent of total services provided by U.S.-owned foreign affiliates (figure 1.4).<sup>38</sup> Electronic services ranked third, accounting for 15 percent<sup>39</sup> of such sales. The largest foreign purchasers of services from U.S.-owned affiliates were the United Kingdom (15 percent), Canada (10 percent), and Japan and Ireland (6 percent each). The EU accounted for 43 percent of total services supplied by U.S.-owned affiliates in 2011.<sup>40</sup>

The value of services purchased from foreign-owned affiliates in the United States grew by 8 percent in 2011 to \$754.0 billion, as the U.S. economy continued to improve. This increase far outpaced the 1 percent annual growth registered during the period from 2007 through 2010. Distribution services were again in the lead in 2011, accounting for 29 percent of purchases from foreign-owned affiliates in the United States, whereas electronic services accounted for

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<sup>35</sup> USDOC, BEA, *Survey of Current Business*, October 2013, 44–45, table 2.

<sup>36</sup> U.S.-owned foreign affiliates are affiliates owned by a U.S. parent company and located abroad; conversely, foreign-owned U.S. affiliates are affiliates located in the United States and owned by foreign parent companies.

<sup>37</sup> The main source for this section is the USDOC, BEA, *Survey of Current Business*, October 2013, 28–29, 35–38.

<sup>38</sup> For the purposes of this report, affiliate transactions in electronic services include broadcasting (except Internet) services; computer systems design and related services; Internet service providers, web search portals, data processing, Internet publishing and broadcasting, and other information services; motion picture and sound recording services; and telecommunication services.

<sup>39</sup> Data for electronic services are underreported by the BEA to avoid disclosing confidential company information.

<sup>40</sup> USDOC, BEA, *Survey of Current Business*, October 2013, 62–66, tables 8–10.2.

**Table 1.1** U.S. private services exports and imports to the world, by category, 2012–13

<b>Service industry</b>	<b>2012</b>	<b>2013</b>	<b>% change, 2012–13</b>
<b>Exports</b>			
Travel	126,214	139,569	10.6
Passenger fares	39,360	41,145	4.5
Freight	22,293	22,427	0.6
Port services	21,562	22,987	6.6
Royalties and license fees	124,182	129,331	4.1
Education	24,710	26,357	6.7
Financial services	76,418	81,270	6.3
Insurance services	16,067	15,311	-4.7
Telecommunications	14,009	14,083	0.5
Business, professional, and technical services	153,093	156,883	2.5
Other	10,231	10,535	3.0
<b>Total</b>	<b>628,138</b>	<b>659,899</b>	<b>5.1</b>
<b>Imports</b>			
Travel	83,451	86,243	3.3
Passenger fares	34,654	37,344	7.8
Freight	41,873	44,740	6.8
Port services	13,572	13,939	2.7
Royalties and license fees	39,889	41,291	3.5
Education	6,037	6,393	5.9
Financial services	16,952	18,027	6.3
Insurance services	52,563	50,590	-3.8
Telecommunications	8,007	7,633	-4.7
Business, professional, and technical services	116,217	119,846	3.1
Other	1,450	1,485	2.4
<b>Total</b>	<b>414,666</b>	<b>427,530</b>	<b>3.1</b>

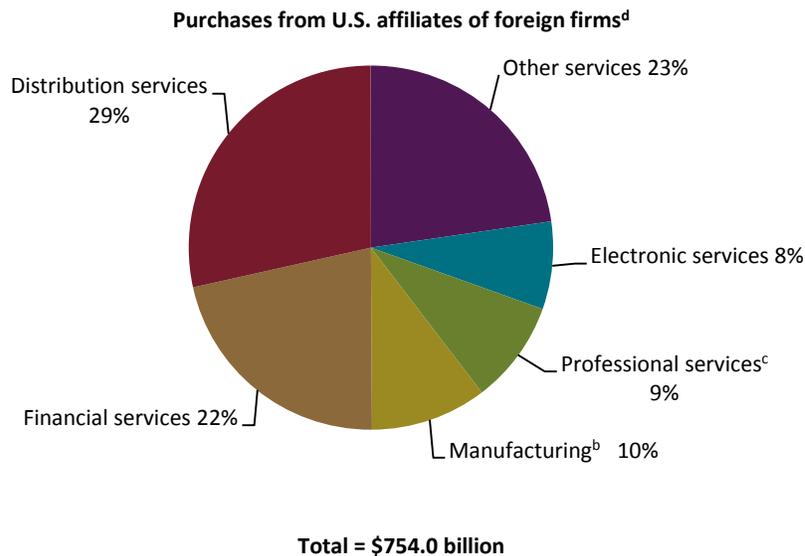
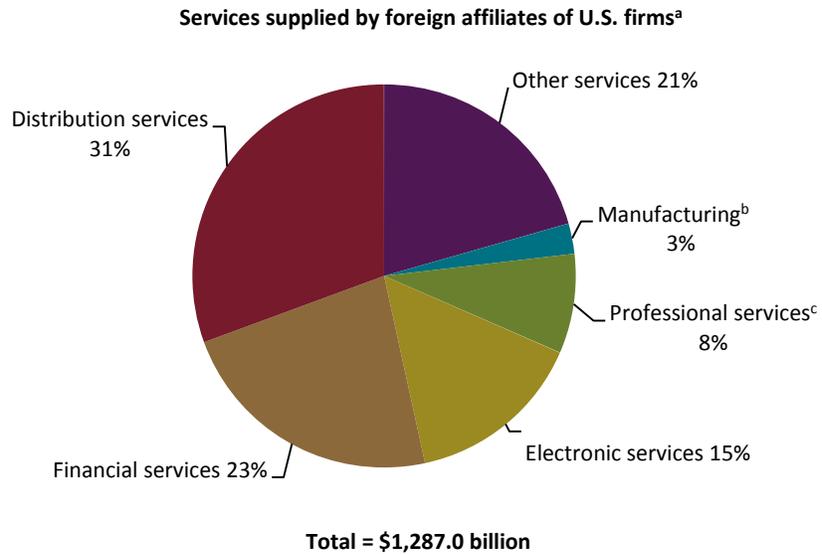
Source: USDOC, BEA, U.S. International Transactions Accounts Data, March 19, 2013, table 3a.

Note: Data for 2013 are preliminary.

8 percent.<sup>41</sup> By country, U.K.-owned firms supplied the largest share of such purchases in 2011 (14 percent), followed by German-owned firms (14 percent) and Japanese-owned firms (13 percent). French and Canadian affiliates rounded out the top five with 11 percent and 10 percent, respectively. Overall, 54 percent of services purchased in the United States from foreign-owned affiliates were from affiliates of EU-based parent firms.

<sup>41</sup> Again, data for electronic services are underreported by the BEA to avoid disclosing confidential company information.

**Figure 1.4** U.S. services: Distribution services accounted for the largest share of U.S. affiliate transactions in 2011



Source: USDOC, BEA, *Survey of Current Business*, October 2012, 64, 66, tables 9.2 and 10.2.

Notes: Trade data exclude public sector transactions. Figures may not total to 100 percent due to rounding.

<sup>a</sup>Services supplied by majority-owned foreign affiliates of U.S. parent firms.

<sup>b</sup>Includes ancillary services provided by goods manufacturers, such as computer hardware services.

<sup>c</sup>Data are underreported by the BEA to avoid disclosure of individual company information.

<sup>d</sup>Services supplied by majority-owned U.S. affiliates of foreign parent firms.

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- . n.d. Table A9: "World Imports of Commercial Services by Region and Selected Economy, 2002–2012." [http://www.wto.org/english/res\\_e/statis\\_e/its2013\\_e/its13\\_appendix\\_e.htm](http://www.wto.org/english/res_e/statis_e/its2013_e/its13_appendix_e.htm) (accessed November 6, 2013).



# Chapter 2

## Electronic Services

### Overview

Electronic services,<sup>42</sup> including audiovisual, computer, and telecommunication services, are among the most competitive, globalized, and interconnected of all U.S. services industries.<sup>43</sup> According to the Organisation for Economic Co-operation and Development (OECD), they also use the highest levels of technology of any industry and are leaders in research and development.<sup>44</sup> They provide the critical linkages in the global economy for information and data flows,<sup>45</sup> and their intensity in an economy is strongly correlated with economic performance and innovation.<sup>46</sup> Electronic services are integral components of nearly all other services and goods; they augment productivity and are key facilitators of trade. Because of their fundamental role in the U.S. and global economies, a major focus of U.S. trade negotiations is to ensure the free flow of data and information that is critical to the expansion of electronic services.<sup>47</sup>

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<sup>42</sup> For the purposes of this report, “electronic services” are services that use computer-based technologies to facilitate the development, processing, packaging, and delivery to consumers of data and audiovisual content in analog or digital forms via wire-line or wireless telecommunications networks. These services enable electronic trade in other service industries (e.g., education, finance, healthcare, and logistics), but they are also traded electronically themselves (such as when computer data processing services are traded through cross-border channels using the Internet). Note that electronic services cover a much broader range of service sectors than those examined in USITC, *Digital Trade in the U.S. and Global Economies, Part 1*, July 2013.

<sup>43</sup> Electronic services are highly interdependent. For example, computer design and technology are essential components of the telecommunications sector, while telecommunications networks are indispensable to enabling trade in computer and audiovisual services.

<sup>44</sup> The OECD analysis is based on equipment used by electronic services sectors. These industries include computer, communications, radio, and television equipment. OECD, “ISIC REV. 3 Technology Intensity Definition,” July 7, 2011.

<sup>45</sup> Many of these flows are formatted and consumed in audiovisual formats, such as digitized video streamed over the Internet and viewed through YouTube or Netflix. In fact, a large share of U.S. and global Internet capacity is used for transmitting audiovisual content. For example, in 2013, nearly one-third of peak U.S. Internet capacity was used by Netflix. Sandvine, *Global Internet Phenomena*, 2013, 6–17.

<sup>46</sup> Computer, communications, and information services, in particular, are highly associated with innovation. Cornell University, INSEAD, and WIPO, *Global Innovation Index 2013*, 2013.

<sup>47</sup> USTR, *2013 Section 1377 Review*, April 2013, 4; USTR, “A Values-Driven Trade Policy: Remarks by Ambassador Froman at the Center for American Progress,” Press Release, February 18, 2014.

# Electronic Services Enhance Productivity and Facilitate Trade

Although electronic services represent a relatively small share (6 percent) of U.S. gross domestic product (GDP), they substantially enhance productivity in all downstream industries far above their nominal GDP share. One study estimates that electronic services contributed to over 20 percent of the GDP growth in mature economies in 2011.<sup>48</sup> Moreover, three-quarters of the value added by electronic services benefit traditional industries, including many low-tech industries. Electronic services create efficiencies in the production process, and rapidly falling prices for such services have been important factors contributing to growth in most economic sectors.<sup>49</sup>

A key feature of electronic services is that they allow many services to overcome the “proximity burden” of supply—that is, the requirement that transactions between services providers and consumers be conducted face to face.<sup>50</sup> Many professional services can now be digitized and transmitted over telecommunication networks. For example, consumers no longer need to visit law offices to obtain many generic legal services; they can now access legal software programs electronically and create personalized legal documents such as contracts and wills at much lower prices.<sup>51</sup> Education and training are also being delivered efficiently and easily online with increasing frequency. Audiovisual services such as films and video have especially benefited from the proliferation of electronic services. The growth of broadband Internet has increased demand for and trade in news and entertainment that can be watched conveniently at home or at any location using a mobile device.

Moreover, electronic services have fundamentally changed the structure and pattern of global trade by enabling the fragmentation (geographic dispersion) of the production of many services. Similar to the globalization of supply chains in the goods sector, pieces of the services production process can now be separated and produced or sourced from lower-cost countries.<sup>52</sup> For example, engineering firms can cycle work plans around the globe 24 hours per day using less expensive engineers in such locations as China, lowering costs and substantially increasing productivity.<sup>53</sup> Similarly, electronic services have enabled many computer services, including data processing, to be shifted from the United States to countries with lower labor and computer services costs, such as India.

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<sup>48</sup> McKinsey Global Institute, *Internet Matters*, May 2011, 16. This percentage primarily includes Internet-related services and technology, particularly those pertaining to the telecommunications and computer industries.

<sup>49</sup> For example, international telephone calls cost a fraction of what they did 10 years ago, and advanced computer technologies, including memory, storage, and cloud-based services, have led to a dramatic fall in prices for computer services. USITC, “Seventh Annual Services Roundtable,” November 14, 2013; UN, “Communications Prices Falling Worldwide,” February 23, 2010; FierceTelecom, “Wholesale IP Transit Service Prices Fall,” August 2, 2012.

<sup>50</sup> Francois and Hoekman, “Services Trade and Policy,” September 2010, 648.

<sup>51</sup> USITC, *Digital Trade in the U.S. and Global Economies, Part 1*, July 2013, 3-18 and 3-19.

<sup>52</sup> Francois and Hoekman, “Services Trade and Policy,” September 2010, 648.

<sup>53</sup> USITC, *Digital Trade in the U.S. and Global Economies, Part 1*, July 2013, 3-20.

One of the largest impacts of the rise of electronic services has been the explosive growth of online transactions. Electronic services are a leading engine for growth in domestic and international commercial transactions. E-commerce, which relies heavily on electronic services, has grown substantially in recent years, reaching over \$8 trillion globally in 2013.<sup>54</sup> Small and medium-sized enterprises (SMEs) are major beneficiaries of the electronic services revolution. These services facilitate far greater contact between producers and consumers locally and around the globe.<sup>55</sup> Moreover, electronic services technology, combined with computer and mobile technology, enables sellers to promote their goods and services in almost any location, using audiovisual presentations that can be viewed on social media services such as YouTube or on company websites.<sup>56</sup>

## Electronic Services Are Important in U.S. Trade Negotiations

Electronic services are important to U.S. trade negotiations because barriers specifically affecting electronic services may impact a broad range of services and goods that are traded internationally.<sup>57</sup> Certain barriers to trade in electronic services have been liberalized, such as those pertaining to telecommunications under the 1997 Basic Telecom Agreement.<sup>58</sup> However, the rapid emergence of electronic services technology, including the explosive growth of the Internet, has brought a host of new challenges and barriers that current trade agreements, largely negotiated before the Internet age, do not specifically address.<sup>59</sup>

A variety of impediments restrict trade in electronic services. These include, for example, measures requiring computer storage servers or cloud computer services to be located within national borders.<sup>60</sup> There are also restrictions on cross-border data flows including, for instance, online privacy protection measures mandated by the European Union (EU).<sup>61</sup> Limits on foreign investment and on competition are prominent in certain countries' telecommunication sectors, where incumbent monopolies limit access to domestic networks. Noteworthy barriers affecting audiovisual services trade include quotas on imported films in such markets as France and China; Internet piracy of copyrighted intellectual property (for

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<sup>54</sup> Estimated from McKinsey Global Institute, *Internet Matters*, May 2011, 1.

<sup>55</sup> McKinsey Global Institute, *Internet Matters*, May 2011, 1.

<sup>56</sup> Industry representative, interview by USITC staff, Washington, DC, November, 15, 2013.

<sup>57</sup> USTR, "A Values-Driven Trade Policy: Remarks by Ambassador Froman at the Center for American Progress," Press Release, February 18, 2014.

<sup>58</sup> WTO, "Negotiating Group on Basic Telecommunications," April 24, 1996.

<sup>59</sup> One participant at the USITC services roundtable, held in November 2013, also highlighted the importance of addressing Internet-related services in current trade negotiations, such as those taking place under the Transatlantic Trade and Investment Partnership (TTIP) between the United States and the European Union (EU); the Trans-Pacific Partnership (TPP) agreement among Asia-Pacific trading partners, including Japan; and the Trade in Services Agreement (TISA) among 23 like-minded services trading partners, including the EU. USITC, "Seventh Annual Services Roundtable," unpublished notes, November 14, 2013.

<sup>60</sup> USTR, *2013 National Trade Estimate Report on Foreign Trade Barriers*, 31, 212, and 239; USITC Inv. No. 332-531, *Digital Trade in the U.S. and Global Economies, Part 1*, July 2013, 5-1.

<sup>61</sup> For a discussion of EU policies, see Europa, "Commission Proposes a Comprehensive Reform," January 25, 2012.

example, selling hard or digital copies of pirated films recorded with camcorders); censorship; and government subsidies to domestic producers in certain markets, particularly in the EU.<sup>62</sup>

## U.S. Trade in Electronic Services

Electronic services accounted for 7 percent of U.S. cross-border services exports and 8 percent of U.S. cross-border services imports in 2012.<sup>63</sup> In that year, these industries recorded a combined trade surplus of \$7.1 billion, with exports of \$41.5 billion exceeding imports of \$34.4 billion. The trade surplus in electronic services experienced double-digit growth in 2012, primarily due to a large trade surplus in audiovisual services.<sup>64</sup>

Exports of audiovisual services have made up the largest share of exports of electronic services since 2007. In 2012, audiovisual services accounted for 39 percent of total electronics services exports, followed by telecommunication services (34 percent), and computer and data processing services (27 percent) (figure 2.1). By contrast, computer and data processing services represented the majority—69 percent—of total electronic services imports in 2012, with imports of \$23.8 billion.

In 2012, the United Kingdom was the largest country destination for U.S. exports of both audiovisual services (24 percent) and computer and data processing services (18 percent). Canada and the Netherlands rounded out the top three U.S. export markets for audiovisual services, whereas Canada and Switzerland were the second- and third-largest export markets for computer and data processing services. At the same time, U.S. telecommunication services exports in 2012 were primarily destined for Central and South America, with Brazil accounting for the largest share (26 percent or \$3.7 billion) of these exports.<sup>65</sup>

The majority of U.S. trade in electronic services occurs through foreign affiliates (GATS mode 3; see box 1.1).<sup>66</sup> In 2011, electronic services accounted for 15 percent, or \$193.4 billion, of total services supplied by U.S.-owned foreign affiliates abroad. Sales by foreign affiliates of U.S. firms offering computer system design and related services represented 42 percent (\$81.2 billion) of this total, followed by sales by foreign affiliates of Internet service providers and web search

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<sup>62</sup> MPAA, "Annual Trade Barrier Report," October 2012; USTR, "2013 Section 1377 Review," April 2013.

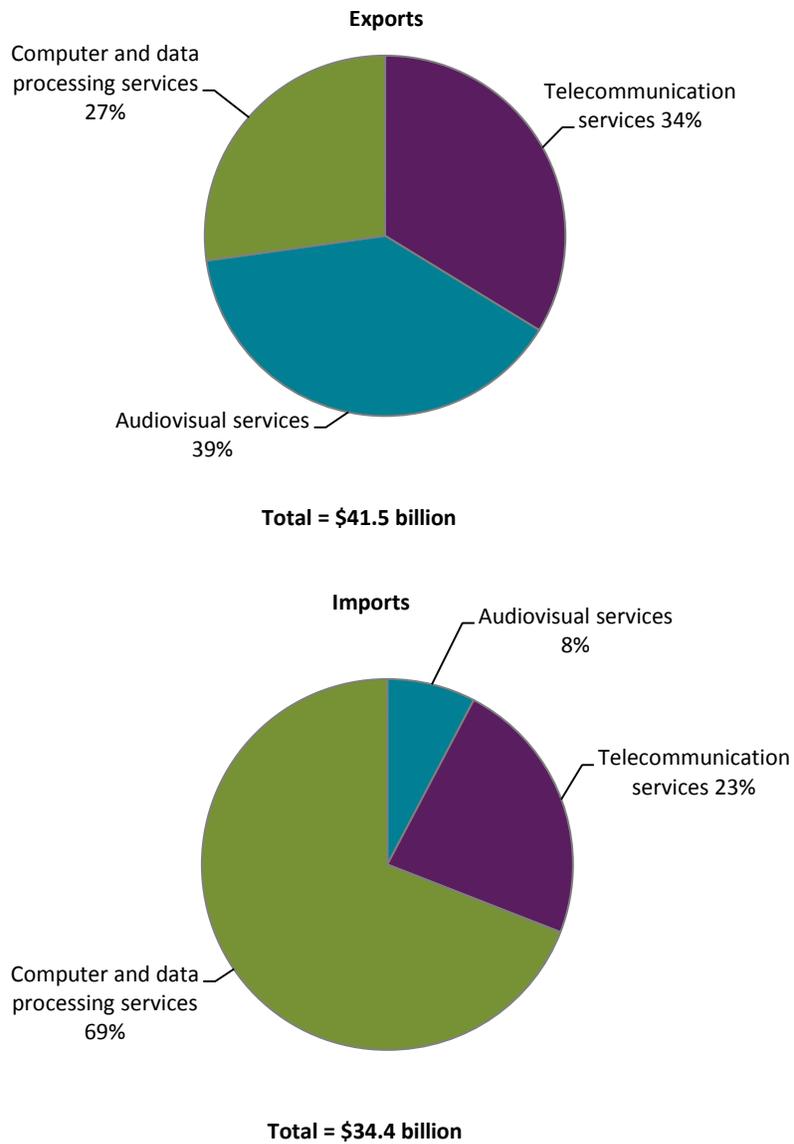
<sup>63</sup> USDOC, BEA, *Survey of Current Business*, October 2013, table 1, 42–43.

<sup>64</sup> *Ibid.*

<sup>65</sup> USDOC, BEA, *Survey of Current Business*, October 2013, 54–55, table 5.2.

<sup>66</sup> BEA reports U.S. affiliate data differently than cross-border data, due to discrepancies in data availability and company reporting standards. In addition, BEA may understate or exclude certain data segments, such as affiliate transactions, to avoid disclosing proprietary information of individual companies. Data on affiliate sales in electronic services are disaggregated into the following five broad categories: broadcasting services; computer systems design and related services; Internet service providers, web search portals, data processing services, Internet publishing and broadcasting, and other information services; motion picture and sound recording industries; and telecommunications. By contrast, the BEA disaggregates data on GDP share and cross-border trade into only three categories: audiovisual services; computer and data processing services; and telecommunication services.

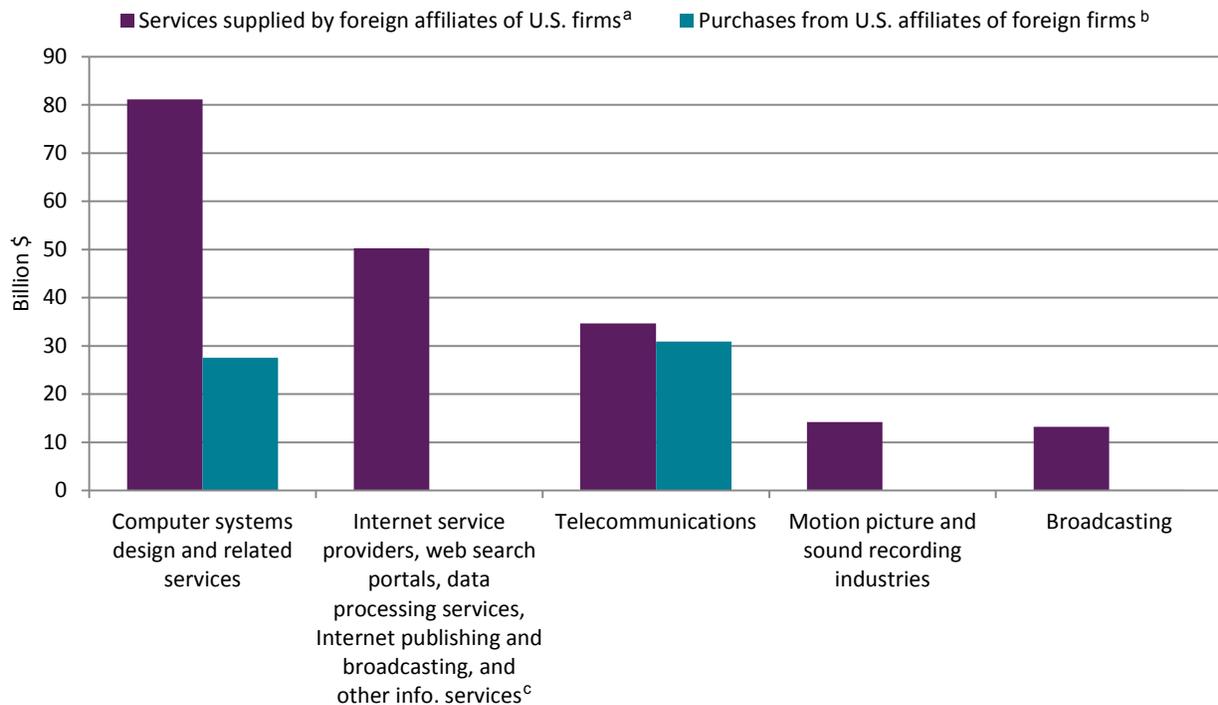
**Figure 2.1** U.S. electronic services: Audiovisual services and computer and data processing services accounted for the largest share of U.S. cross-border exports and imports, respectively, in 2012



Source: USDOC, BEA, *Survey of Current Business*, October 2013, 42–66, table 1.  
Note: Trade data exclude public-sector transactions.

portal services,<sup>67</sup> at 26 percent of the total (\$50.2 billion) (figure 2.2). During the same year, the value of electronic services purchased from foreign-owned U.S. affiliates (i.e., foreign-owned companies located in the United States) was \$58.5 billion, an increase of 5 percent over the previous year. Sales by U.S. affiliates were highest for telecommunication services (53 percent), followed by computer system design and related services (47 percent).<sup>68</sup>

**Figure 2.2** Computer systems design and related services were the largest category of electronic services supplied by U.S. affiliates abroad in 2011



Source: USDOC, BEA, *Survey of Current Business*, October 2013, 64, 66, tables 9.2 and 10.2.

Notes: Trade data exclude public sector transactions. Figures may not total to 100 percent due to rounding. Purchases from U.S. affiliates of foreign firms' data for motion picture and sound recording industries and Internet service providers et al. were suppressed to avoid disclosing individual company information.

<sup>a</sup>Services supplied by majority-owned affiliates of U.S. parent firms.

<sup>b</sup>Services supplied by majority-owned U.S. affiliates of foreign parent firms.

<sup>c</sup>Internet-related services are discussed in detail in USITC Inv. No. 332-531, *Digital Trade in the U.S. and Global Economies, Part 1*, July 2013.

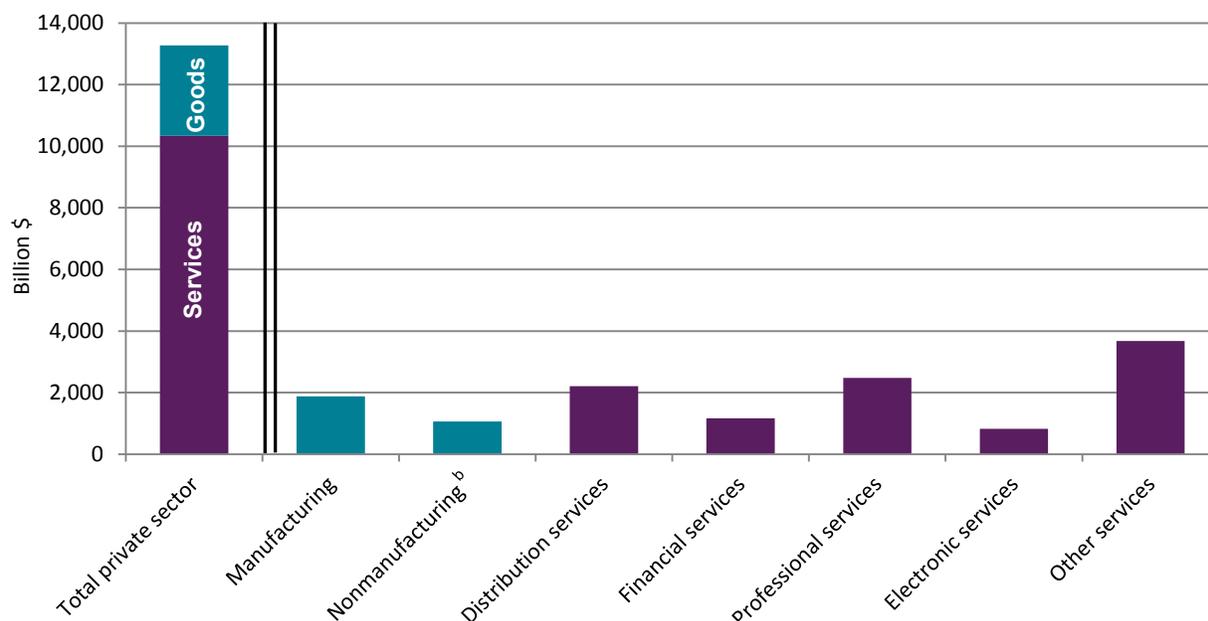
<sup>67</sup> This category includes Internet services providers, web search portal services, data processing services, Internet publishing and broadcasting services, and other information services.

<sup>68</sup> USDOC, BEA, *Survey of Current Business*, October 2013, 65, table 10.1. Data on affiliate transactions in audiovisual services are not discussed because they are underreported by BEA. See box 3.2 for further explanation.

## GDP, Employment, Labor Productivity, and Salaries

The contribution of U.S. private sector electronic services to U.S. GDP was \$822.1 billion in 2012, accounting for roughly 6 percent of total U.S. GDP (figure 2.3). The output of electronic services grew by nearly 7 percent in 2012, outpacing GDP growth in the private sector (3 percent). Within the electronic service sector, two industries—computer systems design and related services, and information and data processing services—had the fastest GDP growth in 2012 (approximately 13 percent each). By contrast, during 2007–11, these two industries experienced more modest output growth of 6 percent and 3 percent, respectively. Similarly, broadcasting and telecommunication services posted GDP growth of 3 percent in 2012, which was higher than the annual growth rate recorded in this segment during 2007–11.<sup>69</sup>

**Figure 2.3** Services accounted for the largest share of U.S. private-sector GDP in 2012<sup>a</sup>



Source: USDOC, BEA, “Real Value Added by Industry,” January 23, 2014.

Notes: <sup>a</sup>Real value added by industry using 2009 chained dollars.

<sup>b</sup>Nonmanufacturing includes agriculture, forestry, fishing, and hunting; mining; and construction.

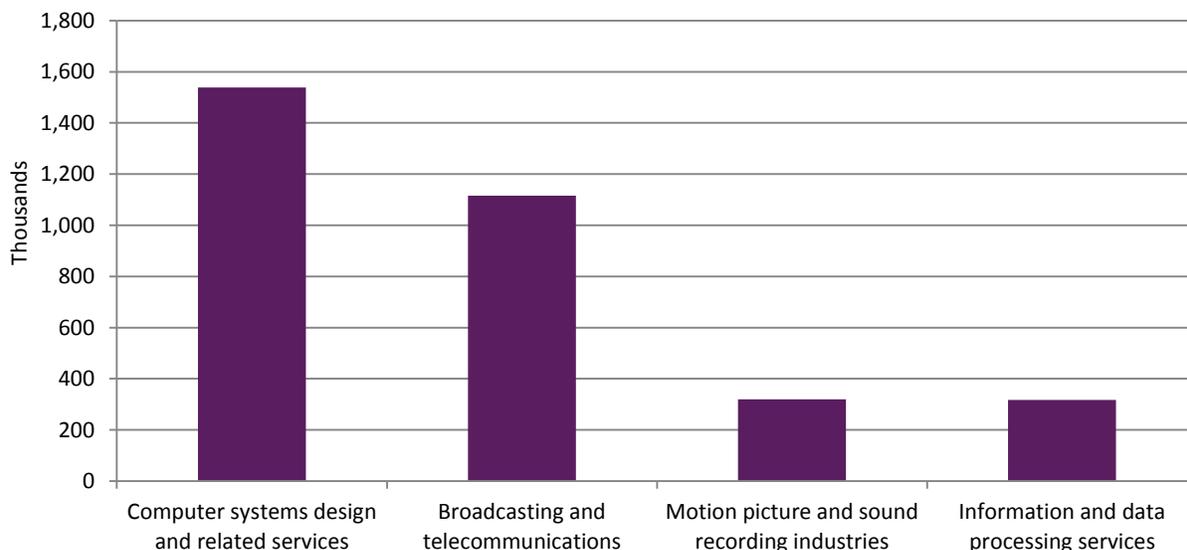
In 2012, electronic services accounted for only 3 percent of total private sector employment, or 3.3 million full-time equivalent (FTE) employees.<sup>70</sup> Employment in computer systems design and related services as well as in broadcasting and telecommunication services represented 81 percent of this total collectively, whereas employment in information and data processing

<sup>69</sup> USDOC, BEA, “Real Value Added by Industry,” April 25, 2013.

<sup>70</sup> USDOC, BEA, Table 6.5D, “Full-Time Equivalent Employees by Industry,” August 7, 2013. BEA defines full-time equivalent employees as the number of employees on full-time schedules, plus the number of part-time employees that would have been needed to complete all the hours of full-time work reported in a given dataset.

services, along with motion picture and sound recording services, together accounted for the remaining 19 percent. Employment growth varied substantially among electronic services in 2012. For instance, employment in computer systems design and related services grew to more than 1.5 million workers in 2012, representing a 5 percent increase over the previous year (figure 2.4). By contrast, during the same year, employment in motion picture and sound recording services decreased slightly (by 0.3 percent) to 300,000 workers.

**Figure 2.4** U.S. electronic services: Computer systems design and related services had the largest number of U.S. FTEs in 2012

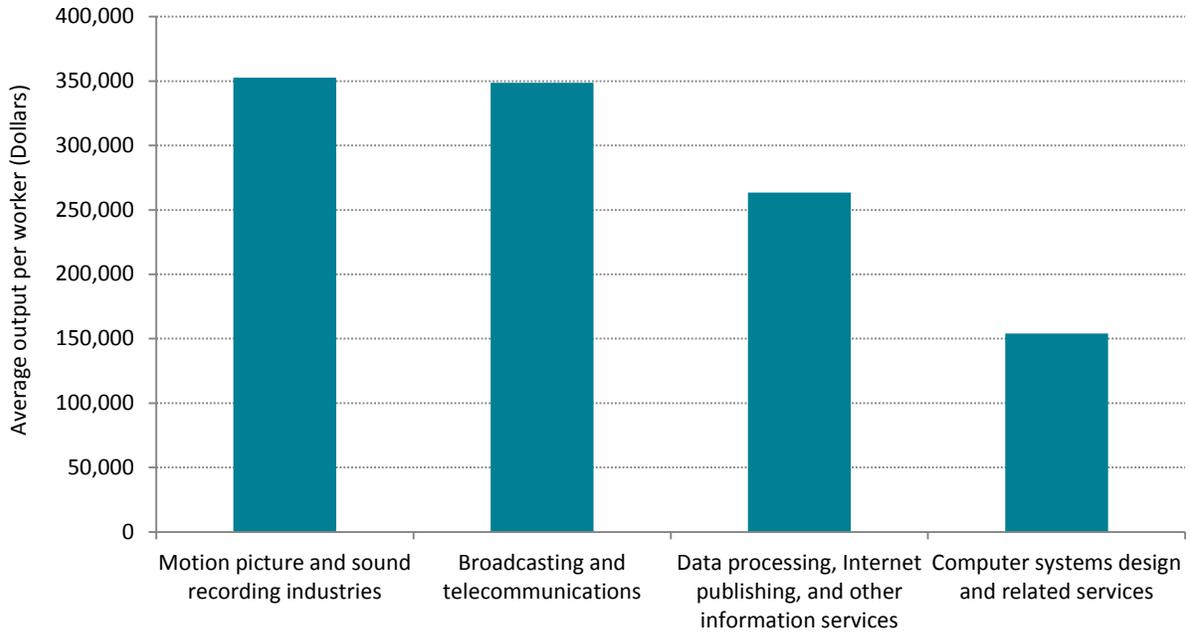


Source: USDOC, BEA, Table 6.5D, “Full-Time Equivalent Employees by Industry,” interactive tables, September 24, 2013.

In 2012, labor productivity in electronic services (measured as output in dollars per FTE) increased by 4.7 percent, compared to an annual growth rate of 3.9 percent in this sector during 2007–11. Electronic services were the most productive U.S. sector in 2012, with an average output per worker of \$249,802. Among electronic service industries, motion picture and sound recording services posted the highest average output per worker of \$352,665, closely followed by broadcasting and telecommunications (\$348,656) (figure 2.5).<sup>71</sup>

<sup>71</sup> USDOC, BEA, Table 6.5D, “Full-Time Equivalent Employees by Industry,” August 7, 2013; USDOC, BEA, “Real Value Added by Industry,” April 25, 2013.

**Figure 2.5** Motion picture and sound recording industries had the highest labor productivity among all U.S. electronic service sectors in 2012

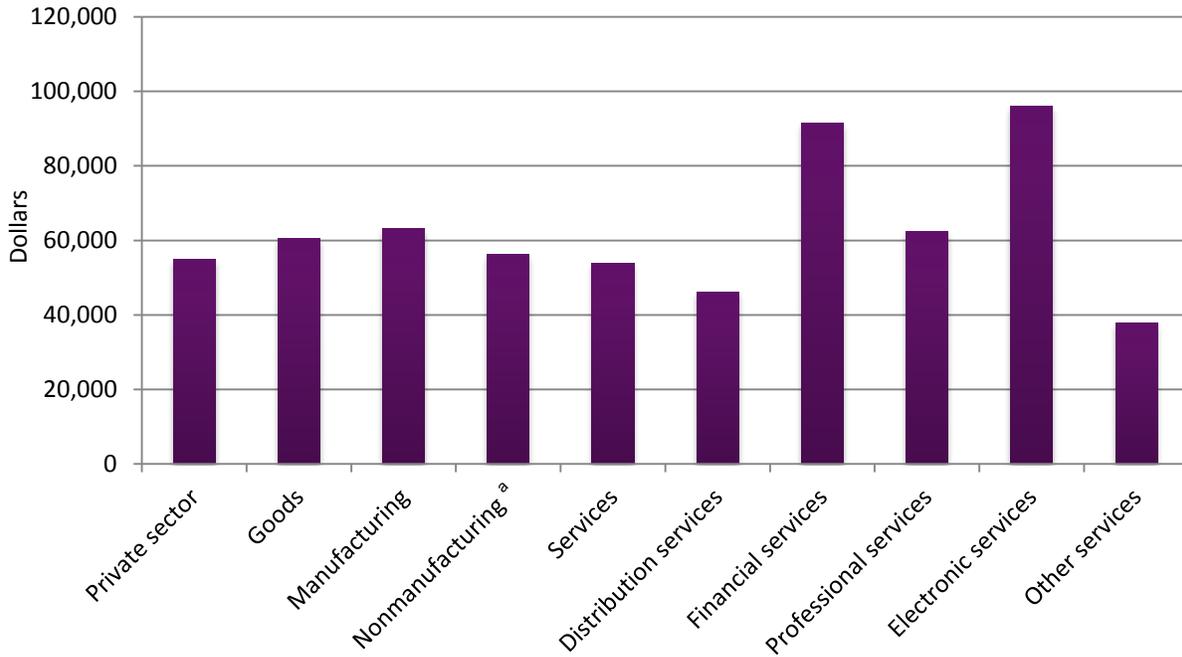


Sources: USDOC, BEA, "Full-Time Equivalent Employees by Industry," interactive tables, August 7, 2013; and USDOC, "Real Value Added by Industry," January 23, 2014.

In 2012, workers in electronic services earned an average annual wage of \$96,126, largely reflecting the very high wages paid in the computer services sector (figure 2.6). Among the electronic services industries, computer systems design and related services had the highest average wage in 2012 at \$110,223. The lowest average wages were reported in motion picture and sound recording services at \$78,529, although this amount still exceeded the private sector average of \$54,996. Overall, average wages in electronic services grew by 6.5 percent in 2012, more than twice as fast as the U.S. private sector as a whole (2.8 percent).<sup>72</sup>

<sup>72</sup> USDOC, BEA, Table 6.3D, "Wage and Salary Accruals per Full Time Equivalent Employee," August 7, 2013.

**Figure 2.6** Wages per FTE in the private sector were the highest for electronic services in 2012



Source: USDOC BEA, Table 6.3D: "Wage and Salary Accruals by Industry," August 7, 2013.

Note: <sup>a</sup>Nonmanufacturing includes agriculture, forestry, fishing, and hunting; mining; and construction.

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# Chapter 3

## Audiovisual Services

### Summary

The audiovisual services industry remains heavily concentrated, as a handful of countries continue to account for the majority of box office revenue and film production worldwide. For the purpose of this chapter, “audiovisual services” refers to the commercial production and distribution of motion pictures, comprising primarily feature films, television programs, and documentaries. These services are distributed to consumers through projection in theaters, commercial airline flights, and other public venues; rental or sale of prerecorded works by such means as DVDs and Blu-ray discs; and dissemination via broadcast, cable, and satellite television, including video on demand and the streaming of Internet content through fixed and mobile devices. Sound recording industries have been excluded from this chapter, since most of their official trade data are either unavailable or have been suppressed to avoid disclosing the data of individual companies.

Overall, box office revenue reached record highs in 2012, both globally and in the United States. Several factors contributed to this growth, including the success of big-budget franchise releases<sup>73</sup> from major U.S.-based film studios, which tend to attract larger audiences and offer more downstream revenue opportunities; the continued growth of international box office revenue, particularly in developing countries; the rise of digital technology and social media as new, lower-cost marketing and distribution platforms; and the opening of rapidly growing markets, such as China, parts of Eastern Europe, Latin America, and the Middle East, to increased trade and foreign investment.<sup>74</sup>

The United States has consistently maintained a surplus in cross-border trade in audiovisual services since 2007. The surplus totaled \$13.6 billion in 2012, with countries in Western Europe, Canada, and Australia ranking as the top markets for U.S. audiovisual services exports. By contrast, in 2012, the majority of U.S. audiovisual services imports came from Latin American countries. In that year, Brazil became the single largest supplier to U.S. consumers of audiovisual services, followed by the United Kingdom and Mexico. The rise in U.S. imports of audiovisual services from Latin American countries is likely due to growing demand in the

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<sup>73</sup> Big-budget franchise releases are blockbuster film series such as the *007* (James Bond), *Lord of the Rings*, or *Batman* movie collections.

<sup>74</sup> Barnes, “Hollywood Rebounds at the Box Office,” December 23, 2012; Littleton, “Major Film Studios Prosper on the Margins,” April 18, 2013.

United States for Spanish-language programming.<sup>75</sup> Such programming includes, for example, *telenovelas* (fictional television comedies or dramas) and live broadcasts of popular sporting events, such as soccer.

## Introduction

Providers of audiovisual services collect royalties, rental fees, license fees, and sales revenue in return for granting rights to display, broadcast, reproduce, or distribute audiovisual works. The U.S. motion picture industry<sup>76</sup> serves as a major supplier of entertainment and information to the world by producing videos, television programs, and movies that can be seen in more than 100 countries.<sup>77</sup>

Since audiovisual services are a way to deliver content to and influence consumers, governments may choose to regulate and, in some cases, impede the foreign production and distribution of certain audiovisual products. Government policies on audiovisual services frequently aim to curtail the dissemination of cultural values that conflict with those of the domestic market, restrict illicit content, protect intellectual property rights, and at times, bolster national identity and pride. These policies can also affect advertisements with audiovisual content, as well as provide investment and tax incentives for development of the audiovisual sector.<sup>78</sup>

## Market Conditions in Global Audiovisual Services

### **Global Box Office Revenue Comes Largely from Markets outside North America**

Global box office revenue reached a high of \$34.6 billion in 2012, a 4.1 percent increase from the previous year (\$33.2 billion). This increase was just below the average annual growth rate of roughly 5 percent from 2007–11 (table 3.1). Global box office receipts continued to be

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<sup>75</sup> Brazilian television producers have made a concerted effort in recent years to adapt their Portuguese-language programming to appeal to growing Spanish-speaking audiences in the United States and Latin America (via language dubbing, subtitling, and/or plot adjustments). *NextTV Latam*, “Globo Bets on Co-Productions to Grow Internationally,” June 6, 2012.

<sup>76</sup> The motion picture industry comprises three distinct activities: production, distribution, and sales. After a movie or a video has been produced, it is usually transferred to a distributor, which in turn arranges to make the product accessible to the consumer through movie theaters, video rentals and/or sale outlets, television broadcasts, and/or the Internet.

<sup>77</sup> Success in the film production industry is largely predicated on two factors: a wide distribution network and access to the substantial capital required for film production. Major film companies, which are primarily based in the United States, enjoy economy-of-scale advantages. In addition to their distribution capabilities, many of the major studios have been operating long enough to build up sizable film libraries, which provide revenue through video sales to consumers or through sale or rental to television stations. These well-established companies are likely to wield substantial financial leverage and control physical production facilities. *HighBeam.com*, “Industry Report: Movie Picture and Video,” n.d. (accessed November 4, 2013).

<sup>78</sup> WTO, “Audiovisual Services: Background Note,” January 12, 2010, 1.

buoyed by markets outside North America.<sup>79</sup> These receipts accounted for about 68.6 percent (\$23.9 billion) of the 2012 global box office total, down slightly from 69.1 percent in 2011.<sup>80</sup> Asia, the Middle East, and Latin America showed the largest gains in box office revenue, due to rapid movie screen construction in these regions.<sup>81</sup> In terms of cinema attendance, the BRIC economies (Brazil, Russia, India, and China) were among the top 10 global audiovisual markets in 2012, with India recording the world's largest number of box office admissions (2.64 million) (table 3.2).<sup>82</sup>

**Table 3.1** Audiovisual services: Top 10 countries, by estimated global box office revenue and market share, 2012

Country	Estimated revenue (million \$)	Estimated market share (%)
United States	9,782	28.3
China	2,706	7.8
Japan	2,446	7.1
United Kingdom	1,743	5.0
France	1,677	4.8
India	1,594	4.6
Germany	1,328	3.8
Korea, Republic of	1,293	3.7
Russia	1,182	3.4
Australia	1,166	3.4
Top 10 total	24,917	72.0
All others	9,684	28.0
Grand total	34,601	100.0

Source: IHS Screen Digest, "Global Cinema Exhibition Market," October 2013, 4–5.  
 Note: Totals may not add to 100 due to rounding.

<sup>79</sup> North America includes the United States and Canada. The Motion Picture Association of America (MPAA) combines these two markets in its data reporting. According to MPAA, North American box office receipts came to about \$10.9 billion in 2012. This represented an increase of about 6 percent from 2011, and was five times the 1.2 percent average annual growth rate recorded during 2007–11. MPAA, *Theatrical Market Statistics*, 2012, 4; MPAA, *Theatrical Market Statistics*, 2011, 4; IHS Screen Digest, "Global Cinema Exhibition Market," October 2013, 4.

<sup>80</sup> IHS Screen Digest, "Global Cinema Exhibition Market," October 2013, 1.

<sup>81</sup> *Ibid.*

<sup>82</sup> IHS Screen Digest, "Global Cinema Exhibition Market," October 2013, 1–3.

**Table 3.2** Audiovisual Services: Top 10 countries, by estimated global cinema admissions and global share, 2012

Country	Admissions (million)	Global share (%)
India	2,641	37.8
United States	1,229	17.6
China	470	6.7
Mexico	229	3.3
France	203	2.9
Korea, Republic of	195	2.8
United Kingdom	173	2.5
Russia	157	2.2
Japan	155	2.2
Brazil	149	2.1
Top 10 total	5,601	80.2
All others	1,381	19.8
Grand total	6,982	100.0

Source: IHS Screen Digest, “Global Cinema Exhibition Market,” October 2013, 2–3.

Note: Totals may not add to 100 due to rounding.

The United States remained the largest single audiovisual market in 2012, with roughly \$9.8 billion in box office revenue—up more than 5 percent from 2011.<sup>83</sup> At the same time, China surpassed Japan to become the second-largest market in terms of box office revenue in 2012. Box office revenue in China was \$2.7 billion, an increase of 34 percent from 2011 (\$2.0 billion) and about triple the amount earned in 2009 (\$906 million), the first year China broke into the top 10 global box office markets.<sup>84</sup> China has become a major box office force in a short period of time, in large part due to the country’s rapid construction of new cinemas.<sup>85</sup> In 2012, China opened 880 new cinemas with a total of 3,832 movie screens—an average of 10.5 new screens per day.<sup>86</sup> Each of these screens is fully digitized, accounting for the fact that China now ranks among the world’s leaders in terms of the number of 3-D screens (7,500) it has available. In addition, China recently eased limits on imports of foreign films (box 3.1).<sup>87</sup> As a result, China’s State Administration of Radio, Film and Television (SARFT) reported that for the first six months of 2012, revenues from imported films increased by 90.4 percent.<sup>88</sup>

<sup>83</sup> Ibid., 4.

<sup>84</sup> IHS Screen Digest, “Global Cinema Exhibition Market,” October 2013, 1–4; IHS Screen Digest, “Global Box Office Hits New High,” November 2010, 339.

<sup>85</sup> The accounting firm Ernst & Young (EY) forecasts that, by 2020, China will overtake the United States as the leading global box office market. *Variety*, “International Box Office Snapshots,” January 12, 2013, 1.

<sup>86</sup> IHS Screen Digest, “Global Cinema Exhibition Market,” October 2013, 7.

<sup>87</sup> After the most recent round of trade negotiations between the United States and China concluded in late February 2012, the new film regulations went into effect almost immediately (beginning in calendar year 2012). WTO, “China—Measures Affecting Trading Rights,” October 12, 2012.

<sup>88</sup> *Variety*, “International Box Office Snapshots,” January 12, 2013.

**Box 3.1** The recent opening of China’s film market spurs U.S. partnerships, but questions remain

In a February 2012 visit to the United States, then-Vice President (now President) Xi Jinping of China, together with U.S. Vice President Biden, announced that China would lift its import quota to allow 14 “enhanced” foreign films (films in 3-D or IMAX formats) to be imported into China each year, in addition to the already permitted 20 films. Moreover, China would increase the share of earnings allocated to foreign studios from an average of 15 percent to 25 percent of the movies’ box office sales in China.<sup>a</sup> Following these recent developments, aimed at increasing co-productions between the countries, several of the largest U.S. studios have entered into joint ventures with Chinese filmmakers. For example, in February 2012, DreamWorks Animation SKG Inc. entered into a joint venture with China Media Capital, Shanghai Media Group, and Shanghai Alliance Investment Ltd. to set up a new company, Oriental DreamWorks (45 percent owned by DreamWorks, 55 percent by the Chinese partners). Oriental DreamWorks, which began operations in Shanghai in August 2012, develops and produces Chinese animated and live-action movies and programs for China, as well as other countries around the globe.<sup>b</sup>

Additionally, Wang Jianlin, China’s wealthiest person and chairman of Dalian Wanda Group Corp., a property development conglomerate, announced in late September 2013 his group’s intention to invest RMB 30–50 billion (\$4.9–\$8.2 billion) to develop an entertainment center in China. Modeled after Hollywood, the new center would house 20 movie studios. The group also signed agreements with four top global talent agencies to attract movie stars to share their creative know-how.<sup>c</sup> However, even with the number of agreements between Chinese and American film studios steadily rising, the future of these partnerships remains unclear. Several international film distributors state that the quota system is not the largest impediment to bringing foreign films into China; rather, it is the Chinese government’s censorship of foreign films.<sup>d</sup>

Notes: <sup>a</sup> CMM Intelligence Ltd., *China Film Co-Production Report*, March 2012, 10; Amobi, “Movies and Entertainment,” June 2013, 15.

<sup>b</sup> Amobi, “Movies and Entertainment,” June 2013, 16.

<sup>c</sup> Actors Leonardo DiCaprio, Catherine Zeta-Jones, and Nicole Kidman have already agreed to consult for the project. Burkitt, “Hollywood’s Hope for Cash in China,” September 23, 2013.

<sup>d</sup> All co-productions, regardless of the form they take, must win approval from China’s State Administration for Radio, Film and Television (SARFT) before starting production and again before screening in Chinese theaters. Applications are processed by the China Film Co-Production Group (CFCC), which submits them to SARFT. Censorship has been used to regulate the content of feature films that enter the Chinese market. Filmmakers note that since China does not have an age rating system in place, the need to protect the young gives the government significant leverage to make and justify censorship decisions. CMM Intelligence Ltd., *China Film Co-Production Report*, March 2012, 5–6.

On the other hand, box office revenue in Western Europe fell by more than 6 percent in 2012, although the United Kingdom, France, and Germany remained among the top 10 of global box office earners.<sup>89</sup> Of the major film markets in the EU,<sup>90</sup> only the United Kingdom recorded an increase in box office revenue in 2012, reaching \$1.7 billion—a rise of roughly 3 percent.

<sup>89</sup> IHS Screen Digest, “Global Cinema Exhibition Market,” October 2013, 4–5.

<sup>90</sup> From 2011–12, France recorded a decrease in box office revenue of 12 percent; Germany, 0.5 percent; Italy, 15 percent; and Spain, 14 percent. IHS Screen Digest, “Global Cinema Exhibition Market,” October 2013, 4.

This increase was primarily due to record high attendance for the blockbuster film, *Skyfall* (a 007 sequel), which was co-produced with the United States in the United Kingdom.<sup>91</sup> The decline in box office revenue in other EU countries is chiefly attributed to general economic conditions and competition for audiences from other large-scale entertainment events, such as the 2012 United European Football Association (UEFA) Championship tournament and the London 2012 Summer Olympics.<sup>92</sup>

## Film Production Remains Concentrated among a Few Countries

The worldwide volume of film production again grew in 2011 (the latest year for which data are available), rising by about 4.3 percent to reach 6,098 films, of which 253 were intended for theatrical release.<sup>93</sup> Film production remains highly concentrated, with 14 countries recording an output of more than 100 feature films in 2011 (an increase of 4 countries over 2010).<sup>94</sup> India, the United States, China, Japan, and the Republic of Korea (Korea) were the top five film-producing countries by volume in 2011 (table 3.3). In 2011 Korea overtook France, historically Europe's most prolific film producer, by releasing a record-breaking 216 feature films—64 more than the previous year, or an increase of about 42 percent.<sup>95</sup> By contrast, France's production of feature films rose by only 2 percent (4 more films) in 2011.<sup>96</sup> As a result, 2011 was the first year in which Asian countries made up four of the top five global film producers.<sup>97</sup>

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<sup>91</sup> *Skyfall* was the most popular movie among EU audiences in 2012, attracting more than 44 million moviegoers. EAO, *Focus 2013: World Film Market Trends*, May 2013, 14, 20, 30.

<sup>92</sup> More generally, the economic crisis in the eurozone affected all EU markets to some extent. IHS Screen Digest, "Global Cinema Exhibition Market," October 2013, 1; Stewart, "Year's Int'l Box Office Sets Record," January 12, 2013.

<sup>93</sup> Most feature films in large developing markets, such as India, are usually distributed "direct to video" (either through DVDs or commercial broadcasts). IHS Screen Digest, "World Film Production 2011," January 2013, 127.

<sup>94</sup> IHS Screen Digest, "World Film Production 2011," January 2013, 127.

<sup>95</sup> On average, Korea produced less than 60 films a year in the late 1990s. However, with the establishment of the government-supported Film Development Fund in 2007, Korean film production volume has more than doubled in the last five years. IHS Screen Digest, "World Film Production 2011," January 2013, 130; EAO, *Focus 2013: World Film Market Trends*, May 2013, 56–57.

<sup>96</sup> The decrease in the number of feature films produced in France is largely attributed to recent declines in public investment for French-initiated films. IHS Screen Digest, "World Film Production 2011," January 2013, 130; EAO, *Focus 2013: World Film Market Trends*, May 2013, 23.

<sup>97</sup> IHS Screen Digest, "World Film Production 2011," January 2013, 130.

**Table 3.3** Audiovisual Services: Top 10 countries, by estimated global film production and global share (excluding co-productions), 2011

Country	Number of films	Global share (%)
India	1,225	20.1
United States	817	13.4
China	558	9.2
Japan	441	7.2
Korea	216	3.5
France	207	3.4
Spain	180	3.0
Germany	174	2.9
Italy	146	2.4
Argentina	126	2.1
Top 10 total	4,090	67.1
All other	2,008	32.9
Grand total	6,098	100.0

Source: IHS Screen Digest, “World Film Production 2011,” January 2013, 130.

Note: Totals may not add to 100 due to rounding.

## U.S. Film Studios Account for a Majority of Global Motion Picture Receipts

Six large U.S.-based movie studios<sup>98</sup> accounted for nearly 80 percent of North American<sup>99</sup> (table 3.4) and 60 percent of global box office receipts in 2012.<sup>100</sup> Despite increased competition from locally produced films, U.S. movies continue to comprise a substantial share of the film market, particularly in developing countries. In these countries, consumer interest in and access to U.S. films have grown as a result of the construction of more digital-ready multiplex theaters.<sup>101</sup> Consequently, amid an increasingly

<sup>98</sup> Production companies can be classified into three major categories: the “majors,” the “mini-majors,” and the “independents,” or “indies.” The majors include large conglomerates such as Disney, Sony, and Viacom. These companies are vertically integrated in terms of film production and distribution. They also have their own marketing departments that promote items such as movie soundtracks and toys, as well as facilitate other promotional tie-ins. Slightly smaller companies, often called “mini-majors” (e.g., Lionsgate, Weinstein Company), may have weaker distribution power and may specialize in a specific segment of the film market, such as art films or action films. Small independent filmmakers (e.g., Alcon Entertainment, Legendary Pictures) often have no distribution capability at all and must depend entirely on outside distribution companies. *HighBeam.com*, “Industry Report: Movie Picture and Video Tape Production,” n.d. (accessed November 4, 2013); Manis, “Beyond the Big 6,” March 20, 2013.

<sup>99</sup> The movie releases of the top six “major” film studios (also known as “the big six”)—all members of MPAA—have typically accounted for 80 to 85 percent of domestic box office revenue each year, though not in 2012. These companies are Warner Brothers (Time Warner Inc.), Paramount Pictures (Viacom Inc.), 20th Century Fox (News Corp. Ltd.), Walt Disney Pictures (Walt Disney Co./Buena Vista), Sony Pictures (Sony Corp.), and Universal Pictures (Comcast Corp.). Amobi, “Movies and Entertainment,” June 2013, 20.

<sup>100</sup> In 2012, Sony Pictures had the highest global market share among major film studios, collecting \$4.4 billion in box office revenue. Warner Brothers earned \$4.2 billion worldwide in 2012, followed by 20th Century Fox (\$3.7 billion), Disney (\$3.6 billion), Universal (\$3.1 billion), and Paramount (\$2.4 billion). McClintock, “Sony Pictures No. 1 in 2012 Worldwide Box Office Market Share,” January 2, 2013.

<sup>101</sup> Amobi, “Movies and Entertainment,” June 2013, 15.

**Table 3.4** Audiovisual services: Top 10 movie studios, by estimated North American gross box office revenue and market share, 2012

Company	Country	Estimated revenue (million \$)	Estimated market share (%)
Sony	Japan/United States	1,792	16.6
Warner Brothers	United States	1,665	15.4
Disney	United States	1,551	14.3
Universal	United States	1,324	12.2
Lionsgate	United States	1,239	11.4
20th Century Fox	Australia/United States	1,025	9.5
Paramount	United States	914	8.4
Weinstein Company	United States	258	2.4
Relativity	United States	202	1.9
Focus Features	United States	145	1.3
Top 10 total		10,115	93.5
All others		707	6.5
Grand total		10,822	100.0

Source: *BoxOfficeMojo.com* (as of November 15, 2013).

Note: Gross box office revenue figures at the company level may not precisely match IHS Screen Digest’s macroeconomic estimates due to slight differences in collection methods and data availability

saturated domestic market for theatrical films, U.S. movie producers rely heavily on international audiences for box office revenue. For example, of the 10 top-grossing movies in 2012 (all of which were produced in whole or in part by U.S. studios), nearly 70 percent of total box office sales came from foreign moviegoers (table 3.5).<sup>102</sup>

In general, U.S. films tend to garner the highest revenue globally due to larger film budgets,<sup>103</sup> vertical integration of the production and distribution functions, and robust advertising and marketing campaigns. Even in the EU, where domestic film production is well established, in most years about 60 percent of film admissions at cinemas are for U.S. movies, with another 11 percent for U.S.-EU co-produced films.<sup>104</sup> In terms of average film production expenditures (for both theatrical and non-theatrical films), the United States ranked second in 2011, behind the United Kingdom,<sup>105</sup> with an average investment of about \$11.4 million per title. Still, the United States led all countries in total investment in feature film production during that year, spending \$9.2 billion.<sup>106</sup>

<sup>102</sup> EAO, *Focus 2013: World Film Market Trends*, May 2013, 13; IHS Screen Digest, “Global Cinema Exhibition Market,” October 2013, 4–5.

<sup>103</sup> Larger film budgets or investments (both terms are interchangeable in this discussion) allow more use of special effects technologies such as 3-D and high-definition or digital graphics, visual effects technologies such as computer-generated imagery, and access to the most well-known and marketable talent. Moreover, with the predominance of English as an international language, U.S. movies are distributed globally at lower cost compared to non-English films, since in many cases, expensive post-production language dubbing is usually unnecessary for the most popular Hollywood films. Amobi, “Movies and Entertainment,” June 2013, 20–21; *HighBeam.com*, “Industry Report: Movie Picture and Video,” n.d. (accessed November 4, 2013).

<sup>104</sup> IBISWorld, “Global Movie Production and Distribution,” May 2013, 15.

<sup>105</sup> This was largely due to the production of *Skyfall*. EAO, “*Focus 2013: World Film Market Trends*,” May 2013, 14.

<sup>106</sup> Japan (\$3.1 billion) and the United Kingdom (\$2.0 billion) followed the United States in total film investment in 2011. IHS Screen Digest, “World Film Production 2011,” January 2013, 130.

**Table 3.5** Audiovisual Services: Top 10 films by estimated North American (NA), 107 international (INT), and global box office (BO) revenue and market share, 2012

Title (original)	Country (produced)	Distributor	NA BO revenue (million \$)	Revenue from NA (%)	INT BO revenue (million \$)	Revenue from INT (%)	Global BO revenue (million \$)	Global market share (%)
<i>The Avengers</i>	United States	Disney	623	41.1	891	58.9	1,514	4.4
<i>The Dark Knight Rises</i>	United States/United Kingdom	Warner Brothers	448	41.5	631	58.5	1,079	3.1
<i>Skyfall</i> <sup>108</sup>	United States/United Kingdom	Sony	291	28.4	732	71.6	1,023	3.0
<i>Ice Age: Continental Drift</i> <sup>109</sup>	United States	20th Century Fox	161	18.4	714	81.6	875	2.5
<i>The Hobbit: An Unexpected Journey</i> <sup>110</sup>	United States/New Zealand	Warner Brothers	229	27.7	598	72.3	827	2.4
<i>The Twilight Saga: Breaking Dawn, Part 2</i>	United States	Lionsgate	286	35.1	527	64.7	814	2.4
<i>The Amazing Spider-Man</i>	United States	Sony	262	34.7	492	65.3	754	2.2
<i>Madagascar 3: Europe's Most Wanted</i>	United States	Paramount	216	29.0	527	70.8	744	2.2
<i>The Hunger Games</i>	United States	Lionsgate	408	59.6	277	40.4	685	2.0
<i>Men in Black 3</i>	United States/United Arab Emirates	Sony	179	28.6	446	71.4	625	1.8
Top 10 total			3,103	34.7	5,835	65.3	8,940	25.8
All others			7,772	30.3	17,891	69.7	25,661	74.2
Grand total			10,875	31.4	23,726	68.6	34,601	100.0

Sources: EAO, *Focus 2013: World Film Market Trends*, May 2013, 13; IHS Screen Digest, "Global Cinema Exhibition Market," October 2013, 4–5; USITC staff calculations.

Note: Gross box office revenue figures at the company level may not precisely match IHS Screen Digest's macroeconomic estimates due to slight differences in collection methods and data availability.

<sup>107</sup> Includes the United States and Canada.

<sup>108</sup> Still in release in 2013.

<sup>109</sup> Ibid.

<sup>110</sup> Ibid.

Foreign box offices may serve as a cushion for poor-performing films in the United States. The average cost to make and market a typical Hollywood “blockbuster” movie is more than \$100 million (compared to “low-budget” films, which cost \$15 million or less). However, some high-profile special effects movies, such as *Avatar* and *Pirates of the Caribbean*, can cost several times that. Financially, producing such high-cost films creates a large downside risk that they will significantly underperform domestic box office expectations. Since foreign demand is typically strongest for big-budget action and adventure films, which are a staple of the U.S. movie industry, the largest film studios have become even more reliant on movie sales in international markets, as they can buffer the studios against big-budget films that fail to recapture their costs in the U.S. market.

For example, the 2012 Disney science fiction movie *John Carter*, which cost about \$250 million to produce, earned only about \$73 million in the United States; however, outside the U.S. market, the film made close to \$222 million (75 percent of its total earnings), enabling it to more than cover its costs.<sup>111</sup>

## Demand and Supply Factors

The key factors that have driven the demand for and supply of global audiovisual services in recent years include increased demand for audiovisual products from developing markets, rapid changes in technology, and developments in government policies.

## Developing Markets Will Continue to Drive Box Office Growth

Audiovisual demand in emerging markets is anticipated to grow as these economies recover from the global economic slowdown that began in early 2008. In rapidly expanding markets such as China, where box office revenue grew by about 34 percent in 2012, even greater growth is expected in future years.<sup>112</sup> According to IHS Screen Digest, a market research firm, per capita cinema attendance in China stands at only 0.3 films per year. By comparison, annual per capita cinema attendance in Hong Kong is 3.1; in the Republic of Korea, 3.3; in Singapore, 4.2; and in North America (the United States and Canada), 4.1.<sup>113</sup>

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<sup>111</sup> According to MPAA, six out of 10 movies lose money on their original investment in their domestic theatrical run. Further, most movies are not big moneymakers, and breakout commercial successes are typically rare. Acuna, “Hollywood Has Become Incredibly Dependent,” March 8, 2013; Amobi, “Movies and Entertainment,” June 2013, 20.

<sup>112</sup> *Variety*, “International Box Office Snapshots,” January 12, 2013.

<sup>113</sup> China is expected to continue to build cinema screens at its current high pace, and per capita cinema attendance is expected to increase accordingly. Amobi, “Movies and Entertainment,” June 2013, 18–19; *Variety*, “International Box Office Snapshots,” January 12, 2013; IHS Screen Digest, “Global Cinema Exhibition Market,” October 2013, 4–5; MPAA, *Theatrical Market Statistics*, 2012, 16.

Like the Chinese market, the Indian market for motion pictures is considered not yet saturated because there are about 86,000 people per screen, compared with about 7,500 people per screen in the United States.<sup>114</sup> (This market includes the large domestic audience for the films of Bollywood, as the Hindi-language film industry based in Mumbai is popularly known.) This suggests that India will expand its exhibition capacity during the next five years, as disposable income in India is projected to grow quickly during this period, and the negative effects of the 2009 multiplex-producer strike,<sup>115</sup> which have lingered longer than expected, will have abated.<sup>116</sup>

## **Digital Technology Has Affected the Supply of Films by Providing Greater Consumer Access to Movies**

The rapid rise of digital technology has decreased distribution costs and created new revenue streams for movie producers and distributors across a variety of exhibition outlets—from traditional cinema to video streaming on mobile devices, such as smartphones and tablets.<sup>117</sup> Consequently, for many film producers, box office sales are no longer their principal source of revenue. Today, profitability often depends heavily on a film’s downstream revenue, such as DVD and Blu-ray sales and rentals, satellite and video on demand (VOD) fees, licensing for streaming content through the Internet, and increasingly, new media channels, which include electronic sell-through (EST) outlets such as Apple’s iTunes and Amazon.com.<sup>118</sup> As consumers frequently access movie content from the Internet, the industry has developed new, ad-supported and subscription-based revenue streams to capitalize on this trend.<sup>119</sup> However,

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<sup>114</sup> IBISWorld, “Global Movie Production and Distribution,” May 2013, 7.

<sup>115</sup> During the strike, Bollywood movie producers and distributors refused to release movies to big theater chains until they were guaranteed 50 percent of the revenue from ticket sales on all movies for the first four weeks of their theatrical run. During the height of the strike, box office revenue in the first quarter of 2009 dropped by 2.3 percent compared to the previous year, or about \$52 million. Both sides eventually reached a resolution in June 2009, agreeing to a 50-percent revenue share for the first week, across all movies (including the distribution of films in India that were produced in Hollywood). Itzkoff, “Bollywood Strike Is Resolved,” June 5, 2009.

<sup>116</sup> Although the Indian movie industry produces a vast number of films in many languages and dialects each year (India is the top film producing nation by number of films released), movies in India tend to have low production value (an average per-film budget of only \$450,000 in 2011), placing it 45th on a list of countries ranked by average film production expenditures. Consequently, due to the large number of relatively inexpensive films produced in India, Indian titles tend to rotate quickly, unlike major U.S. films. IBISWorld, “Global Movie Production and Distribution,” May 2013, 7; IHS Screen Digest, “World Film Production 2011,” January 2013, 129–30.

<sup>117</sup> Amobi, “Movies and Entertainment,” June 2013, 20–21; USITC, *Digital Trade in the U.S. and Global Economies, Part I*, July 2013, 2-19.

<sup>118</sup> *Ibid.*, 2.

<sup>119</sup> In late 2011, the Digital Entertainment Content Ecosystem (DECE), a consortium of over 70 major entertainment companies, including studios, consumer electronics manufacturers and retailers, and cable TV operators, launched UltraViolet (UV), a service wherein users pay for the content once, store it online, and then are able to download or stream it using multiple platforms. The service offers its users over 9,000 titles from studios such as Fox, Warner Bros., and Sony. Amobi, “Movies and Entertainment,” June 2013, 3.

Internet access has also heightened the industry's concerns about piracy by making it easy for consumers to copy and share movies.<sup>120</sup>

Internet-based outlets, such as Netflix, have also enabled movie producers to more quickly release theatrical films to the home video market—a trend that is unpopular among theater operators such as Regal Entertainment Corp., AMC Entertainment, and Cinemark Holdings Inc.<sup>121</sup> The shortening of the window—the time period within which movies are transitioned from theaters to Internet distribution—is primarily motivated by increased competition from other entertainment sources (e.g., video games or live sporting events). It is intended to make sure that studios continue to earn money from their film productions after the films leave the theaters.<sup>122</sup>

## **Government Policies Aim to Support Domestic Movie Industries, but May Also Restrict Foreign Participation**

Government support for domestic film industries is widespread. In the majority of countries, it takes the form of financial assistance such as tax breaks and up-front funding. However, in parts of Asia and Europe, government policies may include some forms of protectionism, including film quotas and language dubbing requirements.<sup>123</sup> In general, tax incentives and production cost relief granted by governments are used to encourage both domestic and foreign film production.<sup>124</sup> The Center for Entertainment Industry Data and Research estimates that government incentives and favorable exchange rates save a producer 44 percent on the cost of a \$25-per-hour worker in New Zealand (measured in U.S. dollars) compared to the United

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<sup>120</sup> IBISWorld, "Global Movie Production and Distribution," May 2013, 5; USITC, *Digital Trade in the U.S. and Global Economies, Part I*, July 2013, 5-16.

<sup>121</sup> Studios would typically release films into the home video market after a 90- to 120-day theatrical run. Amobi, "Movies and Entertainment," June 2013, 18.

<sup>122</sup> Amobi, "Movies and Entertainment," June 2013, 18–19. The gap between the video-on-demand and Blu-ray/DVD release windows, which has traditionally ranged from 30 to 45 days, has also shrunk (or, increasingly, overlapped). In 2010, for example, the number of titles released into both windows simultaneously more than quadrupled from only 10 such releases in 2007. Notably, Warner Brothers (Time Warner's film subsidiary) was the first company to make agreements with Netflix and Redbox to delay rentals of videos by 28 days from the store-release date in exchange for (1) more streaming rights on Netflix and (2) dropping its lawsuit against Redbox. With these agreements, Time Warner aims to increase both purchases of new movie discs and the company's revenue from online content. IBISWorld, "Global Movie Production and Distribution," May 2013, 24.

<sup>123</sup> MarketLine, "Global Movies and Entertainment," August 2012, 16; USITC, *Digital Trade in the U.S. and Global Economies, Part I*, July 2013, 5-3.

<sup>124</sup> IBISWorld, "Global Movie Production and Distribution," May 2013, 31.

States. In Canada and Australia this cost differential is about 39 percent; in the United Kingdom, 16 percent.<sup>125</sup>

Governments may also intervene to limit the import of foreign films and to support domestic film production. To illustrate, in November 2012, the Russian Ministry of Culture decided to take over the Russian Cinema Fund, citing the institution's failure to attract audiences to see local productions and the need to optimize resources. Although public financial support for local films in Russia had doubled over the last three years, the share of Russian films as a proportion of domestic box office revenue had dropped from more than 20 percent before 2009–10 to 16.1 percent in 2012. Further, the Russian ministry announced its intention to impose quotas for local production (at least 20 percent of screenings) and to discontinue the goods and services tax waiver (currently 18 percent) for the exhibition of foreign films.<sup>126</sup> Critics of these measures view them as veiled attempts to use cinema as a propaganda tool, and they believe that the new status quo resulting from these reforms will favor big local productions over international co-production.<sup>127</sup> Movie distributors, including theater operators, complain that foreign film quotas will disproportionately undermine the distribution of foreign independent titles compared to Hollywood blockbusters.<sup>128</sup>

## Trade Trends

### Cross-border Trade

U.S. exports continued to exceed imports of audiovisual services (box 3.2) from 2008 through 2012 (figure. 3.1).<sup>129</sup> U.S. cross-border exports of audiovisual services amounted to \$16.2 billion, reflecting an increase of 11.4 percent since 2011, which was significantly higher than the 0.2 percent average growth seen during 2007–11. Average growth during this period was depressed by the global economic slowdown, when U.S. exports of audiovisual services reached only \$13.2 billion in 2008—a decline of about 8 percent from the previous year.<sup>130</sup> By a wide margin, the United Kingdom was the largest single U.S. export market for audiovisual services in 2012, accounting for revenues of \$3.9 billion (24 percent). Other important export

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<sup>125</sup> IBISWorld, "Global Movie Production and Distribution," May 2013, 15. Although studios and other production companies are responsible for financing, producing, publicizing, and distributing a film or program, the actual making of the film is done by hundreds of local small businesses and independent contractors hired by the studios on an "as needed" basis. These companies provide a wide range of services, such as equipment rental, lighting, special effects, set construction, and costume design. The industry also contracts with numerous workers in other industries that supply support services to the crews while they are filming, such as truck drivers, caterers, electricians, and makeup artists. Many of these workers, particularly those in Los Angeles and Mumbai, are wholly dependent on the motion picture industry. WTO, "Audiovisual Services: Background Note," January 12, 2010, 8–11.

<sup>126</sup> EAO, Focus 2013: World Film Market Trends, May 2013, 33.

<sup>127</sup> Ibid.

<sup>128</sup> EAO, Focus 2013: World Film Market Trends, May 2013, 33.

<sup>129</sup> USDOC, BEA, *Survey of Current Business*, October 2013, 42–43, table 1.

<sup>130</sup> Ibid.; USITC calculations.

markets included Canada (\$1.5 billion, or 9 percent), the Netherlands (\$1.4 billion, almost 9 percent), Germany (\$1.2 billion, or 7 percent), and Australia (\$906 million, or 6 percent) (figure 3.2).

**Box 3.2** Understanding available trade data in audiovisual services

Overall, publicly available data on motion picture trade flows are of limited quality and quantity. The UN Comtrade database reports trade in motion pictures in terms of the value of “cinematographic film exposed or developed,” which is identified as a commodity rather than a service.

Available WTO balance of payments data significantly understate global trade in this sector, as many WTO members do not collect statistics at this level of disaggregation.<sup>a</sup> Data used in this trade discussion are prepared by the Bureau of Economic Analysis (BEA) of the U.S. Department of Commerce (USDOC).

BEA data on cross-border trade in audiovisual services reflect payments for rights to display, reproduce, or distribute motion pictures and television programs.<sup>b</sup> In other words, cross-border trade data reflect the exchange of limited intellectual property rights. BEA’s statistics, however, do not reflect global box office receipts, which roughly measure demand for moviegoing and, in turn, affect cross-border trade.

Data on affiliate transactions reflect sales to foreign consumers of motion pictures, television tapes, and films by U.S.-owned foreign affiliates that produce and distribute this content, as well as purchases by U.S. consumers from foreign-owned motion picture affiliates located in the United States.<sup>c</sup> The data presented by the BEA greatly understate affiliate transactions, as most of the numbers are suppressed to avoid disclosing the data of individual companies. As a result, U.S. affiliate transactions are not included in this trade discussion.<sup>d</sup>

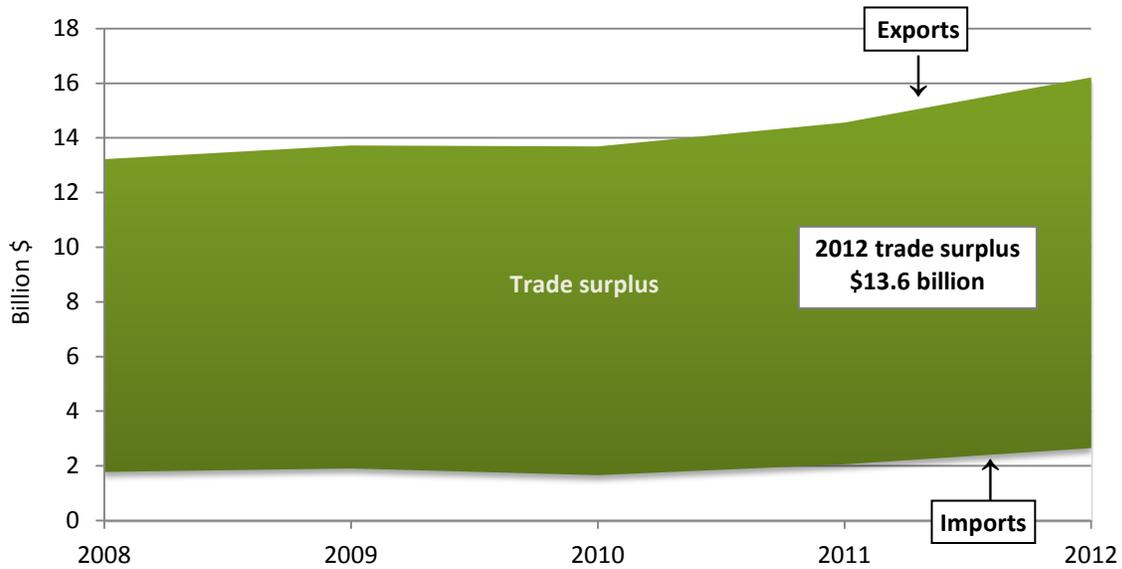
Notes: <sup>a</sup> WTO, “Audiovisual Services: Background Note by the Secretariat,” January 12, 2010, 4.

<sup>b</sup> BEA describes this sector as “film and television tape distribution.” USDOC, BEA, *Survey of Current Business*, October 2013, 26–28, 32.

<sup>c</sup> USDOC, BEA, *Survey of Current Business*, October 2013, 26–28, 32.

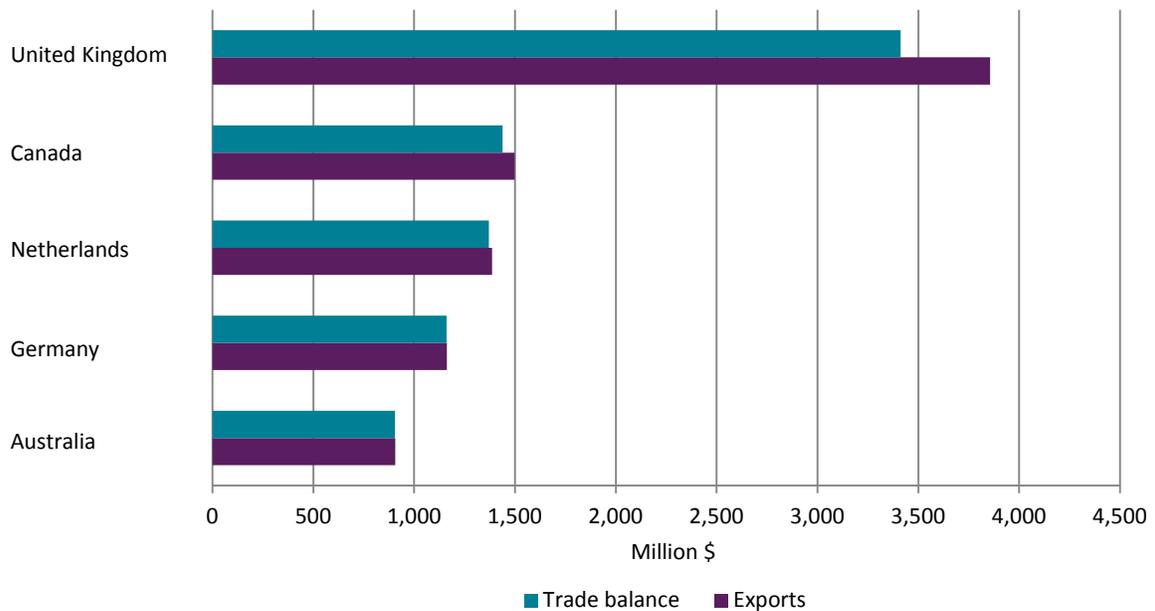
<sup>d</sup> Hanson and Xiang, “International Trade in Motion Picture Services,” January 2008, 3–9.

**Figure 3.1** Audiovisual services: U.S. cross-border trade in audiovisual services resulted in a U.S. trade surplus each year during 2008–12



Source: USDOC, BEA, *Survey of Current Business*, October 2013, 42–43, table 1.

**Figure 3.2** Audiovisual services: The United Kingdom was the leading market for U.S. cross-border exports of audiovisual services in 2012



Source: USDOC, BEA, *Survey of Current Business*, table 4.2, October 2013, 51–52.

Europe, by far the largest regional consumer of U.S. audiovisual services exports, accounted for about 61 percent of such exports in 2012.<sup>131</sup> Despite growing competition from local productions,<sup>132</sup> U.S. films' presence remains extensive in Europe, where consumer interest and access to U.S. entertainment have been boosted by the construction of digital and 3-D-enabled multiplex theaters, particularly in Eastern Europe.<sup>133</sup> Overall, with the acceptance of English as an international language, the rise of broadband usage, and the rapid growth of multimedia outlets and platforms, the United States' large and diversified audiovisual services companies—such as Time Warner, Viacom, and Walt Disney—will likely continue to garner the majority of the international market. These media conglomerates can quickly finance the development of new products, leverage their extensive film and television libraries (which include some of the world's most popular characters and brand names),<sup>134</sup> and harness their well-established global distribution networks in order to deliver their content to greater audiences at lower cost than their foreign competitors.<sup>135</sup>

Imports of foreign films and television programs, particularly from Latin America, have continued to capture an increasing share of the U.S. market, though they are still relatively small compared to overall U.S. cross-border exports. U.S. cross-border imports of audiovisual services in 2012 totaled about \$2.6 billion, a 28 percent increase from the previous year.<sup>136</sup> By comparison, such imports grew at an annual rate of 7.5 percent during 2007 through 2011. This difference can be attributed to Brazil becoming the largest source of U.S. audiovisual services imports in 2012, with U.S. payments reaching \$1.2 billion (or 45 percent of U.S. audiovisual services imports that year) (figure 3.3).<sup>137</sup> Brazil was followed by the United Kingdom at \$443 million (17 percent); Mexico, \$316 million (12 percent); Argentina, \$199 million (8 percent); and Venezuela, \$139 million (5 percent).<sup>138</sup> In contrast to its high importance as a regional market for U.S. exports, Europe supplied only about 21 percent of U.S. imports of audiovisual services in 2012.<sup>139</sup>

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<sup>131</sup> USDOC, BEA, *Survey of Current Business*, October 2013, 50, 51, and table 4.2.

<sup>132</sup> In mid-November 2013, the European Commission announced new directives permitting EU countries to provide more support to their domestic audiovisual services industries. Under the new rules, governments will be allowed to cover 50 percent of the costs of a film, from production and scriptwriting to distribution and promotional costs. In addition, under the directives, individual EU countries will be permitted to require that between 50 and 80 percent of government-subsidized film budgets be spent on domestic production. Fox, "EU Pleases France, Widens Film Subsidy Rules," November 15, 2013.

<sup>133</sup> Amobi, "Movies and Entertainment," June 2013, 15.

<sup>134</sup> *Ibid.* June 2013, 28.

<sup>135</sup> *Ibid.* June 2013, 15.

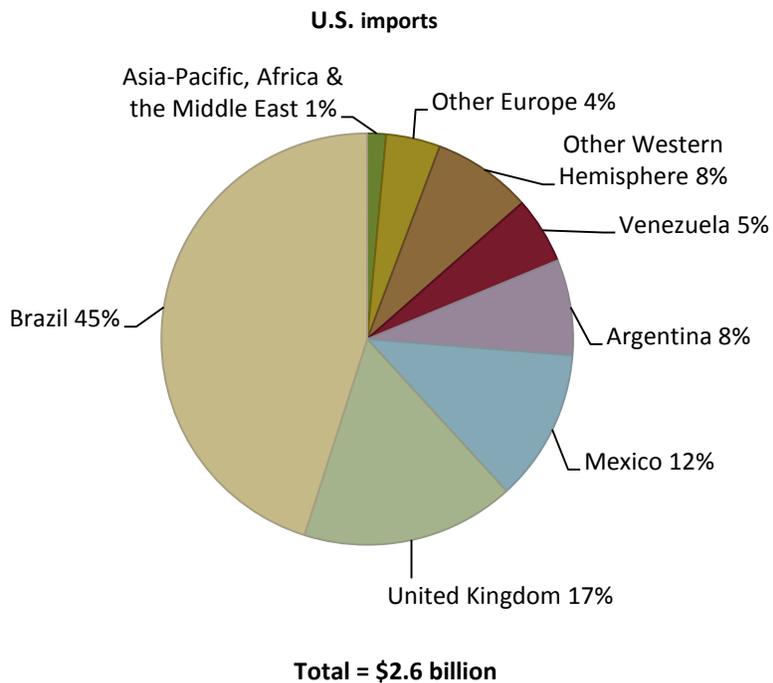
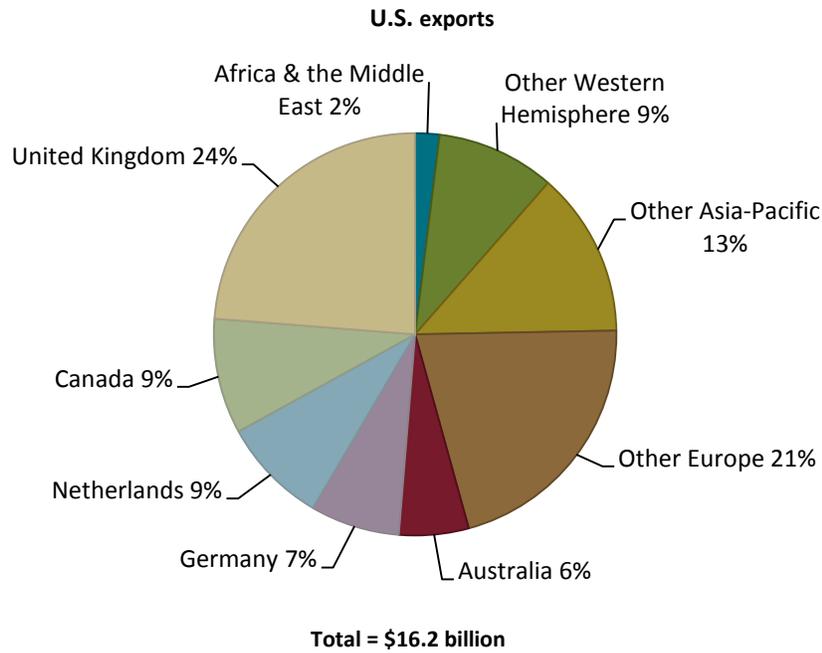
<sup>136</sup> Foreign films garnered less than 10 percent of North American box office receipts in 2012. EAO, "Focus 2013: World Film Market Trends," May 2013, 42.

<sup>137</sup> In 2010 and 2011, BEA suppressed data on cross-border imports of audiovisual services from Brazil to avoid disclosing the data of individual companies.

<sup>138</sup> USDOC, BEA, *Survey of Current Business*, October 2013, 50, 51, and table 4.2.

<sup>139</sup> *Ibid.*

**Figure 3.3** Audiovisual services: The United Kingdom was the leading destination for U.S. exports of audiovisual services in 2012, while Brazil was the leading source of U.S. imports



Source: USDOC, BEA, *Survey of Current Business*, October 2013, 50, 51, table 4.2.  
 Note: Figures may not total to 100 percent due to rounding.

The growing influx of audiovisual services imports from Latin America can largely be credited to programming created by a handful of large regional media corporations, e.g., TV Globo (Brazil), Televisa and TV Azteca (Mexico), Telefe and El Trece (Argentina), and Venevisión (Venezuela).<sup>140</sup> Brazil's TV Globo, the world's largest producer of *telenovelas*, exports 20,000 hours of such programming every year. Since 2010, TV Globo has implemented strategies aimed at the co-production and adaptation of its content with companies like Telemundo (owned by NBC Universal/Comcast) and Mexico's TV Azteca, in order to appeal to Spanish-speaking audiences in other parts of Latin America and the United States.<sup>141</sup> Moreover, with Brazil scheduled to host the 2014 Fédération Internationale de Football Association (FIFA) World Cup soccer tournament, as well as increased investments in preparation for the 2016 Summer Olympics in Rio de Janeiro, industry sources estimate that the value of Brazil's audiovisual services market will reach \$2 billion by 2015.<sup>142</sup>

## Outlook

North American box office receipts declined 12 percent in the first quarter of 2013. This decline was attributed to less diversity in movie offerings, as most of the releases were R-rated and only a few were for family viewing. The price of movie going did not appear to affect receipts, as the average price of movie tickets increased just two cents in the first quarter of 2013 (\$7.94) compared with the same period last year.<sup>143</sup>

Going forward, the year-to-year volatility of film revenue for the major film studios will remain a prominent issue, since U.S. film companies are now releasing far fewer films and focusing their investments on a handful of big-budget franchise or 3-D titles.<sup>144</sup> To illustrate, between 2006 and 2012, the total number of movies released annually by the six largest Hollywood film studios—20th Century Fox, Paramount Pictures, Sony Pictures, Universal Pictures, Walt Disney Pictures, and Warner Brothers—declined by 69 titles, or 34 percent. The “big six” studios

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<sup>140</sup> Piñón, “The New Face of Latin American Television Flows,” October 22, 2013.

<sup>141</sup> The increase in demand for Spanish-language programming in the United States has largely been driven by Hispanic immigration and population growth. With more than 37 million speakers, Spanish is by far the most widely spoken non-English language in the United States (as of 2011) among people ages 5 and older. It is also one of the fastest growing, with the number of speakers up 233 percent since 1980, when there were 11 million Spanish speakers. Lopez and Gonzalez-Barrera, “What Is the Future of Spanish?” September 5, 2013; *NextTV Latam*, “Globo Bets on Co-Productions to Grow Internationally,” June 6, 2012.

<sup>142</sup> Moreover, in 2012, Brazil's federal audiovisual fund (known as the Fundo Setorial do Audiovisual, or FSA) was endowed with \$75 million to support domestic film production and distribution; this sum quintuples the amount available in 2008. EAO, *Focus 2013: World Film Market Trends*, May 2013, 45; InfoComm International, “InfoComm and Latin Press to Launch,” June 11, 2013.

<sup>143</sup> However, the average price of a movie ticket fell 6.4 percent in the third quarter of 2013 to \$7.84 from \$8.38 in the second quarter of 2013 (which was an all-time high). The volatility in average movie ticket pricing in 2013 is the result of more premium-priced 3-D movies being released in the second quarter than the third, and of more families opting to see movies in 2-D, instead of paying for the higher-priced 3-D tickets. Amobi, “Movies and Entertainment,” June 2013, 1; Saperstein, “Average Movie Ticket Price Is Highest Ever,” July 19, 2013; Block, “Average Movie Ticket Price Falls 6.4 Percent,” October 21, 2013.

<sup>144</sup> Littleton, “Major Film Studios Prosper on the Margins,” April 18, 2013.

released 134 films in 2012, compared to 145 films in 2011.<sup>145</sup> Since major studios and investors are opting to place larger investments on fewer projects, the considerable fiscal difference between a box office “hit” and “miss” can have serious implications for yearly revenue and profit margins. Hence, downstream digital media sales outlets and developing international markets will play an even more important role in the future, as industry players look to hedge their risks.<sup>146</sup>

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<sup>145</sup> Ibid.

<sup>146</sup> Acuna, “Hollywood Has Become Incredibly Dependent,” March 8, 2013.

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# Chapter 4

## Computer Services

### Summary

Despite generally difficult economic conditions, the computer services industry<sup>147</sup> has expanded in recent years, with global spending on computer services growing from \$745 billion in 2008 to \$906 billion in 2012.<sup>148</sup> The United States remains by far the largest country market for computer services, but emerging markets have become increasingly active. India, for example, has in recent years produced two of the world's 10 largest computer services firms, Tata Consultancy Services and Wipro, Ltd.

The advent of the Internet and the proliferation of affordable portable devices (mobile phones, tablets, and laptops) have driven growth in the computer services industry. Increasing synergy between mobile devices,<sup>149</sup> cloud computing,<sup>150</sup> and social networking<sup>151</sup> is fueling the development of new business and pricing models, such as open-source and “free but not free” software.<sup>152</sup> These new business models, in turn, are blurring the lines that have traditionally separated hardware, software, and services. All of the leading computer services firms, for

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<sup>147</sup> The computer services industry comprises numerous business segments. Much of the analysis in this chapter focuses on “computer systems design and related services” as defined in the North American Industry Classification System (NAICS) 5415. This segment has been selected because it corresponds to the Bureau of Economic Analysis category of “computer services” in trade statistics. Computer systems design and related services is defined as “establishments primarily engaged in providing expertise in the field of information technologies through one or more of the following activities: (1) writing, modifying, testing, and supporting software to meet the needs of a particular customer; (2) planning and designing computer systems that integrate computer hardware, software, and communication technologies; (3) on-site management and operation of clients’ computer systems and/or data processing facilities; and (4) other professional and technical computer-related advice and services.” USDOC, Census, “2012 NAICS Definition,” 2012.

<sup>148</sup> Gartner, “Gartner Market Databook, 4Q13 Update,” December 2013.

<sup>149</sup> Mobile devices refer to multimedia-capable devices that provide wireless Internet access, allowing two-way communication and real-time sharing. Gartner, “Gartner IT Glossary,” <http://www.gartner.com/it-glossary> (accessed December 20, 2013).

<sup>150</sup> Cloud computing generally refers to the provision of computer services from remotely located computer servers on a pay-as-you-go basis. The National Institute of Standards and Technology (NIST) defines cloud computing as “a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction.” NIST, “The NIST Definition of Cloud Computing,” September 2011, 2–3.

<sup>151</sup> Social networking refers to Internet sites such as LinkedIn, Facebook, or MySpace that enable users to share information with one another online. Gartner, “Gartner IT Glossary,” <http://www.gartner.com/it-glossary> (accessed December 20, 2013).

<sup>152</sup> The user does not pay for software directly, but advertisers pay the software service vendor.

example, have expanded into a broad range of products and services with the intent of becoming “one-stop” service providers and enhancing their competitiveness.<sup>153</sup>

In 2012, the United States recorded a cross-border trade deficit in computer and data processing services of \$12.5 billion, an increase of 11 percent from the previous year. However, in 2011, sales of computer services by U.S.-owned foreign affiliates reached \$81.2 billion, over seven times the value of U.S. cross-border exports of computer services. In that year, the top markets for sales of foreign affiliates of U.S. firms were, in descending order, the United Kingdom, the Netherlands, Australia, and Canada. By contrast, sales of foreign-owned U.S. affiliates reached only \$27.5 billion in 2011, an increase of 11.1 percent over 2010.

## Introduction

The computer services industry continues to evolve rapidly. The prevalence of mobile devices and recent Internet advances have been major forces of change in computer services.<sup>154</sup> However, unlike personal computing devices, which enjoyed a burst of worldwide sales during the recent economic recovery, sales of computer services have experienced slower growth. In particular, while global sales of personal computers grew by approximately 12.3 percent in 2011, sales of computer services increased by roughly 5 percent.<sup>155</sup>

During the following two years, worldwide computer services activity experienced lackluster growth due to lingering financial uncertainty in several markets. Several factors dampened public and private sector investment in computer equipment and services around the world, including the European sovereign debt crisis, emerging signs of economic weakness in China, and budget disruptions and sequestration in the United States. As a result, industry sales have been hampered by prolonged delays in purchasing by corporations in the United States and certain foreign markets.<sup>156</sup> In 2012, global spending on computer services increased by a modest 2 percent.<sup>157</sup> Given the relatively slow pace of the economic recovery, industry sources anticipate that global growth in computer services output and trade will remain muted in the near future, before rising to more robust levels over the long term in response to strong

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<sup>153</sup> One-stop computer-related service providers offer products and services to meet consumers' needs.

<sup>154</sup> Computer services have enabled the Internet to grow into a multibillion-dollar industry, as well as become a vital infrastructure for much of the world's economy. OECD, “Internet Outlook 2012,” 11.

<sup>155</sup> IBISWorld, “Global Computer Hardware Manufacturing,” March 2013; Gartner, “IT Spending Forecast, 3Q13 Update,” October 2013.

<sup>156</sup> Gartner, “Worldwide IT Spending Forecast, 3Q13 Update,” October 2013.

<sup>157</sup> This number does not include telecommunication services.

demand in emerging markets.<sup>158</sup> The most significant areas for growth in computer services are likely to be cloud computing, data analytics, and mobility.<sup>159</sup>

## Market Conditions in Global Computer Services

In 2012, global spending on computer services was an estimated \$887 billion (table 4.1).<sup>160</sup> The European Union recorded the highest spending on computer services (\$410 billion), followed by North America (\$382 billion), the Asia-Pacific region (\$84 billion), Latin America (\$24 billion), and the Middle East (\$7 billion).<sup>161</sup> Overall, despite the recent global economic difficulties, the computer services industry grew in the five years leading up to 2013, with worldwide expenditures on computer services increasing by 22 percent between 2008 and 2012.<sup>162</sup>

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<sup>158</sup> Gartner, "Worldwide IT Spending Forecast, 3Q13 Update," October 2013.

<sup>159</sup> IDC, "Nice to Have or Must Have? Analytics and the Four Pillars in 2013," November 2013. Data analytics refer to the simultaneous application of statistics, data mining, and operations research to quantify performance. Mobility refers to the ability to use computing capability without a predefined location and/or connection to a network to publish and/or subscribe to information. The term "network" refers to a collection of computers, communications facilities, and software that permits connected computers to access shared resources, such as databases, and peripheral devices, such as printers.

<sup>160</sup> A separate estimate from Gartner Inc. of \$906 billion was released in 2013 and is based on actual data for the whole year. The estimate from the International Data Corporation (IDC), released in November 2012, is slightly lower (\$887 billion), with the difference likely the result of the need for estimated data for the last few months of 2012. The IDC estimate, which includes a breakdown of global computer services spending by category, is presented in table 4.1. Gartner, "Gartner Market Databook, 4Q13 Update," December 2013; IDC, "Worldwide Distributed System Management Software," November 2012, 3.

<sup>161</sup> Compiled by USITC; totals add to \$907 billion due to rounding. Barnes Reports, "Worldwide Computer Systems Designs Services," 2013, 98–99; EIU, "Telecoms and Technology Report," February 1, 2011, 2, 9; Gartner, "Gartner Says Worldwide," March 28, 2013; Gartner, "IT Spending Forecast, 2Q13 Update," July 9, 2013; OECD, "Highlights 2012," (accessed December 16, 2013); Gartner, "IT Spending Forecast, 3Q13 Update," October 8, 2013; Business Monitor International, "United States Information Technology Report, Q3," 2013, 7; IDC, "Market Analysis Perspective: Worldwide Consumer Market Model, 2012," December 2012; IBISWorld, "IT Services in China," April 2013, 4; Computerworld, "Forecast 2014," September 23, 2013; Mergent, "Industry Report: IT and Technology," May 2013, 4; UNCTAD, *Information Economy Report 2012*, 2012, 140–42.

<sup>162</sup> IDC, "Worldwide Distributed System Management Software," November 2012, 3.

**Table 4.1** Global computer services spending, by category, 2011–12 (billion \$)

	2011	2012
Project-based	289.5	300.6
Business consulting	74.9	78.6
IT consulting	30.7	31.3
Systems integration	112.1	114.9
Network consulting & integration	34.3	36.4
Custom application development	37.6	39.4
Outsourcing	411.6	429.3
Business outsourcing	153.2	160.9
Application management	48.4	51.1
Hosted application management	9.5	10.4
IS outsourcing	122.5	124.9
Network & desktop outsourcing	47.0	48.7
Hosting infrastructure services	31.0	33.3
Support and training	154.1	157.5
Hardware deploy and support	62.1	63.2
Software deploy and support	68.6	70.4
IT education and training	23.4	23.9
Total global services spending	855.2	887.3

Source: IDC, "Worldwide Services 2012-2016 Forecast," November 2012.

The 10 largest global firms (based on revenue) that provide computer systems design and related services appear in table 4.2. The list reflects the continuing dominance of U.S. firms in this industry, although this has decreased somewhat in recent years. The United States has five top-10 firms, including Hewlett-Packard and IBM (each of which, in 2012, had operating revenue greater than the next eight largest companies combined).

**Table 4.2** Ten largest computer services firms in the global market, 2012

Company name	Country	Operating revenue (billion \$)
Hewlett-Packard	United States	120.0
International Business Machines	United States	104.5
Computer Services Corp.	United States	15.0
NTT	United States	13.8
Cap Gemini	France	13.6
ATOS	France	11.7
TATA	India	11.6
Leidos Holdings	United States	11.2
Cisco International, Ltd.	United Kingdom	8.0
Wipro	India	8.0

Source: Bureau van Dijk, ORBIS database (accessed November 25, 2013).

France and India each have two top-10 firms, and the United Kingdom has one. The emergence of Indian firms as computer services providers has altered the traditional mix of leaders in the global industry. In 2011, Tata Consultancy Services became one of the world's largest computer services firms and, in 2012, the top five India-based computer services providers grew

13.3 percent, far exceeding the worldwide computer services industry growth rate of 2 percent.<sup>163</sup>

By contrast, China's computer services industry is still in its infancy, although its recent growth is noteworthy. During 2008–12, the revenue of China's computer services industry grew at an annual rate of 6.8 percent due to increasing domestic demand for computer services and government support. Moreover, China is now poised to replace India as the largest market for the outsourcing of certain computer services: the Chinese government is creating 10 international competitive outsourcing hubs and is encouraging multinational companies to outsource to China.<sup>164</sup> Already, several of the largest Chinese computer services companies, including VancelInfo and HiSoft, are listed on U.S. stock exchanges.<sup>165</sup> Computer services currently account for only 20 percent of computer industry revenues in China, compared to a 40 percent share for most developed countries, which suggests significant growth potential.<sup>166</sup>

In recent years, merger and acquisition (M&A) activity in the global computer services industry has grown, as companies seek higher revenue growth and a broader range of product offerings.<sup>167</sup> M&A activity has been dominated by acquisitions that enable companies to both move into different industries and offer new services to their customers (box 4.1). For instance, in 2013, IBM acquired Star Analytics, Inc. which, among other things, performs software integration services. The acquisition is consistent with IBM's strategy to expand its capabilities into software-related activity.<sup>168</sup> Another example is the acquisition of Fundy Computer Services by Atlantic DataSystems, a provider of accounting, human resources, and customer relationship management software. The merger will enable Atlantic DataSystems to offer a broader array of computer services to its customers.<sup>169</sup> There have also been large-scale moves into computer services by non-services companies. Microsoft, for example, has acquired a number of companies that develop Internet-based software, such as its acquisition of Skype in 2011.<sup>170</sup> Overall, M&A activity in the computer services industry is likely to increase, as companies seek, in part, to combine hardware and software provision, and to develop expertise in products for a range of industries.

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<sup>163</sup> The growth rate of India-based providers has been slowing for some years, but in 2012, this trend was more pronounced. The growth rate is still quite high compared with IT services worldwide, or the growth of the top 10 global IT services providers. The top 10 global providers are larger in their base revenue and more diversified than the India-based providers. Gartner, "Gartner Says Top Five Indian Providers," May 28, 2013.

<sup>164</sup> IBISWorld, "IT Services in China," April 2013, 4, 7.

<sup>165</sup> PR Newswire, "VancelInfo Technologies Inc. Shareholders Approve Merger," November 6, 2012.

<sup>166</sup> IBISWorld, "IT Services in China," April 2013, 4.

<sup>167</sup> Although most computer services revenues are concentrated in the large producers, most computer services firms are small. The 131,000 computer services firms in the United States in 2012, for example, had an average of 12 employees, and of those, 72 percent, or 95,000, had only between 1 and 4 employees. USDOC, Census, "2012 Nonemployer Statistics Database" (accessed December 29, 2013).

<sup>168</sup> Ingram, "IBM Acquires Star Analytics," February 4, 2013.

<sup>169</sup> PRWeb, "ADS Accelerates Expansion," June 1, 2011.

<sup>170</sup> Companies are following the path of IBM which, over the past few decades, has broadened its offerings to include computer software and services as well as hardware. Microsoft News Center, "Microsoft Officially Welcomes Skype," October 13, 2011.

#### **Box 4.1** The shifting information technology landscape

The information technology (IT) industry is undergoing profound change. Emerging technologies such as mobile platforms and cloud computing are transforming consumer behavior by facilitating “access to everything, all the time, from any device, from anywhere.” Consumers are using increasingly sophisticated mobile platforms, such as smartphones and tablets, as computers, navigation devices, music players, and cameras. More importantly, these platforms permit consumers to access data storage and retrieval services via cloud computing.<sup>a</sup>

Converging and mutually reinforcing, mobile platforms and cloud computing are also driving the development of new business and pricing models, including social networks, open-source software, and “free but not free” software.<sup>b</sup> As a result, the lines that separate hardware, software, and services are blurring.

During the last five years, technology and service providers alike have looked to adjacent industry opportunities, and to those in services, in particular, to stay competitive. In fact, all of the leading IT firms have expanded into a broad range of products and services with the intent of becoming total solution providers. In 2008, Fujitsu unified its hardware, software, and services companies into Fujitsu North America Holdings.<sup>c</sup> That same year, Hewlett-Packard, one of the world’s top five hardware businesses, acquired EDS, one of the largest IT services providers. In 2011, Google entered the hardware business with its Nexus 7 and Nexus Q tablets.<sup>d</sup> In 2012, Microsoft introduced its Surface tablet and won shareholder approval to acquire Nokia’s devices and services business, as well the license of Nokia’s patents. Microsoft now offers consumers a family of devices and services with a consistent user interface.<sup>e</sup>

In the process of realigning and expanding, firms such as Google and Microsoft are becoming more like Apple, with its well-established and integrated portfolio of hardware, software, and services. Google, for example, positioned the Nexus tablet as a bridge between Google cloud services, software, and the hardware that depends on its Android Operating System. Microsoft—with expanding customer services such as Bing, Skype, Internet Explorer, SkyDrive, Outlook, and Xbox—boasts that the Nokia acquisition will accelerate growth in Windows Phone while strengthening its overall device ecosystem and expanding the services that it offers.<sup>f</sup> Thus, firms that have historically been partners are competing directly with one another for customers. As the implications of emerging technologies, new business models, and rivalries play out, the IT industry will continue to evolve.

Notes: <sup>a</sup> See footnote 4, page 4-1, for a definition of cloud computing.

<sup>b</sup> The user does not pay for software directly, but advertisers pay the software service vendor.

<sup>c</sup> Fujitsu Computer Systems, Fujitsu Transaction Solutions, and Fujitsu Consulting were unified into Fujitsu North America Holdings.

<sup>d</sup> A third party manufactures the Nexus tablets, to which Google affixes its label. In 2011, Google bought Motorola Mobility, which makes Android handsets and set-top boxes for the cable, satellite, and Internet protocol television industries.

<sup>e</sup> Ricknaus, “Nokia Shareholders Approve,” November 19, 2013. Microsoft has also made mice, keyboards, and other peripherals to drive software sales, but this is the first time in its nearly 40-year history that it has manufactured computer hardware.

<sup>f</sup> Ballmer, “Shareholder Letter,” September 27, 2013.

## Demand and Supply Factors

In recent years, the demand for and supply of computer services has partly been driven by the need for sophisticated computer data applications, the increasing use of mobile devices, the increased capability of cloud computing to deliver more complex services, and the growing demand for services which assist in the integration of computer networks.

### **Public and Private Sector Demand for Sophisticated Computer Data Applications—“Data Analytics”—Is Growing**

Evidence that analytics boost firms’ competitiveness and innovation is driving demand for this type of service. The demand for sophisticated analytical applications has, in turn, driven overall demand for computer services. IDC forecasts a five-year annual growth rate of 14.3 percent for spending on analytics tailored to business, reaching an estimated \$70.8 billion in 2016.<sup>171</sup>

Private sector companies are increasingly using computer-based programs to gather detailed information on consumer preferences and purchasing habits. For example, U.S.-based Acxiom offers clients, from banks to auto companies, profiles of 500 million customers—each profile enriched by more than 1,500 data points gleaned from the analysis of up to 50 trillion transactions.<sup>172</sup>

The public sector is also a major market for computer-based analytics because of its potential application to areas ranging from defense and transportation to health and human services. In the United States, the Department of Defense and the Department of Homeland Security are employing analytics in areas such as cybersecurity and C4ISR (command, control, communications, computers, intelligence, surveillance, and reconnaissance).<sup>173</sup> U.S. government-funded data analytics projects also cover a wide spectrum of health issues, including the human genome, infectious diseases, datasets on aging, and cancer imaging.<sup>174</sup>

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<sup>171</sup> IDC, “Worldwide Business Analytics Services 2013–2016 Forecast,” April 2012, 5.

<sup>172</sup> McKinsey Quarterly, “Big Data: What’s Your Plan?” March 2013.

<sup>173</sup> Cathers, “Computers: Commercial Services,” November 2013, 15.

<sup>174</sup> Executive Office of the President, “Big Data across the Federal Government,” March 29, 2012. The U.S. healthcare industry generates enormous volumes of data, including electronic health records, both clinical and laboratory. One study reports that analyzing these datasets and applying the knowledge that can be derived from them could lead to efficiency and quality gains within the system that could result in savings of \$300 billion within 10 years. McKinsey Global Institute, *Big Data: The Next Frontier*, May 2011, 39, 41; Jamoom et al., “Physician Adoption of Electronic Health Record Systems,” July 2012.

## The Trend toward Mobility Drives Demand for Cloud Computing and Other New Services

As the number of mobile devices continues to grow, demand for computer services, such as cloud computing and systems integration, is increasing. *Measuring the Information Society 2012*, a study conducted by the United Nations for the International Telecommunications Union, reports that there are around 6 billion mobile phone subscribers in the world. In developed countries, heightened cost-consciousness during the recession and sluggish recovery accelerated the shift to mobile devices.<sup>175</sup> In countries outside the Organisation for Economic Co-operation and Development (OECD), expanding broadband access has contributed to the rapid rise of mobile device owners. In Kenya, for example, 99 percent of mobile subscriptions are accounted for by pre-paid subscribers.<sup>176</sup> And, as “anytime-anywhere computing” drove buyer behavior, industry sources expected tablet shipments to increase by 67.9 percent in 2013.<sup>177</sup>

Mobility and cloud computing are mutually reinforcing, as cloud services are rapidly proliferating on personal and enterprise-owned mobile devices.<sup>178</sup> Smartphones, tablets, and other portable devices provide access to the cloud as well as connections to consumer electronics, automobiles, and other machines. Cloud computing, in turn, has increased demand for mobile devices and changed the way mobile applications are developed and used. As of April 2012, more than a million applications (apps) had been created for mobile devices, including 600,000 for Apple devices (iPad, iPod, and iPhone), 400,000 for Android operating systems, and about 70,000 for the new Windows phone, with many more in the pipeline.<sup>179</sup>

## Cloud Computing Technologies Enable Efficient Provision of Complex Services

While the recent economic downturn and halting recovery dampened computer-related investment, they have spurred demand for cloud computing services, which may be purchased on a pay-as-you-go basis.<sup>180</sup> For example, the U.S. federal government’s cloud initiative, involving the closure of nearly 1,000 data centers, illustrates the ongoing shift towards cloud computing. At the same time, developments in cloud computing technologies (such as secure data storage, complex data processing, and virtual systems management) have enabled cloud providers to offer an increasingly wide range of computer services to customers. Spending on

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<sup>175</sup> ITU, “Measuring the Information Society 2012,” October 2012, 30. For further discussion of this trend, see chapter 5, “Telecommunication Services.”

<sup>176</sup> Communications Commission of Kenya, “Quarterly Statistics Report,” Oct.-Dec. 2012, 6.

<sup>177</sup> Gartner, “Gartner Says Worldwide,” June 24, 2013.

<sup>178</sup> Approximately 60 percent of public sector employees in Western Europe use the iPhone at work. Sixty-one percent of central government respondents in Western Europe plan to invest in mobile customer relationship management applications in the next 24 months. IDC, “IDC Announces Mobility Trends,” February 18, 2013.

<sup>179</sup> Gartner, “The Nexus of Forces,” April 2013, 13.

<sup>180</sup> Staten, “Cloud Computing for the Enterprise,” February 3, 2009, 11.

cloud computing services, including software-as-a-service (SaaS), infrastructure-as-a-service (IaaS), and platform-as-a-service (PaaS), is growing rapidly.<sup>181</sup>

Cloud computing services can now be delivered in the “public” cloud (i.e., using the provider’s servers on a time-share basis alongside other customers), in the “private” cloud (where the provider dedicates servers to only one customer), or in a “hybrid” cloud (which combines aspects of public and private cloud provision). The global market for public cloud services was \$109 billion in 2012, and industry analysts project increasingly strong demand for these services in the coming years, reaching \$237 billion in 2017.<sup>182</sup> Spending in the United States on public cloud services reached approximately \$47.4 billion in 2013, and is expected to grow at an annual average of 23.5 percent to reach more than \$107 billion in 2017. Current users of public cloud services rank Amazon Web Services first among leading providers, followed by Google and Microsoft.<sup>183</sup> While Amazon Web Services dominates public cloud deployment, competition from players such as Google, AT&T, Rackspace, and others is likely to intensify.<sup>184</sup> By contrast, global spending on private cloud services is much smaller than on public cloud services, but it is expected to grow at an annual rate of more than 50 percent to reach over \$24 billion in 2016.<sup>185</sup>

## **Systems Integration Services Are Increasingly Necessary for Complex Networks and Applications**

The need for virtually all organizations to integrate existing systems with new components and applications, at least some of which are in the cloud, is driving demand for systems integration

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<sup>181</sup> *Software-as-a-service* refers to software that is owned, delivered, and managed remotely by one or more providers. The provider delivers software based on one set of common code and data definitions that is consumed in a “one-to-many model” by all contracted customers at any time on a pay-for-use basis or as a subscription based on usage. *Infrastructure-as-a-service* is a standardized, highly automated offering, where computer resources, complemented by storage and networking capabilities, are owned and hosted by a service provider and offered to customers on demand. Customers can self-provision this infrastructure, using a Web-based interface. *Platform-as-a-service* permits deployment of consumer-made or -acquired applications—created with specific programming languages and tools—to the cloud infrastructure. The consumer neither manages nor controls the underlying network, servers, operating systems, or storage, but has some control over the applications themselves. Gartner, “Gartner IT Glossary,” <http://www.gartner.com/it-glossary> (accessed December 3, 2013).

<sup>182</sup> Anderson, “How Cloud Sourcing Is Changing,” April 18, 2013.

<sup>183</sup> Everest Group Research, “Enterprise Cloud Adoption,” March 2013, 4.

<sup>184</sup> *Ibid.* Many industry observers expect cloud computing to transform information technology delivery and services. Public and private sector entities, especially small and medium-sized enterprises, are expected to benefit from the significantly lower entry barriers and reduced information technology investment costs associated with cloud computing. For example, they will be increasingly able to access cutting-edge cloud infrastructure and services, including software updates. USITC, *Digital Trade, Part 1*, July 2013, xvii.

<sup>185</sup> Public cloud computing is open to the public; free email services such as Gmail and Yahoo mail are examples of public cloud computing. In contrast, private cloud computing is cloud infrastructure operated solely for a single organization on a private network. A company’s cloud-based email system is an example of private cloud computing. Hybrid cloud computing is the use and management of a mixture of public and private cloud services. See USITC, *Digital Trade, Part 1*, July 2013, chapter 2; IDC, “IDC Forecasts Worldwide,” September 3, 2013; IDC, “IDC Forecasts Worldwide,” February 28, 2013.

tools. Indeed, many industry experts consider systems integration to be at the center of change in computer services and, in particular, for services related to data management. Integration platform-as-a-service (iPaaS) connects on-premises and cloud-based processes, services, applications, and data within individual or across multiple organizations. iPaaS is one of the newest and most rapidly growing cloud-based services because it is reportedly easier to use, less expensive, and faster than traditional systems integration tools. Gartner, Inc., forecasts that by 2016, at least 35 percent of all large and midsize organizations worldwide will be using one or more iPaaS offerings in some form.<sup>186</sup>

## Trade Trends

### Cross-border Trade

In 2012, U.S. cross-border exports of computer and data processing services (box 4.2) totaled \$11.3 billion and cross-border imports totaled \$23.8 billion, creating a trade deficit of \$12.5 billion (figure 4.1). The U.S. deficit in cross-border trade in computer and data processing services widened 11.0 percent from 2011 to 2012.<sup>187</sup> The United States ran a deficit in cross-border trade in computer and data processing services each year from 2008 through 2012.<sup>188</sup>

U.S. exports of computer and data processing services increased by only 1.6 percent in 2012, after growing at an average annual rate of 11.4 percent during 2007–11. Growth in U.S. exports of computer and data processing services decreased in response to weaker investment spending in many markets because of global economic uncertainty, the persistent European sovereign debt crisis, and indications of weakening demand in China.<sup>189</sup> In 2012, affiliated exports (exports by U.S. parents to their foreign affiliates) grew faster than unaffiliated exports, with average annual growth rates of 4.0 percent and 0.4 percent, respectively. However, unaffiliated exports continued to account for most exports of computer services (figure 4.2).<sup>190</sup>

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<sup>186</sup> Gartner, “Worldwide Data Integration and Access Software: 2013–2017,” July 2013. Systems integration of all forms will increase demand for discrete testing and security services.

<sup>187</sup> Calculated using the compound annual growth rate (CAGR).

<sup>188</sup> Unless otherwise indicated, the analysis in this section is based on data found in USDOC, BEA, *Survey of Current Business*, October 2013, 42–43. U.S. employment in computer services increased 2.4 percent, to 1.6 million, in 2012. USDOL, BLS, “National Industry Specific Occupational Employment and Wage Estimates,” May 2012.

<sup>189</sup> Gartner, “Worldwide IT Spending Forecast, 3Q13 Update,” October 2013.

<sup>190</sup> See box 4.2 for an explanation why affiliate sales data and cross-border trade data cannot be directly compared.

**Box 4.2** Understanding BEA data on cross-border trade and affiliate transactions in computer services

The Bureau of Economic Analysis (BEA) of the U.S. Department of Commerce (USDOC) prepared the data on cross-border trade cited in this chapter. The BEA defines “computer and data processing services” as data entry, computer systems analysis, design, and engineering; custom software and programming (including Web design); hardware and software integration; and other computer services, such as maintenance, website management, and repair. Fees for database services and software usage are classified separately.<sup>a</sup>

The BEA records cross-border trade data according to the type of service. Thus, a firm may report imports and exports of a variety of computer and non-computer services, and computer services may be produced by firms in multiple industries. For example, if a manufacturing firm designed custom software for a foreign affiliate, the transaction would be counted as an export of computer and data processing services.

In 2006, following the introduction of revised forms BE-120 and BE-125, the BEA began collecting and reporting cross-border trade data for both affiliated and unaffiliated transactions in computer services. Specifically, affiliated transactions represent trade between multinational companies in computer services—that is, trade between U.S. parent companies and their foreign affiliates, and vice versa. By contrast, unaffiliated transactions represent trade in computer services with foreign partners that neither own, nor are owned by, a U.S. company.<sup>b</sup>

The BEA also provides data on affiliate transactions. These data are collected by the BEA through surveys of U.S. direct investment abroad and of foreign investment in the United States. The BEA classifies these data according to the primary industry of the affiliate rather than the type of service. For example, if an affiliate whose primary industry was computer systems design also sold other services, the BEA would record all of the affiliate’s sales under computer systems design. Computer services supplied by affiliates in other industries, such as computer manufacturing, software publishing, or wholesale trade, are captured separately in the BEA data.<sup>c</sup>

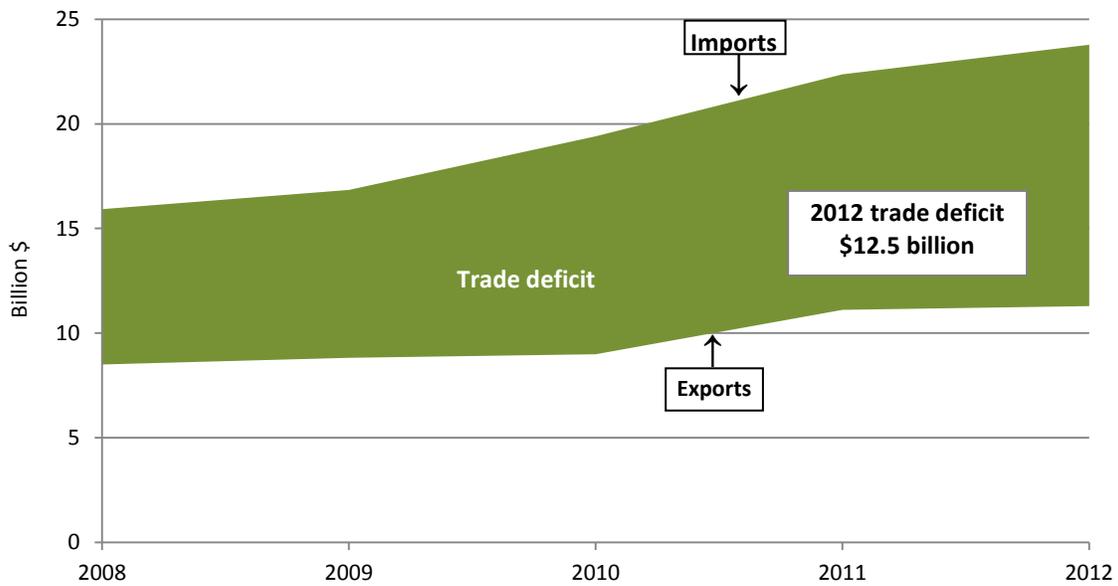
As a result, affiliate sales data and cross-border trade data cannot be directly compared. Thus, this analysis of affiliate transactions focuses on firms whose primary industry is “computer systems design and related services” as defined in the NAICS (see footnote 1, page 4-1).

Notes: <sup>a</sup> USDOC, BEA, “Quarterly Survey of Transactions,” January 2013, 16; USDOC, BEA, “International Services Surveys,” January 2013, 9.

<sup>b</sup> USDOC, BEA, *Survey of Current Business*, October 2009, 29; USDOC, BEA, “Form BE-125 (1-2010),” 14 and 16.

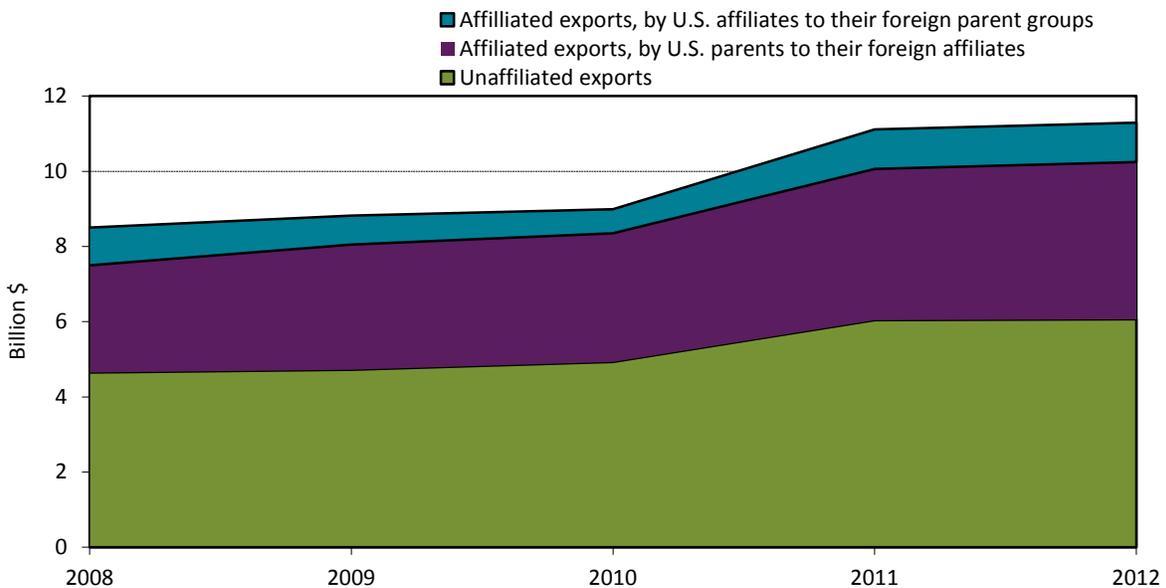
<sup>c</sup> USDOC, BEA, “Where Can I Find Information?” November 3, 2013.

**Figure 4.1** Computer and data processing services: U.S. cross-border trade in computer and data processing services resulted in a U.S. trade deficit each year during 2008–12



Source: USDOC, BEA, *Survey of Current Business*, October 2013, 42–43, table 1.

**Figure 4.2** Computer and data processing services: Cross-border exports from U.S. parents to their foreign affiliates grew faster than both unaffiliated exports and exports from U.S. affiliates to their foreign parents during 2008–12



Source: USDOC, BEA, *U.S. International Services*, "Detailed statistics for cross-border trade," accessed November 5, 2013.

Slightly more than half of U.S. exports of computer and data processing services went to Europe in 2012, although Europe's share has been declining steadily from 58.9 percent in 2008 to 51 percent in 2012 (figure 4.3). The United Kingdom was the largest single U.S. export market in each of these years. The share of U.S. exports to the Asia-Pacific region grew from 18 percent in 2008 to 24 percent in 2012. Japan was the leading market for U.S. exports in the Asia-Pacific region in each of these years, though its share declined from 6 percent in 2009 to 5 percent in 2012.

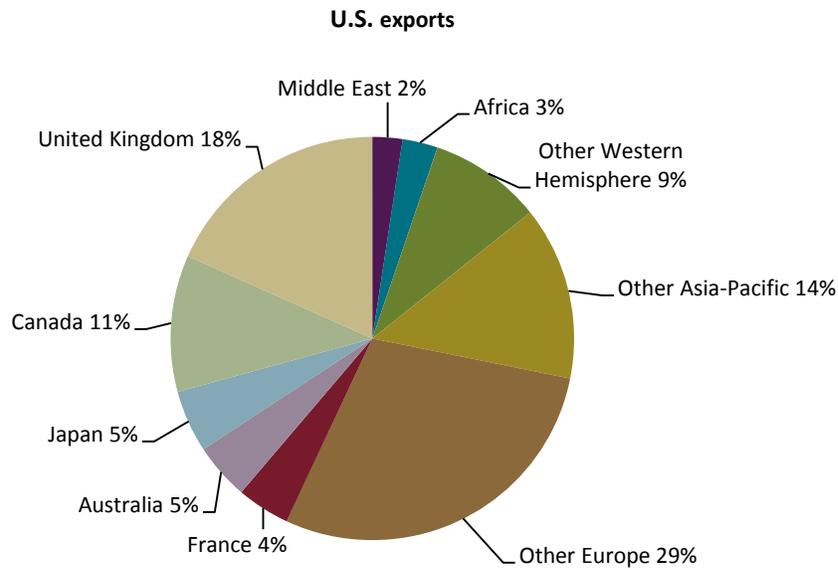
U.S. imports of computer and data processing services increased 6.3 percent in 2012, slower than the 11.8 percent average annual growth rate during 2007–11. The greatest single-country source of imports in 2012 was India, with a 42 percent share, more than twice the share of the second-largest source, Canada, and more than the share of imports from all of Europe (18 percent). The U.S. trade deficit in computer and data processing services with India nearly doubled from 2008 to 2012. U.S. cross-border imports of computer services from Canada far exceeded corresponding U.S. exports to Canada in 2012, resulting in a U.S. trade deficit with Canada of \$3.1 billion in this category (figure 4.4). The share of U.S. imports of computer services from the Asia-Pacific region increased from 8 percent in 2007 to 15 percent in 2012.<sup>191</sup> It is noteworthy that over three-quarters of all U.S. imports during this period resulted from intrafirm trade.<sup>192</sup>

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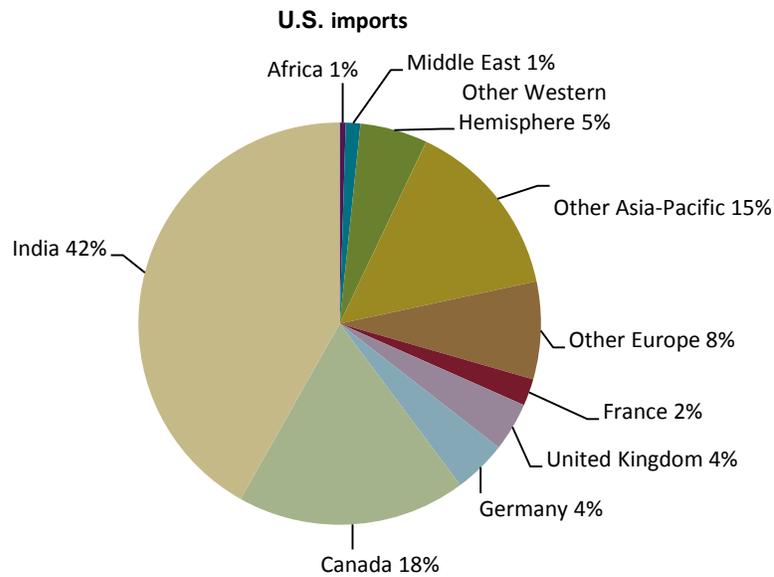
<sup>191</sup> USDOC, BEA, *Survey of Current Business*, October 2013, 61–62, table 7.2.

<sup>192</sup> *Ibid.*

**Figure 4.3** Computer and data processing services: The United Kingdom was the leading destination for U.S. exports of computer services in 2012, while India was the leading source of U.S. imports



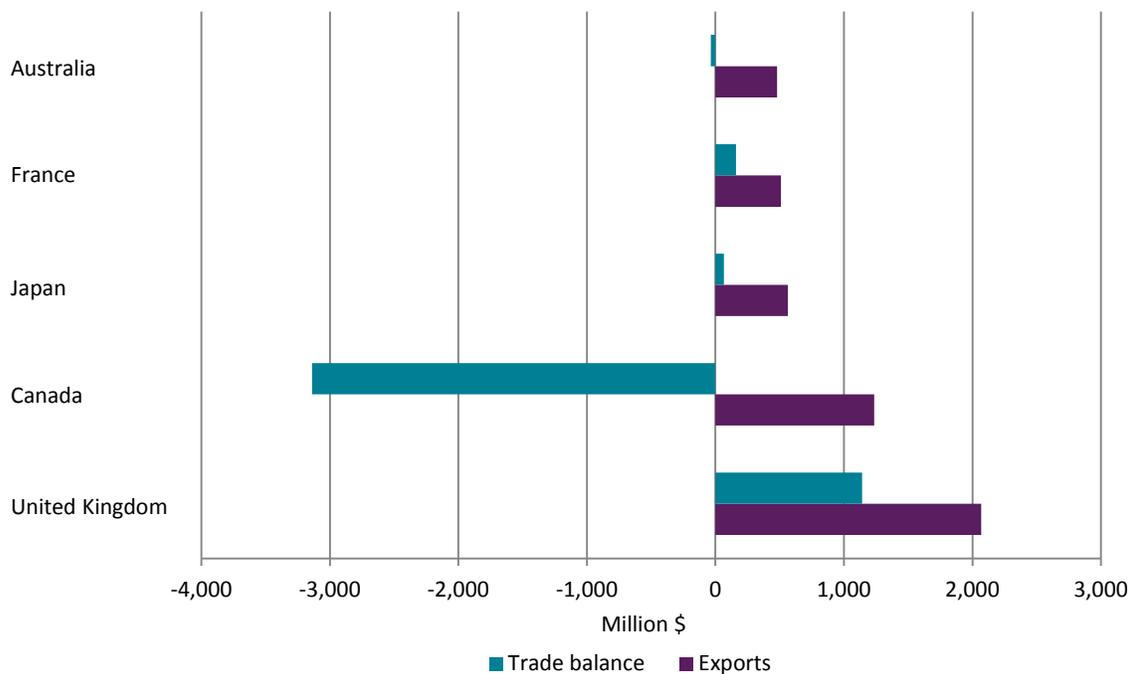
**Total = \$11.3 billion**



**Total = \$23.8 billion**

Source: USDOC, BEA, *Survey of Current Business*, tables 7.2, October 2013, 60–61.  
 Note: Figures may not total to 100 percent due to rounding.

**Figure 4.4** Computer and data processing services: U.S. cross-border trade with Canada yielded a significant deficit in 2012



Source: USDOC, BEA, *Survey of Current Business*, tables 7.2, October 2013, 60–61.

Following India’s example, many developing economies, such as Costa Rica, the Philippines, and Sri Lanka, have emerged as computer services exporters. Their exports, due largely to outsourcing, are growing rapidly. In most cases, export values are relatively low, but the average annual growth of computer services exports of these economies is well above that of large exporters such as Europe and India. The World Trade Organization (WTO) reports that between 2005 and 2011, the Philippines’ exports of computer services rose by an average annual rate of 69 percent, while Sri Lanka saw a 28 percent average annual increase.<sup>193</sup> In the six years leading to 2011, exports of computer services from Argentina and Costa Rica expanded at an average annual rate of 37 percent and 35 percent, respectively. During the same period, Ukraine’s exports of computer services recorded average annual growth of 59 percent, while in the Russian Federation, they rose 27 percent per year, on average.<sup>194</sup>

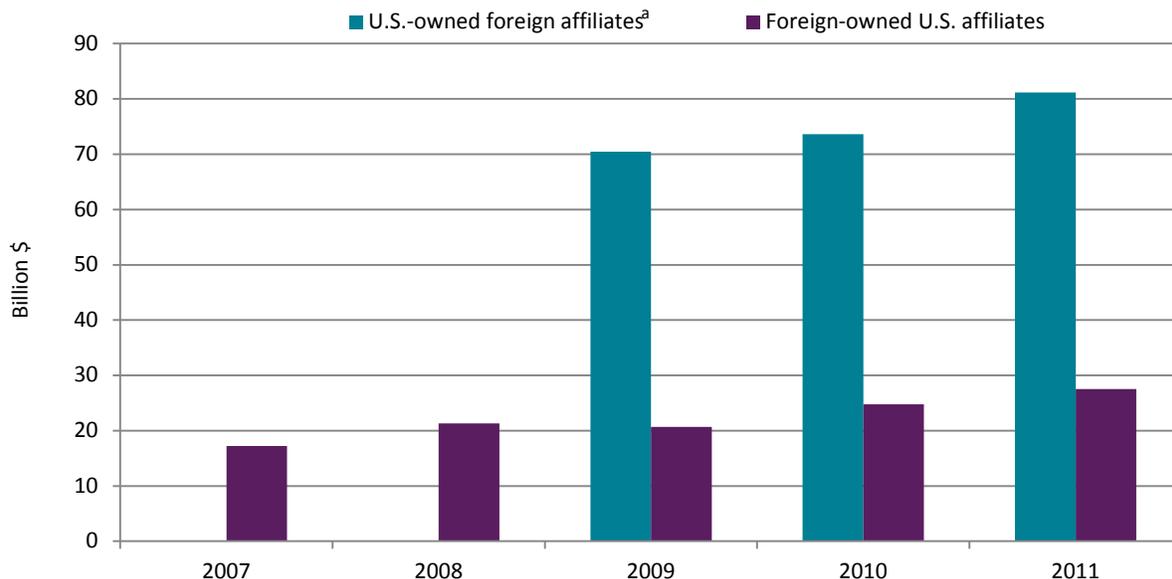
<sup>193</sup> WTO, *International Trade Statistics 2012*, 169.

<sup>194</sup> *Ibid.* World Trade Organization average annual percentage changes are calculated as compound rates of increase between the start and end points, analogous to compound interest rates. In calculating the average annual rate of change between 2005 and 2012, for example, data for calendar year 2005 were taken as the starting point, and data for calendar year 2012 as the end point.

## Affiliate Transactions<sup>195</sup>

The value of U.S. firms' sales of computer services through foreign affiliates<sup>196</sup> tends to be far higher than the value of cross-border exports, reflecting the importance of having a local presence when delivering these services.<sup>197</sup> In 2011, sales by U.S.-owned foreign affiliates whose primary industry was computer systems design and related services totaled \$81.2 billion—over seven times the value of U.S. cross-border exports of computer and data processing services (figure 4.5).<sup>198</sup> The top countries for U.S. affiliate sales roughly match the leading markets for U.S. cross-border exports of computer and data processing services, including the United Kingdom, the Netherlands, Australia, and Canada.<sup>199</sup>

**Figure 4.5** Computer systems design and related services: Services supplied by affiliates of U.S.-owned computer and data processing services firms abroad exceeded services supplied by foreign-owned affiliates in the United States in 2011



Source: USDOC, BEA, *U.S. International Services*, “Detailed statistics for cross-border trade,” accessed on November 5, 2013.  
 Note: <sup>a</sup>U.S.-owned foreign affiliate data were suppressed in 2007 and 2008 to avoid disclosure of individual company data.

<sup>195</sup> Unless otherwise indicated, the analysis in this section is based on data found in USDOC, BEA, *Survey of Current Business*, October 2013, tables 9 and 10.

<sup>196</sup> BEA reports “services supplied” by foreign affiliates. In the affiliate statistics for the computer systems design and related services industry, services supplied correspond to sales. Thus, sales and services supplied are used interchangeably in this section.

<sup>197</sup> USDOC, BEA, “Where Can I Find Information?” October 2013.

<sup>198</sup> 2011 is the latest year for which total data are available. BEA suppressed total data for 2007 and 2008 to avoid disclosing individual company data. Countries are listed in decreasing order of sales.

<sup>199</sup> BEA provides only limited data by country for affiliate sales.

Sales by foreign-owned U.S. affiliates in computer systems design and related services totaled \$27.5 billion in 2011, representing an increase of 11.1 percent, slightly slower than average annual growth of 12.9 percent during 2007–10.

## Outlook

Despite uncertain business and consumer sentiment, industry sources expect global demand for computer services to grow in the coming years. Industry sources suggest that complexities in the business environment which led to a pause in the growth of some computer services are increasing demand for others, such as consulting and cloud computing services. These sources also forecast that the global market for computer services will grow by 4.4 percent annually during the period 2012–17, with spending to exceed \$1.1 trillion yearly by the end of the period.<sup>200</sup> The Asia-Pacific region is expected to register the highest computer services growth rate among all regions over the same period, and to become the leading supplier of computer services.

As discussed, adoption of cloud computing, mobile platforms, and computer-based data analytics is likely to strengthen demand for computer services in the next few years. Business Monitor International, an industry research firm, forecasts a five-year annual growth rate of 5.6 percent for the U.S. information technology services market, with consulting and systems integration services experiencing average annual growth rates of 6.5 percent and 4.2 percent, respectively, between 2012 and 2017.<sup>201</sup>

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<sup>200</sup> Gartner, “Worldwide IT Spending Forecast, 3Q13 Update,” October 8, 2013, 1.

<sup>201</sup> Business Monitor International, “U.S. Technology Report,” July 2013, 17.

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# Chapter 5

## Telecommunication Services

### Summary

Over the last few years, the global telecommunication services market has expanded at a moderate pace, with the United States continuing to represent the largest share of global revenues. The largest providers of telecommunication services tend to be the former monopoly telecommunication operators in Asia, Europe, and North America. Important global industry trends include large-scale network construction, growing numbers of mergers and acquisitions (M&A), and a rapidly evolving international voice market. The United States maintained its trade surplus in telecommunication services, as U.S. exports exhibited strong, albeit declining, growth rates. Affiliate transactions remained the predominant mode of trade in telecommunication services, with the value of services supplied by U.S.-owned foreign affiliates estimated to be more than twice that of U.S. cross-border exports in 2011.

Over the next three years, the global telecommunication services market is expected to grow at steady, if unspectacular, rates, driven by continued economic growth and demand for high-bandwidth services, particularly in developed countries. In developing countries, growth will likely be driven by the latent demand for basic voice and text messaging services. In an effort to offset slowing revenue growth, carriers are expected to maintain ongoing cost-reduction efforts while emphasizing data services and capital spending on network upgrades. M&A activity is also expected to be a prominent feature of the telecommunications industry over the next few years as carriers acquire competitors and move into growing mobile markets, particularly in Africa.

### Introduction

Telecommunication services encompass basic and value-added services. Basic services involve end-to-end transmission of voice or data information from senders to receivers. The most widely used basic services are landline and mobile telephone calls and Internet access services; others include facsimile (fax) services and enterprise data services.<sup>202</sup> Value-added telecommunication services, by contrast, typically complement or supplement basic services, with examples including voice mail, email, online data processing, and online data storage and retrieval.<sup>203</sup> The emergence of high-technology mobile telephone handsets—commonly known as “smartphones”—also allows users to access a large and growing array of value-added services. In addition to the now largely standard text messaging, email, and Internet services,

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<sup>202</sup> Enterprise data services cover the establishment, operation, and, in some cases, management of corporate networks.

<sup>203</sup> WTO, “Coverage of Basic Telecommunications and Value-added Services,” n.d. (accessed December 14, 2011).

smartphone users can also access value-added services via more than a million commercially available smartphone applications (“apps”).<sup>204</sup> In 2013, the most commonly downloaded mobile apps were used for social networking, watching videos, mapping, and searching the Internet (table 5.1).<sup>205</sup>

**Table 5.1** Most downloaded mobile apps in the United States, 2013

Application	Percentage of smartphone users (Android and iOS)
Facebook	76.1
YouTube	53.7
Google Play	53.6
Google Search	53.5
Google Maps	46.2
Gmail	45.0
Apple App Suite	43.9
Pandora Radio	40.4
Yahoo! Stocks	31.2
Apple Maps	27.9
Instagram	26.4
Yahoo! Weather Widget	25.1
Voice Search	22.4
Facebook Messenger	21.3
Twitter	21.3

Source: Brandt, “Facebook Leads U.S. App Ranking,” September 12, 2013.

## Market Conditions in Global Telecommunication Services

Telecommunication services fall into three broad segments: landline service, wireless service, and Internet service. Until recently, landline service (i.e., the traditional voice telephone call) was the primary telecommunication service, as it had been for more than a century; in 2012, it still accounted for roughly 32 percent of global telecommunication services revenue.<sup>206</sup> In contrast, wireless voice service, which emerged as a broad-based, commercially viable product in the mid-1990s, has experienced rapid worldwide adoption, growing to represent 58 percent of global revenue by the end of 2012.<sup>207</sup> In less than 20 years, wireless service has grown from a niche service offered only in select developed countries to one that is widely available, even in the world’s poorest countries.

The third segment—Internet access service, which allows users to connect to the Internet from their home, office, or public locations—also experienced mainstream adoption starting in the mid-1990s, but still represented only about 10 percent of global revenue in 2012.<sup>208</sup> Although Internet access service has grown rapidly in developed countries, low levels of personal

<sup>204</sup> A mobile application, or app, is a type of computer software that is downloaded onto smartphones and used to perform app-specific tasks.

<sup>205</sup> See chapter 4, “Computer Services,” for further discussion of the market for mobile applications.

<sup>206</sup> TIA, *TIA’s 2013 ICT Market Review and Forecast*, 2013.

<sup>207</sup> *Ibid.*

<sup>208</sup> *Ibid.*

computer ownership and low landline penetration have hampered the adoption of this service in many developing countries.

The global telecommunication services market, measured by revenues derived from landline, wireless, and broadband Internet services, was worth about \$2.6 trillion in 2012. Overall, the global market grew by 7.1 percent in 2012, roughly in line with the compound annual growth rate (CAGR) of 7.8 percent during 2007–11.<sup>209</sup> The slight decline in global revenue growth in 2012 is likely evidence of maturing demand for wireless services, the main driver of the global telecommunication services market over the past several years.<sup>210</sup>

In 2012, the United States was the largest telecommunication services market, accounting for 18 percent of total global revenues. Other large telecommunication services markets included China (11 percent), Japan (5 percent), India (5 percent), and Germany (4 percent). During 2008–2012, the market shares of Germany, Japan, the United Kingdom, and the United States declined, whereas China’s share of the global market grew and India’s share nearly doubled, causing the United Kingdom’s rank to drop to sixth by 2012. Growth in the mobile services sector is largely responsible for the reordering of country-level market shares over the past five years. China and India, for example, both increased their market shares due to strong growth in the number of mobile subscribers signed up by national carriers. By contrast, mobile subscriber growth in Germany, Japan, the United Kingdom, and the United States was hampered by already-saturated mobile phone markets there.

The largest global telecommunication service firms, measured by revenue, are primarily the former holders of government monopolies in the United States,<sup>211</sup> Europe, and Asia. Prominent examples include AT&T (United States), NTT (Japan), Verizon (United States), China Mobile (China), Telefónica (Spain), Deutsche Telekom (Germany), and Orange (formerly France Telecom) (table 5.2).<sup>212</sup> Due to the fragmented nature of the global market, most telecommunication service companies, including the largest companies, tend to earn most of their revenues in their home markets. Even those companies that operate outside their home markets tend to focus on only one or two countries or, in some cases, a few regions. Companies that operate in several countries and/or regions include Orange, Vodafone, Etisalat (United Arab Emirates), MTN (South Africa), and Telefónica.<sup>213</sup>

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<sup>209</sup> Calculated by USITC using data reported by the Telecommunications Industry Association (TIA). TIA, *TIA’s 2013 ICT Market Review and Forecast*, 2013. The annual growth rate is calculated as the geometric mean growth rate (i.e., the compound annual growth rate).

<sup>210</sup> Although recently carriers have been emphasizing wireless subscriptions for portable devices (like tablets), the demand for such subscriptions is, in many countries, not enough to maintain or increase wireless growth rates. As market penetration advances, growth also tends to become reliant on lower-income and youth subscribers. These subscribers generate lower average revenues per user, which also helps to slow growth.

<sup>211</sup> AT&T, the U.S. telecommunication services monopoly, was broken up into eight companies on January 1, 1984. Seven of the eight companies had exclusive rights to provide telephone services within seven designated service areas, with the remaining company (AT&T) providing telephone service between the regions, as well as international telephone services. See, for example, *United States v. American Tel. and Tel. Co.*, 552 F. Supp. 131 (D.D.C. 1982).

<sup>212</sup> Total Telecom, “The New World,” *totaltelecom+*, October 2013, 8–17.

<sup>213</sup> Company websites.

**Table 5.2** Telecommunication services: Top 10 global telecommunication services firms, by revenue, 2012–13<sup>214</sup>

Rank	Company	Headquarters country	Revenues (million \$)	Net income <sup>215</sup> (million \$)	Net profit margin <sup>216</sup> (percent)	Employees
1	AT&T	United States	127,434	7,539	5.9	242,000
2	Verizon	United States	115,846	10,557	9.1	183,400
3	NTT	Japan	113,644	7,538	6.6	227,168
4	China Mobile	China	89,954	14,439	23.1	182,487
5	Telefónica	Spain	82,310	5,812	7.1	272,598
6	Deutsche Telekom	Germany	77,422	(6,279)	(8.1)	232,000
7	Vodafone	United Kingdom	67,556	1,023	1.5	91,272
8	America Movil	Mexico	59,621	7,088	11.9	158,719
9	Orange	France	57,440	1,457	2.5	170,531
10	China Telecom	China	45,437	2,414	5.3	305,676

Source: Total Telecom, “The New World,” totaltelecom+, October 2013, 8–17.

Notes: The end of the financial year was March 31, 2013, for NTT and Vodafone. For all other companies, the end of the financial year was December 31, 2012. Revenues were translated from foreign currencies to U.S. dollars at the exchange rate reported by the U.S. Federal Reserve on the last day of each company’s financial year.

In most countries, the price of telecommunication services is the primary basis of competition, particularly for retail consumers, largely due to the undifferentiated nature of such services—most country markets are characterized by telecommunication services that are, from the consumer’s standpoint, essentially identical. Due to this commoditization, carriers in many countries are forced to engage in fierce price competition in order to attract and retain customers.<sup>217</sup>

To acquire and “lock in” customers, telecommunication carriers in many countries offer subsidized mobile phones, subject to the customer signing a one- or two-year contract, with the phone subsidy being recovered over the duration of the contract. Many carriers also develop complex service and pricing packages that make it harder to compare telecommunication service plans, thereby dissuading customers from switching to competing carriers.<sup>218</sup>

Service quality is another important competitive factor in the telecommunication services industry, particularly for business customers. In the wireless segment, service coverage, defined as the percentage of the population covered by a carrier’s network, can be a critical competitive factor, particularly in urban areas. Wireless carriers are also expected to provide

<sup>214</sup> AT&T, NTT, and Verizon prepared their financial statements according to U.S. Generally Accepted Accounting Procedures (GAAP); all other companies prepared their financial statements according to International Financial Reporting Standards (IFRS).

<sup>215</sup> Net income includes noncash expenses like depreciation and amortization.

<sup>216</sup> Net profit margin, calculated as net income/revenues, reports the profits available to shareholders, in the countries (or, in a few cases, the regions) where the companies operate. Companies that operate in several countries and/or regions include Orange, Vodafone, Etisalat (United Arab Emirates), MTN (South Africa), and Telefónica.

<sup>217</sup> IBISWorld, *Global Wireless Telecommunication Carriers*, September 2013, 20; IBISWorld, *Global Internet Service Providers*, June 2013, 20.

<sup>218</sup> Covert, “Choosing the Cheapest Cell Phone Plan,” February 4, 2014; IBISWorld, *Global Wireless Telecommunication Carriers*, September 2013, 20.

robust network capacity, a particularly important issue with the ever-wider deployment of high-bandwidth services: insufficient bandwidth can lead to dropped mobile telephone calls, slow download speeds, and other network quality issues. In many countries, the best network capacity and coverage is found in urban areas. By contrast, rural areas are often characterized by patchy network services, mainly due to the high costs (and low return on investment) associated with building networks in sparsely populated areas.<sup>219</sup> In the Internet segment, service level is typically defined in terms of download speeds and monthly limits on downloaded data. Internet accessibility and support services are also important. Since Internet access speeds in many country markets are relatively similar, users often decide among Internet service providers (ISPs) based upon service quality.<sup>220</sup>

Product innovation is also important in maintaining a competitive advantage in the telecommunication services industry. In the wireless segment, companies are required to quickly incorporate the latest technologies and value-added features into products and services. Currently, carriers around the world, particularly in developed countries, are actively upgrading their wireless networks from third generation (3G) network technologies to fourth generation (4G) technologies. Such network upgrades—which will significantly increase data transfer speeds—will allow carriers to offer a growing number of bandwidth-intensive services.<sup>221</sup> In the Internet segment, service providers have innovated by expanding service offerings, particularly Internet-based telephony and television services, and bundling Internet services with other telecommunication services. Many service providers have also adopted innovative branding and marketing strategies to stand out from the competition.<sup>222</sup> An evolving—and long-running—debate on the topic of “net neutrality” will likely shape pricing, product development, and industry competition pertaining to the Internet over the next several years (box 5.1).

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<sup>219</sup> IBISWorld, *Global Wireless Telecommunication Carriers*, September 2013, 20.

<sup>220</sup> IBISWorld, *Global Internet Service Providers*, June 2013, 20.

<sup>221</sup> IBISWorld, *Global Wireless Telecommunication Carriers*, September 2013, 20.

<sup>222</sup> IBISWorld, *Global Internet Service Providers*, June 2013, 20.

### **Box 5.1** Net neutrality debate continues in Europe and the United States

Although commonly agreed-on definitions are hard to come by, net neutrality refers, in broad terms, to the principle that Internet service providers (ISPs)—many of which are also telecommunication service providers<sup>a</sup>—should treat all Internet traffic traveling over their networks equally, and should not discriminate, positively or negatively, against traffic originating from any source. In a typical debate, telecommunications companies argue that some content providers send large volumes of Internet traffic across their networks, and that they are not being compensated for the use of their infrastructure. As a solution, telecommunications companies have proposed a tiered system in which content companies are charged different prices for different levels of quality or speed. Many content companies, not surprisingly, reject such a system, while consumer interest groups tend to object on grounds of fairness, typically voicing concerns that large, well-financed content providers would be able to pay for fast, high-quality services, whereas startups and less well-financed content companies would be subject to second-class Internet services.

Net neutrality has been the subject of debate in the United States for at least a decade. In an attempt to address the issue, the U.S. Federal Communications Commission (FCC) adopted “Open Internet” rules in December 2010, which largely support the concept of net neutrality, although fierce debate about the new rules is ongoing. The FCC’s Open Internet Order set three broad rules: fixed and mobile broadband providers are not allowed to block lawful traffic; broadband providers must disclose information about their network management policies, commercial terms, and network performance; and fixed-broadband providers are not allowed to unreasonably discriminate in transmitting lawful network traffic over a consumer’s broadband Internet access services.<sup>b</sup> In January 2014, the U.S. Appeals Court for the District of Columbia struck down two of the three Open Internet rules, stating that the FCC did not have the authority to impose common-carrier obligations on broadband services providers.<sup>c</sup> Supporters of the Open Internet rules are concerned that Internet services providers (like Verizon or Comcast) are now able to charge content providers (like Netflix or Google’s YouTube) for faster Internet access—or even slow down or block content originating from particular sites. By contrast, opponents argue that net neutrality regulations are not necessary to ensure unrestricted access to the Internet and that they reduce the incentive for Internet providers to invest in telecommunications networks.<sup>d</sup>

In Europe, the European Commission appears to be open to allowing ISPs to charge content providers for carrying traffic “with a defined quality level or dedicated capacity so long as the provision of such specialized services does not substantially impair the quality of internet services,” although the outright blocking or throttling of services is expected to be prohibited.<sup>e</sup>

As a counterbalance, individual countries within the European Union have shown a willingness to crack down on telecommunication companies that block content. In 2011, for example, the Dutch parliament—in response to Vodafone Netherlands’ blocking of Skype on its mobile networks—passed a law requiring ISPs and telecommunication companies to ensure that all types of content, services, and applications can be accessed on their networks. Similarly, in 2013, the French government halted efforts by the French carrier “Free” to install software on modems and routers that blocked Google advertisements.<sup>f</sup>

Notes: <sup>a</sup> Most large telecommunications carriers—like AT&T, Verizon, and BT—operate global Internet networks.

<sup>b</sup> FCC, “Open Internet,” January 28, 2013, 1–2. The rules that relate to no blocking and no unreasonable discrimination are subject to limited exceptions for “reasonable network management.”

<sup>c</sup> Knutson, “Everything You Every Wanted to Know about the Net Neutrality Ruling,” January 14, 2014; Selyukh and Ingram, “U.S. Appeals Court Strikes,” January 14, 2014; Wood, “FCC Licks Its Wounds,” *Total Telecom*, January 14, 2014. During the last decade, the FCC categorized broadband Internet service as an “information service.” Because of this categorization, broadband service providers are not subject to rules requiring traditional phone companies (referred to as common carriers) to connect with rival companies and carry all lawful traffic, among other obligations.

<sup>d</sup> Selyukh and Ingram, “U.S. Appeals Court Strikes,” January 14, 2014.

<sup>e</sup> Meyer, “Net Neutrality Proposals Cause Friction,” September 10, 2013.

<sup>f</sup> Crawshaw, “Telecommunications: Europe,” August 2013, 13.

## Demand and Supply Factors

In general, the telecommunication services industry is affected by a range of macroeconomic and demographic factors, including economic growth, the level of unemployment, and population growth. In recent years, the demand for and supply of telecommunications services has also been driven by a shift away from traditional international long-distance telecommunications service, a rise in merger and acquisition activity among telecommunication services firms, and an increase in fourth generation (4G) network construction.

## The Traditional International Long-Distance Market Is in Decline

For decades, international voice traffic, measured in minutes, grew at an annual rate of approximately 13 percent, rarely straying from a predictable annual range of 12–16 percent.<sup>223</sup> In the late 1990s, the liberalization of telecommunication services markets in a large number of countries led to a surge of international voice minutes between countries. During this period, rapidly falling per-minute price declines, the mass commercialization of mobile telephone services, and the introduction of low-cost calling card and prepaid services resulted in elevated annual growth rates, peaking at 25 percent in 2000.

Following the 2000 peak, however, average annual international voice traffic growth rates fell back into the familiar 12–16 percent range through 2007. In 2008, the growth of international minutes slowed to 9 percent, and has been characterized by growth rates in the mid- to high single digits ever since. In 2011, total international voice traffic again grew by 9 percent, to 467 billion minutes. Traditional circuit-switched minutes—which accounted for 68 percent of the total—grew by 3 percent, whereas voice over Internet protocol (VoIP) minutes (32 percent of the total) grew by 25 percent. In 2012, total international voice traffic is estimated to have grown by only 5 percent, to 490 billion minutes.<sup>224</sup> Declining international voice traffic growth rates can be attributed to a variety of factors, including weak economic conditions, the effect of the weak U.S. housing market on migrant workers, and the proliferation of software-based communications applications. The recession that began in 2008, which affected a large number of countries worldwide, resulted in the placement of fewer international telephone calls by both residential and commercial users due to both decreased business activity and weakness in consumer spending.<sup>225</sup>

Another factor was the collapse of the U.S. housing market. As this market boomed during the early to mid-2000s, large numbers of migrant workers from Central America immigrated to the

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<sup>223</sup> TeleGeography, *TeleGeography Report*, 2013, 1.

<sup>224</sup> *Ibid.*

<sup>225</sup> *Ibid.*, 2.

United States to work in the construction industry, leading to a surge of both international telephone calls and wired remittances from the United States to various Central American countries. The downturn in the U.S. housing market, however, and its subsequent impact on the wages of migrant workers resulted in a sharp decline in international call volume and remittances to these countries. Since 2010, call volumes and remittances to Central America have started to grow again, but remain substantially below peak levels.<sup>226</sup>

A third factor is the growing adoption of software-based communications applications. Although demand for international communications services remains as strong as ever, hundreds of millions of people worldwide are bypassing voice services— traditional circuit-switched telephone calls and VoIP calls alike—offered by telecommunication services companies, and instead using voice and messaging services offered by companies such as Skype, Google, Facebook, WeChat, Viber, Nimbuzz, Line, and KakaoTalk. Nontraditional traffic from these and other companies has grown at a rapid rate over the past few years. In 2012, for example, international Skype-to-Skype voice and video traffic grew by 44 percent to 167 billion minutes. The increase in Skype’s voice traffic (51 billion minutes) in 2012 was more than twice the increase in voice minutes (both circuit-switched and VoIP) achieved by all international carriers combined. It is worth noting that adding Skype’s international traffic to the volume of traditional international voice calls would result in a 2012 growth rate of 13 percent, in line with historical averages.<sup>227</sup>

## **Telecom Mergers/Acquisitions Surged to Their Highest Level since the 2000 Internet/Telecom Boom**

During the 2007–08 financial crisis and subsequent economic downturn, M&A activity in the telecommunication services sector came to a virtual standstill. However, beginning in 2010, improving economic and stock market conditions fostered a slow resurgence of M&A deals in the telecommunication sector, including both consolidation activity within countries and cross-border deals. Notable deals during this period include the purchase by Bharti Airtel (India) of the African operations of the Zain Group (Kuwait) for \$11 billion in 2010; the \$10.6 billion purchase by CenturyLink (U.S.) of Qwest (U.S.) in the United States in 2011; and the \$5.5 billion buyout by Vodafone Group (U.K.) of its joint venture partner (Essar) in the Indian mobile telecommunications firm Vodafone Essar Limited, also in 2011.<sup>228</sup>

The year 2013, however, witnessed the highest annual transaction volume—measured in U.S. dollars—since the year 2000, the peak of the dotcom/telecom boom. Between January and November 2013, global M&A in the telecommunications sector soared to \$343.4 billion, compared to \$164 billion during the same period in 2012.<sup>229</sup> By far the largest transaction

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<sup>226</sup> TeleGeography, *TeleGeography Report*, 2013, 2–3.

<sup>227</sup> TeleGeography, “The Bell Tolls for Telcos?” February 13, 2013.

<sup>228</sup> TeleGeography, “World Telecoms M&A Timeline,” GlobalComms database, 2012.

<sup>229</sup> Global Telecom, “M&A Volume Hits Highest Level since 2000,” November 15, 2013.

during 2013 was Verizon Group's \$130 billion buyout of its partner, Vodafone, in their joint venture Verizon Wireless.<sup>230</sup> Another important deal in 2013 was Japan-based Softbank's \$21.6 billion purchase of a 78 percent stake in the third-largest U.S. mobile operator, Sprint Nextel.<sup>231</sup>

Though the total value of deals rose in 2013, their volume may have dropped. Overall, there were 883 deals during January–November 2013, down from 960 deals during the same period in 2012. The largest number of deals took place in North America (55 percent), followed by Europe (33 percent) and North Asia (4 percent). In 2013, the telecommunications sector represented the largest share of the global M&A market, accounting for 14 percent of total M&A volume.<sup>232</sup>

## **Fourth Generation (4G) Network Construction Is Accelerating Worldwide**

Over the past decade, telecommunications carriers in developed countries have continuously upgraded their wireless networks from the relatively low-bandwidth second generation (2G) technologies, capable of handling little more than telephone calls and text messaging, to third generation (3G) network technologies. 3G technologies—and upgrades referred to as 3.5G—offer greater data transmission capacity (i.e., bandwidth), allowing the faster delivery of data-centric services. These services range from multimedia emails and text messages to Internet access and video downloads. In developing countries, by contrast, 3G networks were built to support the rapid addition of millions of first-time subscribers, the vast majority of which focused on low-bandwidth voice and text messaging services.

Shortly after the commercialization of 3G and 3.5G services, carriers began to shift their focus to the next generation of wireless technologies, dubbed 4G (fourth generation). The two main 4G technologies—Long Term Evolution (LTE) and Worldwide Interoperability for Microwave Access (WiMAX)—offer even greater data-transmission capacity than 3G and 3.5G technologies, promising to both alleviate network congestion and enable delivery of advanced multimedia services like streaming video to customers' smartphones. Of the two technologies, LTE is by far the most popular worldwide, largely because of its backward compatibility with 3G and 3.5G technologies.<sup>233</sup>

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<sup>230</sup> Taylor, "Vodafone Shareholders Set for \$84bn Payout," September 2, 2013.

<sup>231</sup> Taylor, "Sprint Shareholders Accept SoftBank Bid," June 25, 2013.

<sup>232</sup> Global Telecom, "M&A Volume Hits Highest Level since 2000," November 15, 2013.

<sup>233</sup> Chong, *Telecommunications Asia*, June 2013, 9.

The first 4G network was launched in Sweden in 2009.<sup>234</sup> Since that time, 4G network development has grown at a slow but steady pace around the world, with Canada, Japan, the Republic of Korea, and the United States leading network construction activities. In the United States, for example, more than 90 percent of the population has access to an LTE network, with LTE subscribers accounting for half of total LTE subscribers worldwide.<sup>235</sup> By 2013, however, 4G network construction began to accelerate, with more than 200 carriers in 75 countries in the process of constructing LTE networks.<sup>236</sup> By the end of 2017, more than 500 LTE networks are forecast to be in service in more than 120 countries.<sup>237</sup>

Telecommunication carriers are building 4G networks largely in response to maturing telecommunication services markets and high levels of competition. These factors are forcing carriers to shift from lower-margin voice and text message services to higher value-added data services in an effort to maintain revenue growth. Factors facilitating the rapid growth of 4G services include efficient spectrum allocation, the widespread availability of 4G-compatible smartphones, and innovative marketing and pricing plans.<sup>238</sup> This shift from 3G to 4G networks is expected to increase data consumption by consumers. For example, a study conducted by GSMA, an industry association, found that LTE users consumed an average of 1.5 gigabits of data per month, nearly twice the amount of data consumed by non-LTE users. Such increased data usage is also expected to increase carriers' revenues. In developed countries, GSMA found that the average revenue per user (ARPU) for LTE customers was 10–40 percent higher than non-LTE users. In developing countries, the effect is even greater, with LTE users generating 7 to 20 times greater ARPU than non-LTE users.<sup>239</sup>

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<sup>234</sup> TeliaSonara, "TeliaSonara First in the World," December 14, 2009.

<sup>235</sup> Thomas, "Shift to 4G Networks Faster," November 26, 2013.

<sup>236</sup> Deloitte, *Technology, Media, and Telecommunications Predictions 2013*, 2013, 36.

<sup>237</sup> GSMA, "GSMA Intelligence Study Predicts," November 26, 2013.

<sup>238</sup> Thomas, "Shift to 4G Networks Faster," November 26, 2013.

<sup>239</sup> GSMA, "GSMA Intelligence Study Predicts," November 26, 2013.

## Trade Trends

### Cross-border Trade

In 2012, U.S. exports of telecommunication services (box 5.2) totaled \$14 billion, whereas imports totaled \$8.0 billion, yielding a trade surplus of \$6 billion (figure 5.1).<sup>240</sup>

**Box 5.2** Understanding BEA data on cross-border trade and affiliate transactions in telecommunication services

The BEA's data on cross-border trade in telecommunication services cover receipts and payments between U.S. and foreign telecommunication companies for the following private services: message telephone services, telex, telegram, and other jointly provided basic services; private leased channel services; value-added services; support services; and reciprocal exchanges.<sup>a</sup> These figures are collected quarterly by the BEA via Form BE-125 and reported on a gross basis.<sup>b</sup> Trade data by service type, however, are not available, as companies are instructed to report such data for the above-listed categories in the aggregate. In addition, the BEA periodically conducts benchmark surveys using Form BE-120, with the latest such survey occurring in 2006.

In 2006, following the introduction of revised forms BE-120 and BE-125, the BEA began collecting and reporting data for both affiliated and unaffiliated telecommunication transactions. Before 2006, the BEA collected only unaffiliated cross-border telecommunications trade data.<sup>c</sup> Within the telecommunications industry, affiliated transactions represent trade within multinational telecommunication services companies—specifically, trade between U.S. parent companies and their foreign affiliates, and vice versa. By contrast, unaffiliated transactions represent trade with foreign partners that neither own, nor are owned by, a U.S. telecommunication services company.<sup>d</sup>

For services supplied through affiliates, the BEA collects data for the U.S. affiliates of foreign companies using forms BE-12 (Benchmark Survey) and BE-15 (Annual Survey), and for foreign affiliates it collects data using forms BE-10 (Benchmark Survey) and BE-11 (Annual Survey). Unlike cross-border data, which is collected by service type, affiliate data are collected and published according to the primary industry of the affiliate.<sup>e</sup> The BEA's *Survey of Current Business* reports on services supplied through telecommunications affiliates in three broad industry categories: wireline telecommunication carriers; wireless telecommunication carriers (except satellite); and other telecommunication services.<sup>f</sup>

Notes: <sup>a</sup> USDOC, BEA, "Form BE-125 (1-2010)," 17.

<sup>b</sup> BEA representative, email message to USITC staff, March 23, 2010. For example, if Company A (in the United States) owes Company B (in France) \$100 million, and Company B owes Company A \$20 million, Company A would report a receipt (export) of \$20 million and a payment (import) of \$100 million.

<sup>c</sup> BEA representative, email messages to USITC staff, March 12–23, 2010. For more information on affiliated/unaffiliated transactions pertaining to telecommunication services, see DOC, BEA, *Survey of Current Business*, October 2009, 41, table 1, "Trade in Services, 1998–2009," footnote 7.

<sup>d</sup> USDOC, BEA, *Survey of Current Business*, October 2009, 29; USDOC, BEA, "Form BE-125 (1-2010)," 17.

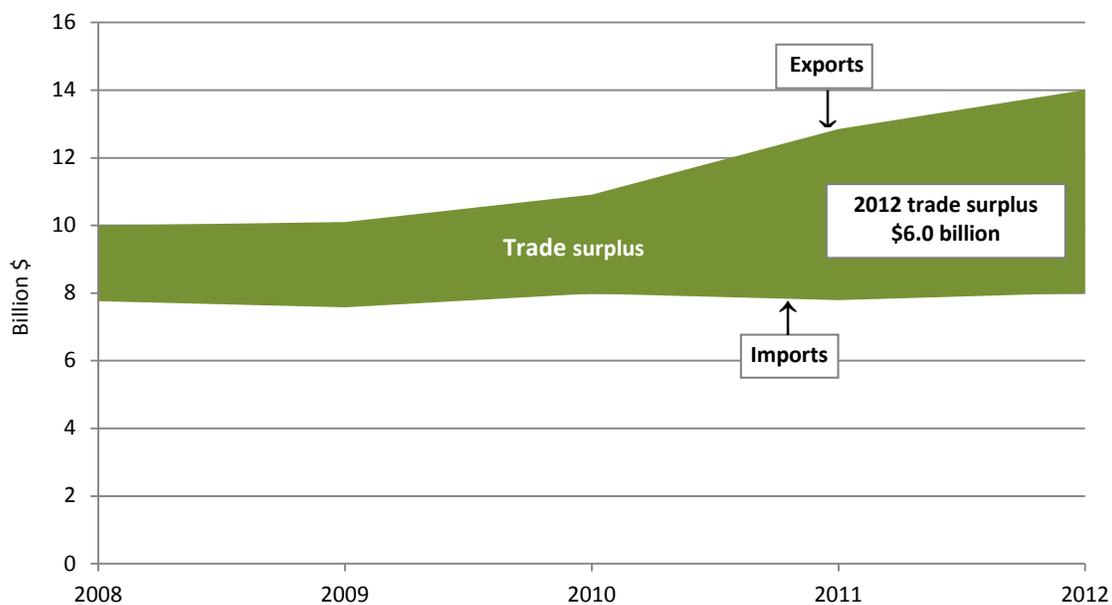
<sup>e</sup> BEA representative, email message to USITC staff, March 12, 2010.

<sup>f</sup> USDOC, BEA, *Survey of Current Business*, October 2009, 22–64.

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<sup>240</sup> USDOC, BEA, *Survey of Current Business*, October 2013, 53–54.

**Figure 5.1** Telecommunication services: U.S. cross-border trade in telecommunication services resulted in a U.S. trade surplus each year during 2008–12



Source: USDOC, BEA, *Survey of Current Business*, October 2013, 41–42, table 1.

Exports increased by 9 percent in 2012, slower than the annual growth rate of 12 percent recorded during 2007–11.<sup>241</sup> Telecommunication services exports rose in 2012 mainly due to an increase in receipts by U.S. parent companies from their affiliates in foreign countries. Affiliated receipts grew 20 percent in 2012, whereas unaffiliated receipts declined by 1 percent. Overall, affiliated receipts accounted for 64 percent of total telecommunications receipts in 2012, up from only 26 percent since 2006.<sup>242</sup>

U.S. imports of telecommunication services increased by 3 percent in 2012, slightly faster than the 2 percent annual growth rate from 2007–11.<sup>243</sup> Continued slow growth likely reflects activities by U.S. carriers to reduce fees to their foreign counterparts, including mobile termination fees, particularly in Europe.<sup>244</sup>

In 2012, the top-five cross-border export markets for U.S. telecommunication services were Brazil (which accounted for 26 percent of the total), the United Kingdom (12 percent), Venezuela (8 percent), Argentina (8 percent), and Canada (5 percent) (figure 5.2). In that same

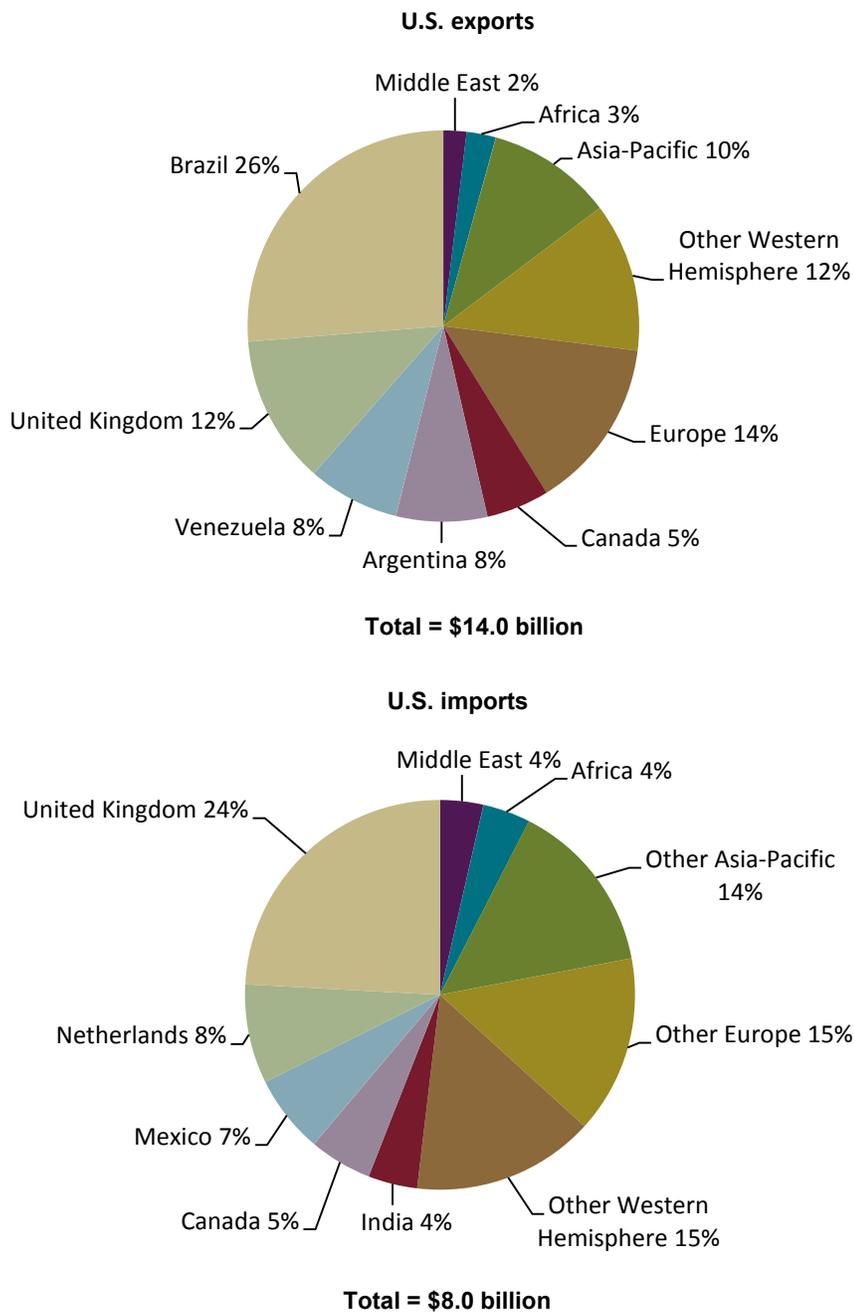
<sup>241</sup> Calculated by USITC staff using data obtained from USDOC, BEA, “Detailed Statistics for Services Supplied through Affiliates,” October 2013, table 9.

<sup>242</sup> USDOC, BEA, *Survey of Current Business*, October 2013, 33.

<sup>243</sup> Calculated by USITC staff using data obtained from USDOC, BEA, “Detailed Statistics for Services Supplied through Affiliates,” October 2013, table 9.

<sup>244</sup> Thomas, “Should AT&T Buy Vodafone?” December 3, 2013; Crawshaw, *Telecommunications: Europe*, August 2013, 2–3.

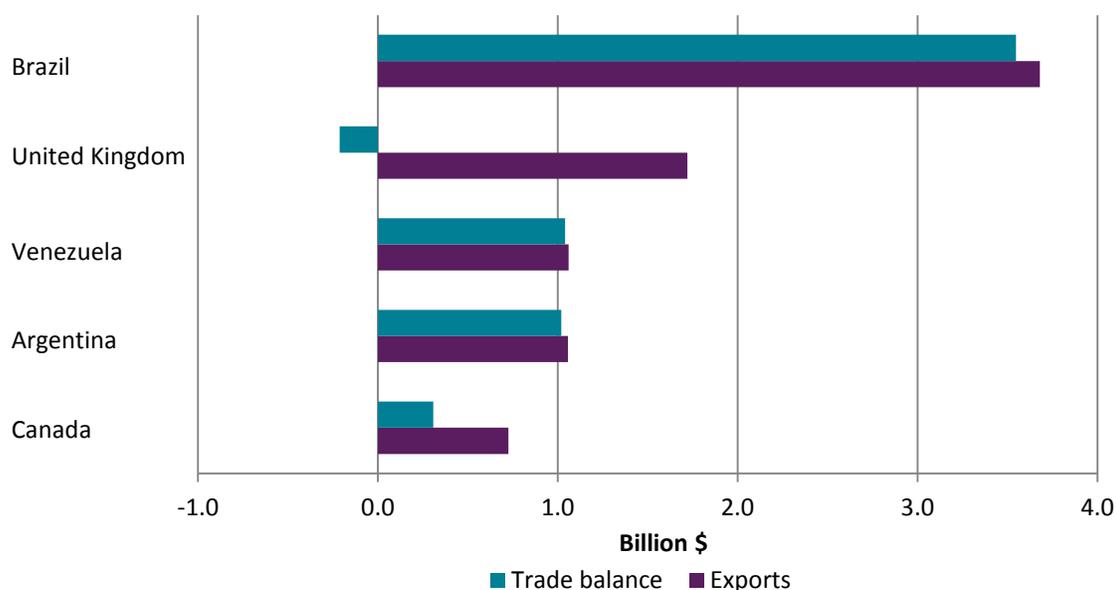
**Figure 5.2** Telecommunication services: Brazil was the leading destination for U.S. exports of telecommunication services in 2012, while the United Kingdom was the leading source of U.S. imports



Source: USDOC, BEA, Survey of Current Business, October 2013, 54–55, table 5.2.  
 Note: Figures may not total to 100 percent due to rounding.

year, the top sources of U.S. telecommunication services imports were the United Kingdom (24 percent), the Netherlands (8 percent), Mexico (7 percent), Canada (5 percent), and India (4 percent). The United States maintained bilateral surpluses vis-à-vis all of its top five export markets except the United Kingdom (figure 5.3).

**Figure 5.3** Telecommunication services (top 5 export markets): U.S. cross-border telecommunication services trade yielded a deficit with the United Kingdom in 2012



Source: USDOC, BEA, *Survey of Current Business*, October 2013, 54–55, table 5.2.

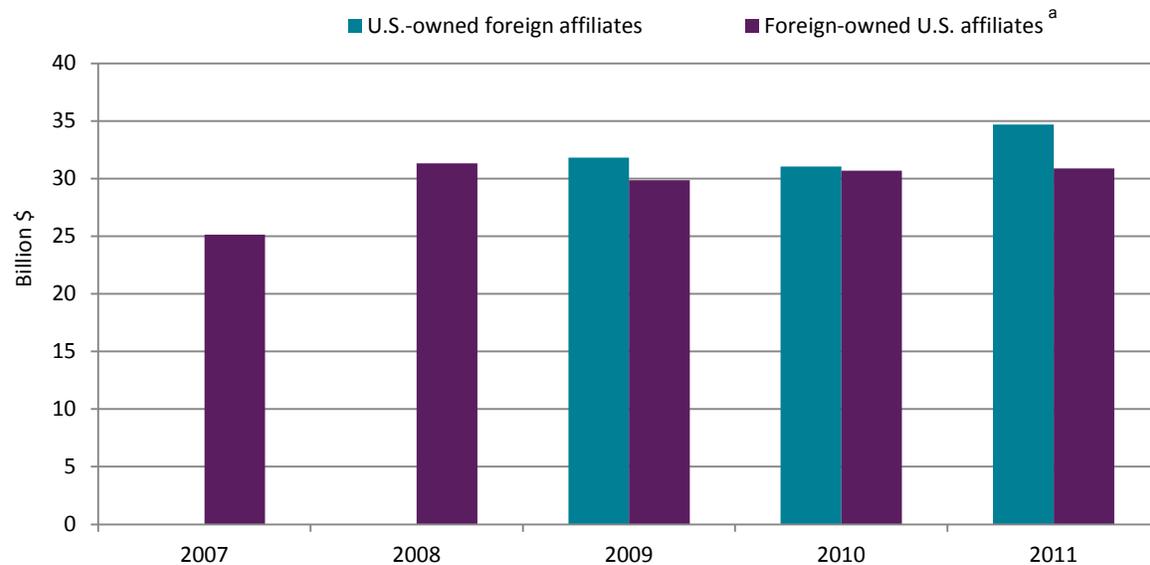
## Affiliate Transactions

International trade in telecommunication services occurs primarily through the affiliates of multinational companies, although data on such transactions are frequently suppressed to avoid disclosing the confidential information of individual companies.<sup>245</sup> In 2011, sales by the foreign affiliates of U.S. telecommunication service companies totaled \$34.7 billion, 12 percent higher than such sales in 2010 (figure 5.4).<sup>246</sup> Telecommunication services supplied to U.S. customers by the U.S.-based affiliates of foreign telecommunication service companies totaled about \$30.9 billion, roughly the same level as in 2010. During 2007–10, sales by U.S. affiliates of foreign companies grew at an annual rate of approximately 7 percent.

<sup>245</sup> Foreign affiliates are U.S. parent companies' majority-owned nonbank affiliates in foreign markets, whereas U.S. affiliates are foreign parent companies' majority-owned nonbank affiliates in the U.S. market.

<sup>246</sup> USDOC, BEA, *Survey of Current Business*, October 2013, 64, table 9.2. Between 2009 and 2010, sales by the foreign affiliates of U.S. telecommunication services companies fell by approximately 2 percent. Since such data is suppressed by the BEA for 2007 and 2008, it is not possible to calculate the five-year growth rate.

**Figure 5.4** Telecommunication services: Services supplied by U.S.-owned foreign affiliates exceeded services supplied by foreign-owned U.S. affiliates every year since 2009



Source: USDOC, BEA, "Detailed statistics for services supplied through affiliates," October 2013, table 9.

Note: <sup>a</sup> Data pertaining to the U.S. affiliates of foreign telecommunication companies were suppressed in 2007 and 2008 to avoid disclosing individual company information.

## Outlook

Over the next three years, the global telecommunication services industry is expected to grow at a steady but modest rate, driven by continued economic growth and demand for high-bandwidth services, particularly in developed countries. In developing countries, growth will likely be driven by latent demand for basic mobile services. The industry's revenue growth rate is expected to decline slightly, from 6.4 percent in 2013 to 5.6 percent in 2016, largely due to the maturation of important product segments—namely, basic wireline and wireless services—in many countries.<sup>247</sup> In an effort to offset slowing revenue growth, many carriers are expected to continue their efforts to cut costs while strongly emphasizing higher-margin data services, activities that will require continued heavy investment in high-bandwidth networks—both mobile and fixed. M&A activity is also expected to feature prominently over the next few years. In particular, industry consolidation is likely to occur in both developed and developing countries, as companies attempt to reduce the number of market competitors. At the same time, large cross-border deals will likely take place in markets with high levels of latent demand for mobile services, especially Africa.<sup>248</sup>

<sup>247</sup> Calculated by USITC using data reported in TIA, *TIA's 2013 ICT Market Review and Forecast*, 2013, 6-3 to 6-6.

<sup>248</sup> Thomas, "Mideast Operators Join Race for African Telecoms," November 25, 2013.

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# Chapter 6

## Services Roundtable

The Commission hosted its seventh annual services roundtable on November 14, 2013, with Commission Chairman Irving A. Williamson presiding and Commissioner Meredith Broadbent moderating. These roundtables are held to encourage discussions among individuals from government, industry, and academia about important issues affecting services trade. This year's discussion focused on recent services negotiations and the assessment of services commitments, as well as middle-income job opportunities for non-degree holders in service industries.

### Current Services Negotiations

The roundtable began with an update on and analysis of current international negotiations addressing trade in services. One participant noted that the Trade in Services Agreement (TISA), as well as the services components of the Trans-Pacific Partnership (TPP) and Transatlantic Trade and Investment Partnership (TTIP), could serve as templates for services negotiations under a future "General Agreement on Trade in Services II (GATS II)" (box 6.1). Additionally, the participant highlighted digital services and regulatory issues as primary areas of focus for ongoing services negotiations. The TTIP was identified as the agreement where regulatory cooperation could play the largest role. The participant also corrected a misconception that regulatory cooperation seeks to undermine existing regulations (such as those pertaining to financial reform under the Dodd-Frank Law). Instead, the agreement would seek to reduce friction for businesses operating in two markets with two sets of regulations that nonetheless attempt to accomplish the same goal.

### **Box 6.1** The big three: TTIP, TPP, and TISA

Over the past decade, the services sector has played an increasingly important role as a primary driver of growth and output in the U.S. and global economies. Services account for 78 percent of U.S. gross domestic product and 82 percent of private sector employment;<sup>a</sup> globally, the services sector accounted for 70 percent of world gross domestic product in 2012.<sup>b</sup> The economic importance of services has led to a renewed focus on how countries trade services internationally, with a particular emphasis on how barriers to trade in services hinder commerce and job creation. In 2013, negotiations were either launched or continued on three trade agreements with significant services components: the Transatlantic Trade and Investment Partnership (TTIP), the Trans-Pacific Partnership (TPP), and the Trade in Services Agreement (TISA).

**The Transatlantic Trade and Investment Partnership** is a bilateral free trade agreement being negotiated between the United States and the European Union. Launched in June 2013, this agreement would cover nearly one-third of global trade in goods and services and half of global economic output.<sup>c</sup> With regard to services in particular, the TTIP aims to eliminate “unnecessary ‘behind the border’ non-tariff barriers” and to “bind the highest level of liberalization that each side has achieved in trade agreements to date.”<sup>d</sup>

**The Trans-Pacific Partnership**, part of the U.S. strategic “pivot” to Asia,<sup>e</sup> is a multilateral free trade agreement among the United States and 11 other Pacific countries: Australia, Brunei Darussalam, Canada, Chile, Japan, Malaysia, Mexico, New Zealand, Peru, Singapore, and Vietnam.<sup>f</sup> TPP partner countries represent more than 40 percent of global trade in goods and services and account for just under 39 percent of global economic output.<sup>g</sup> TPP countries have reached a consensus, in principle, on a text related to cross-border trade in services which would include “fair, open, and transparent markets for services trade, including services supplied electronically.”<sup>h</sup>

**The Trade in Services Agreement** is a multilateral, sector-specific trade agreement focusing on international trade in services. As of March 2014, 50 countries, representing 70 percent of global trade in services and 67 percent of global economic output,<sup>i</sup> are negotiating the TISA in Geneva, Switzerland. As of September 2013, TISA members include Australia, Canada, Chile, Colombia, Costa Rica, the European Union (which has 28 members), Hong Kong, Iceland, Israel, Japan, the Republic of Korea, Liechtenstein, Mexico, New Zealand, Norway, Pakistan, Panama, Paraguay, Peru, Switzerland, Taiwan, Turkey, and the United States.<sup>j</sup> The last comprehensive services agreement was the General Agreement on Trade in Services (GATS), which entered into force in January 1995 under the World Trade Organization (WTO). TISA “has the opportunity to address major and fundamental barriers to trade in services” and modernize international rules governing services trade to reflect the reality of services trade in the new millennium.<sup>k</sup>

Notes: <sup>a</sup> USDOC, BEA, “Real Value Added by Industry,” April 25, 2013; USDOC, BEA, Table 6.5D, “Full-Time Equivalent Employees by Industry,” August 7, 2013.

<sup>b</sup> World Bank, table 4.2, “Structure of Output” (accessed December 13, 2013).

<sup>c</sup> USTR, “Fact Sheet: United States to Negotiate,” February 13, 2013.

<sup>d</sup> USTR, U.S.-EU High Level Working Group on Jobs and Growth, “Final Report,” February 13, 2013.

<sup>e</sup> Pilling and Donnan, “Trans-Pacific Partnership: Ocean’s Twelve,” September 22, 2013.

<sup>f</sup> USTR, “Fact Sheet: United States to Negotiate,” February 13, 2013.

<sup>g</sup> USITC calculations; World Bank, World Development Indicators database (accessed December 5, 2013).

<sup>h</sup> USTR, “Outlines of the Trans-Pacific Partnership Agreement,” November 2011.

<sup>i</sup> USITC calculations; World Bank, table 4.2, “Structure of Output” (accessed December 13, 2013); Government of Australia, Department of Foreign Affairs and Trade, “Taiwan Fact Sheet” (accessed December 5, 2013).

<sup>j</sup> Coalition of Service Industries, “The Trade in Services Agreement (TISA),” March 2013.

<sup>k</sup> Coalition of Service Industries, “The Trade in Services Agreement (TISA),” March 2013.

The panel discussed the TISA in more detail, because the TISA focuses solely on services. One participant likened the process of negotiating the TISA to writing a term paper: participants developed a comprehensive “wish list” of ideas and are in the process of refining the list into achievable objectives, much as research ideas are incorporated into a paper’s outline before being refined. The panelist stated that TISA participants are part of a group referred to as the “Really Good Friends of Services,” which consists of countries that pursue a high degree of liberalization in regional and bilateral trade agreements. The TISA uses a negative list for national treatment commitments and a positive list for market access commitments (box 6.2). One participant mentioned that the positive list approach for market access could be problematic, citing the rapid development of new services in the information and communications technology sector (particularly those related to Internet services) and the likelihood that a positive list approach may not adequately cover these services. A negative list approach to market access could allow the provision of a service in the future that may not exist as yet. The negative list approach for national treatment ensures fair treatment to suppliers by addressing the rights of service providers once the service is permitted.

**Box 6.2** Positive and negative lists in services trade agreements

Services trade agreements contain schedules of commitments that specify the conditions under which a signatory will grant foreign service suppliers market access and national treatment by services sector and mode of supply.<sup>a</sup> Commitments are made using either a “positive list” or a “negative list” approach. A positive list requires a country to specify those sectors and modes of supply in which foreign participation is permitted, without committing the country to allow foreign supply in any sectors or modes other than those listed. By contrast, a negative list assumes that a country fully commits to allowing foreign firms to supply all services, except in sectors and modes for which the country lists specific restrictions.<sup>b</sup>

Within a services trade agreement, a positive list permits a country to retain, but not specify, most of its trade-restricting measures; a negative list, on the other hand, requires a country to list each of these measures by sector and mode of supply. Therefore, using a negative list promotes transparency by making trade-distorting measures easier to identify and, perhaps, to eliminate through subsequent negotiation. Furthermore, a negative list will tend to promote more liberal trade practices, since it is assumed that sectors and modes not mentioned in the list, including newly created services, are completely open to foreign participation.

Notes: <sup>a</sup> See chapter 1 for a description of the four modes of services supply.

<sup>b</sup> Organization of American States, Foreign Trade Information System, *Dictionary of Trade Terms*, [http://www.sice.oas.org/dictionary/SV\\_e.asp](http://www.sice.oas.org/dictionary/SV_e.asp) (accessed December 13, 2013).

## Services for Development

The panel also considered which services might be particularly important for developing countries. One participant expressed the view that it is most useful to look at services holistically instead of as discrete groupings, particularly since services touch many parts of the economy. The participant said that developing internal service markets would help countries compete internationally. Another participant expressed support for the holistic approach and referred to academic findings suggesting that sophisticated, knowledge-intensive products are more likely to be exported by countries with a highly developed telecommunications sector.

The participant noted that developing countries likely bear a disproportionate amount of the costs associated with protectionism, particularly in sectors like transportation.

Participants then offered views on what they consider to be some of the most highly restricted industries, especially in developing countries. Several participants cited the transportation, telecommunication, and audiovisual services industries in particular. One participant noted that the transportation and telecommunications industries face common services-related trade barriers—such as those pertaining to foreign direct investment. Other industries, such as postal services, are typically the purview of the government. The participant further noted that developing countries may have a particular interest in building a mature telecommunications industry. The participant also said that competitiveness in telecommunications is positively associated with competitiveness in manufacturing, helping a country to move up the international value chain as its manufacturing capacity for complex, knowledge-intensive products increases.

Participants then discussed services related to trade facilitation and their potential developmental impact (box 6.3). Trade facilitation services include those that assist the flow of products into and out of a country, such as supply chain logistics and customs processing. One participant referenced a World Bank estimate that more efficiency in this area could contribute an additional 5 percent to global GDP and boost trade flows by 14 percent. Another participant cited a study estimating that global gains from trade facilitation would be larger than the gains from eliminating all known tariffs. The participant noted that disciplines in trade facilitation are generally oriented towards customs authorities, and that an area for future focus should be expanding those disciplines to cover the private-sector supply of services at government-administered ports. A third participant noted that restrictions on the domestic (including inland) transportation of goods are also important. Yet another participant suggested that even if complete liberalization of supply chain-related services cannot be achieved, it may be sufficient to make progress on certain core aspects of port-related and transportation services. The participant proposed moving past the “holy cows” of ownership and investment and focusing instead on establishing a right to lease, hypothesizing that the right to lease a ship, train, truck, or warehouse addresses the core interest of supply chain management.

### **Box 6.3** The Bali package

On December 6, 2013, the Ministerial Conference of the World Trade Organization (WTO) concluded its ninth session in Bali, Indonesia, with the announcement that negotiations of an Agreement on Trade Facilitation had successfully concluded.<sup>a</sup> The agreement has the potential to increase global economic output by \$1 trillion by improving customs procedures and facilitating the international movement of goods.<sup>b</sup> Among other things, the agreement provides for disciplines regarding:

- the publication of importation, exportation, and transit procedures;
- the publication of all duties, taxes, fees, and charges;
- a single Internet portal so that information can be accessed in an official WTO language (i.e., English, Spanish, or French) where practical;
- a single enquiry point where questions can be addressed and required documents obtained;
- a comment period for administrative changes;
- a requirement to issue binding advanced rulings, with prior notice if the advanced ruling loses force;
- transparent “rules of origin”;
- a requirement to provide a right of appeal for administrative decisions;
- the rapid release of goods from customs; and
- other measures to promote transparency in trade facilitation.<sup>c</sup>

Some critics note that the Bali package falls far short of certain trade goals set forth in the Doha Development Round agenda.<sup>d</sup> Supporters of the package contend that with an agreement finally reached among its members, the WTO has demonstrated that multilateralism in international trade has a future, and so does the WTO. At the conclusion of the Bali Ministerial, WTO Director-General Roberto Azevêdo of Brazil said, “Ladies and gentlemen, I’m proud to say for the first time in our history the WTO has truly delivered.”<sup>e</sup>

Notes: <sup>a</sup> WTO, “Agreement on Trade Facilitation, Draft Ministerial Decision” (accessed October 29, 2013).

<sup>b</sup> Palmer, “WTO Closes \$1T Trade Deal in Bali,” December 9, 2013.

<sup>c</sup> WTO, “Agreement on Trade Facilitation, Draft Ministerial Decision” (accessed October 29, 2013).

<sup>d</sup> Elliot, “Bali Trade Agreement,” December 6, 2013.

<sup>e</sup> Palmer, “WTO Closes \$1T Trade Deal in Bali,” December 9, 2013.

## **Inclusion of BRIC Countries**

The panel concluded the first session by offering views on the effect of including Brazil, Russia, India, and China (the BRIC countries) in the ongoing services negotiations. One participant urged caution on including the BRICs, noting that the reason TISA came about was unwillingness on the part of some developing countries to liberalize trade in services. The participant pointed to the lack of progress in the WTO’s Doha Development Round to illustrate this point. Another participant expressed a similar view, stating that the TISA is designed to be a robust agreement with binding commitments. The panelist noted that structural issues with WTO negotiations led to poor multilateral offers from countries already liberal in practice, and said that the hope with TISA is that a group of these relatively liberal countries might make

meaningful commitments within a smaller services-oriented agreement. A third panelist also agreed, citing the Information Technology Agreement (ITA) and the Agreement on Basic Telecommunications as evidence that a core group of like-minded countries can create a high-quality agreement and then “multilateralize” it when other countries join. Finally, a fourth participant said that the TISA agreement would include an economically powerful group of countries, offering other countries strong incentives to join.

## Trade in Services and Middle Income Jobs

### Services Labor Market

The roundtable then considered the relationship between international trade in services and the creation of U.S. jobs. In particular, the panel considered whether or not trade in services could spur growth in new, better jobs for middle-income Americans. To begin the discussion, Commission staff presented data on middle- and lower-wage occupations showing that there was a 60 percent decline in middle-wage jobs during the recession, and that lower-wage jobs have rebounded far faster during the recovery. Additionally, there was a structural break between college-educated workers and those without a college degree, with non-college-educated workers earning lower-than-average wages and suffering markedly higher rates of unemployment. Looking forward, data from the U.S. Bureau of Labor Statistics project high job growth in services industries. Only a small fraction of these services jobs are estimated to require a college degree.

Participants noted several services industries in which they believe liberalization could have a positive effect on U.S. services jobs. The U.S. film and television industries, for example, receive more than 50 percent of their revenue from overseas markets and employ people in a number of services occupations that do not require advanced degrees, such as construction workers, camera operators, and computer specialists. The panelist noted that these positions are both heavily unionized and highly paid, and are also internationally competitive. Another participant noted that the U.S. retail industry provides numerous opportunities for non-college-educated workers. In addition to supporting high-wage jobs across the value chain—including design, marketing, Web development, and logistics—the participant emphasized that opportunities for advancement in the industry allow retail personnel to assume greater responsibilities in management and other corporate positions. The participant also said that the roundtable’s focus should not just be on exports, as imported components also play a crucial role in allowing domestic enterprises to expand.

Another participant shifted the panel’s focus to the Internet, asserting that the development and commercialization of the Internet has been an incredible boon for small and medium-sized enterprises (SMEs). The participant referred to a private sector report that states that for every job lost due to the Internet, 2.6 jobs are created. In addition, there has been a 10 percent increase in the productivity of SMEs, and SMEs that are heavily reliant on Web-based technologies grow and export at twice the rate of their less tech-savvy counterparts. The participant shared anecdotal evidence of an Ohio-based small business that earns 60 percent of its revenue from overseas by selling services over the Internet. The participant also said that

the Internet has served as an equalizer, allowing SMEs to engage in international trade, an area formerly restricted mostly to larger firms with the technical skills required to trade internationally, and that the Internet now allows SMEs to operate globally.

## Data Issues

The panelists then discussed the labor market at a macro level and explored some of the difficulties associated with drawing empirical conclusions from existing data. One participant gave a historical overview of labor economics and said that developments in recent years have challenged past assumptions. The participant said that in the 1980s education directly correlated with higher wages, and economists concluded that higher levels of education were being rewarded with greater lifetime earnings potential. In the 1990s, this trend reversed, as highly educated workers experienced flat wage growth, leading economists to refine previous theories by focusing more on skills than education and conclude that it was the possession of a unique skill, not higher levels of education, that led to wage and income growth. The participant acknowledged that the experience of the 2000s undermined the validity of past theories, pointing to broad-based wage declines that cannot be explained by previous research. In particular, the participant said that among all member countries of the Organisation for Economic Co-operation and Development (OECD) (not just the United States), labor's share of national income was decreasing. Furthermore, given the vastly different institutional arrangements across the OECD, factors such as level of unionization, productivity growth, wages, and healthcare regimes do not adequately explain this trend.

A second participant expanded on this analysis by asserting that trade liberalization has significantly expanded the global labor force without a commensurate increase in capital. According to the participant, this has increased the global returns to the relatively scarce global capital and decreased returns to the relatively plentiful global labor force. The participant cited research estimating that it would take 30 to 50 years to reach a global equilibrium between capital and labor. Another participant noted that from the 1960s through the 1990s, the U.S. experienced very strong job and wage growth while also experiencing significant trade liberalization, including under the Kennedy, Tokyo, and Uruguay rounds of trade negotiation under the General Agreement on Tariffs and Trade (GATT). Additionally, the participant noted that there has not been much significant liberalization since the mid-1990s. Instead, there has been a massive expansion of trade capacity, as indicated by a 425 percent increase in world container shipping since 2000. The participant hypothesized that more recent labor market weakness could be explained by a series of unfortunate events: the bursting of the dot-com bubble, the ensuing efforts to rebalance the economy, and, ultimately, the financial crisis.

Finally, participants commented on the challenges of finding accurate and comprehensive services trade data, identifying this as a potential area for future inquiry. One participant noted that professional services, for example, include a wide range of occupations, and that some of these occupations are tradable services (e.g., architectural services) while some are nontradable (e.g., barber services). The participant then explained that even within services categories, more granular detail is needed in the data, illustrating the point by comparing nontraded and traded legal services (e.g., the legal representation of a domestic criminal would likely not involve trade, while legal consultation related to the cross-border merger of two firms

likely would). A final participant noted that tradable services tend to require greater levels of skill, and have both higher levels of employment and higher wages than non-tradable services. The lack of detailed services trade data, the participant said, presents a particular challenge when attempting to quantify the impact that trade has had on the labor market, especially in services industries.

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# **Appendix A**

## **Selected Services Research**

## Selected Services Research

This appendix provides abstracts and links to six Commission reports, published within the past year that focus on or feature topics in services trade, as well as two forthcoming Commission reports that include information on the services sector. These reports were prepared under section 332(g) of the Tariff Act of 1930 (19 U.S.C. § 1332(g)) in response to requests from the U.S. Trade Representative, the House Committee on Ways and Means, and/or the Senate Committee on Finance:

- *Environmental and Related Services*
- *U.S. Korea Free Trade Agreement: Effects on U.S. Small and Medium-Sized Enterprises*
- *Digital Trade in the U.S. and Global Economies, Part 1*
- *Renewable Energy and Related Services: Recent Developments*
- *The Economic Effects of Significant U.S. Import Restraints Eighth Update 2013*
- *Trade Barriers that U.S. Small and Medium-Sized Enterprises Perceive as Affecting Exports to the European Union*

### **Forthcoming:**

- *Digital Trade in the U.S. and Global Economies, Part 2*
- *Trade, Investment, and Industrial Policies in India: Effects on the U.S. Economy*

## Services-related 332 Investigations

**Environmental and Related Services;** Jennifer Baumert Powell, project leader  
Investigation No. 332-533, USITC Publication 4389, March 2013.  
<http://www.usitc.gov/publications/332/pub4389.pdf>.

### Abstract

*Environmental and Related Services* provides estimates of the U.S. and global markets for, and discusses barriers to, trade and investment in three core environmental services industries—water and wastewater services, solid and hazardous waste services, and remediation services. The report also examines the critical role of several related services.

Global demand for environmental services has grown in recent years. In 2010, global sectoral revenues exceeded \$500 billion, with the United States accounting for nearly 40 percent of the global market. Water and wastewater services represented the largest share of global sectoral revenues (49 percent), followed by solid and hazardous waste services (32 percent).

Trade in environmental services occurs chiefly through foreign direct investment. Foreign affiliates of environmental services firms may build water infrastructure, landfill solid waste, remediate polluted sites, and more. Such activities rely on related services—e.g., in

engineering, construction, and consulting. Although few trade barriers specifically target environmental services, measures that affect all service industries (e.g., restricting commercial presence) or related services (e.g., not recognizing foreign licenses) may restrict trade in environmental services. Nonetheless, trade negotiations in the environmental services sector tend to overlook measures that affect related-service providers.

Using statistical analysis, the Commission estimates how liberalizing trade in related services might affect sales by foreign affiliates of core environmental services firms. The results of the analysis suggest that the effects would be positive and significant. However, this conclusion would be strengthened by the availability of more robust data on the sector.

**U.S.-Korea Free Trade Agreement: Effects on U.S. Small and Medium-Sized Enterprises;** Brian Allen, project leader

Investigation No. 332-539, USITC Publication 4393, May 2013.

<http://www.usitc.gov/publications/332/pub4393.pdf>.

## Executive Summary

With the entry into force of the U.S.-Korea Free Trade Agreement (FTA) on March 15, 2012, a very large share of U.S. exports of consumer and industrial products was eligible for duty-free entry into the Republic of Korea (Korea), as the number of Korea's tariff lines providing immediate duty-free access for U.S. exports increased from 13 percent to 80 percent. In addition, the FTA increases market access commitments in major services sectors and includes provisions for addressing nontariff measures as well as trade-related issues such as labor, environment, and competition policy. This report examines the FTA's effects on exports by U.S. small and medium-sized enterprises (SMEs), which account for a significant share of U.S. exports both in general and to Korea. To provide information for the report, SMEs were queried about their experiences thus far in exporting to Korea under the FTA. A small number of companies provided the requested information, with responses coming from firms in diverse sectors of the economy, including agriculture (wine, tree fruit, potatoes, hay), manufacturing (tool and die, aircraft parts), and services (media, software).

Responding SMEs reported varying experiences. Several indicated immediate sales increases, while others reported that potential trade gains have been delayed because of long implementation time frames. Narratives of expanding business opportunities and the creation of new relationships were partly countered by concerns about remaining nontariff measures (such as current phytosanitary restrictions) and new administrative burdens. Nonetheless, most respondents expressed the belief that the FTA had already proven helpful and would benefit their companies even more over time.

**Digital Trade in the U.S. and Global Economies, Part 1;** James Stamps, project leader

Investigation No. 332-531, USITC Publication 4415, July 2013.

<http://www.usitc.gov/publications/332/pub4415.pdf>.

## Abstract

Digital trade is defined in this report as commerce in products and services delivered via the Internet. This report provides information on the role of digital trade in the U.S. and global economies, describes notable barriers and impediments to digital trade, and outlines potential approaches for further assessing the role of digital trade in the U.S. economy. Products and services delivered via the Internet make up a growing segment of the U.S. economy. Internet technologies have also transformed how many goods and services in the economy are produced and delivered. Digital sales make up more than half of music industry revenue; the digital shares of sales for games, videos, and books are smaller, but growing quickly. U.S. exports of digitally enabled services (one measure of international digital trade) grew from \$282.1 billion in 2007 to \$356.1 billion in 2011, with exports exceeding imports every year. Studies that have quantified the economic contributions of the Internet have generally found that it has made significant contributions to U.S. output, employment, consumer welfare, trade, innovation, productivity, and corporate financial performance. Digital trade can help producers lower their operating costs and work more efficiently. Small and medium-sized enterprises especially benefit from having lower-cost access to a wider range of products, services, and markets. Consumers benefit by gaining greater access to information about products and prices and more convenient ways to shop. Among the most notable barriers and impediments to digital trade reported were localization barriers, data privacy and protection measures, intellectual property-related issues, online censorship, as well as impediments to digitally enabled trade.

**Renewable Energy and Related Services: Recent Developments;** Lisa Ferens Alejandro, project leader

Investigation No. 332-534, USITC Publication 4421, August 2013.

<http://www.usitc.gov/publications/332/pub4421.pdf>.

## Abstract

*Renewable Energy and Related Services: Recent Developments* offers estimates of the U.S. and global markets for trade and investment in services essential to energy production in the solar, wind, small hydropower, and geothermal sectors, as well as discusses trade barriers affecting these services. The services span a range of industries, including consulting, engineering, construction, and equipment maintenance and repair.

Global demand for such services has grown rapidly in the past five years as more and more countries strive to meet rising energy needs, reduce carbon output, and strengthen energy security by developing renewable energy. Global capacity in the field more than doubled to 653 gigawatts between 2007 and 2012, while global investment stood at a record \$244 billion in 2012, up 71 percent during the period. Europe, the United States, and Asia, particularly China, are consistently among the largest markets for renewable energy services.

Trade in renewable energy services occurs chiefly through foreign direct investment, in which a firm sets up a commercial presence abroad. Although the United States is a leading supplier and consumer of renewable energy services, evidence suggests it is likely a net importer, given

the large presence of foreign affiliates providing these services in the U.S. market. Nonetheless, U.S. providers export substantial amounts of renewable energy services, primarily to Canada, while Mexico, other Latin American countries, and other large emerging markets present opportunities for U.S. service providers.

Local content requirements are the most significant trade barrier in this field. Although largely applied to renewable energy equipment, these requirements often act as de facto barriers to services exports because many renewable energy equipment manufacturers also provide services in support of their products. Restrictions on investment and on temporarily moving employees into foreign markets also hinder exports of renewable energy services. Some regional and bilateral trade negotiations are now working to liberalize the market by loosening these requirements.

**The Economic Effects of Significant U.S. Import Restraints Eighth Update 2013, Special Topic: Services' Contribution to U.S. Manufacturing;** José Signoret, project leader  
Investigation No. 332-325, USITC Publication 4440, December 2013.  
<http://www.usitc.gov/publications/332/pub4440.pdf>.

## Summary, Special Topic chapter

Services are used throughout the manufacturing process and the manufacturing value chain. Some services are needed early in the chain (e.g., research and development); some are needed at the end (retailing, maintenance and repair); and some are needed at every stage (telecommunications and financial services). Individual manufacturers often require a full spectrum of services, including trade, transportation, information, education, health, and financial and professional services. While services can include a wide variety of activities, the emphasis in this chapter is on business services. Business services are defined as those that are predominantly purchased by other businesses rather than final consumers; examples include legal, data processing, and accounting services, among many others.

In describing the contribution of services in manufacturing, the chapter considers services inputs broadly, including services purchased by manufacturers from other firms, as well as services tasks performed within the firm. Using input-output (I-O) data and occupational data, the chapter describes recent trends and sectoral patterns in the use of business services by manufacturers. In the United States, on average, 25.3 percent of intermediate inputs purchased by manufacturers in 2011 were from the services sector. For certain manufacturing sectors, such as computer and electronic products, this percentage—a measure of “services intensity”—is as high as 47.6 percent. A global I-O database permits the comparison of the services intensity of U.S. manufacturing with that of other economies, as well as an assessment of the importance of foreign services to U.S. manufacturers.

Bureau of Labor Statistics occupational data give additional insight into services activities undertaken by manufacturers. Not every employee in a manufacturing firm is directly involved in the physical production of goods. Rather, many employees provide services that support the manufacturing process. Examples include in-house lawyers, accountants, and researchers developing and applying technologies, as well as maintenance workers and administrative

assistants. In 2012, about a third of all workers in U.S. manufacturing firms were in business services occupations, a share that has been rising in recent years.

Business services industries have benefited strongly from recent technological innovations, particularly those related to information and communications technologies (ICT). Technology-related productivity improvements in these services have in turn led to improvements in productivity in the operations of their buyers, many of whom are manufacturers. Drawing from the literature and industry accounts, the chapter describes how U.S. manufacturers in the 21st century are taking advantage of services in new and innovative ways to manage global supply chains, cut costs, improve efficiency, and strengthen customer relationships. The chapter then considers the linkages between the increased use of business services and manufacturing productivity using U.S. input-output (I-O) data. In addition, three case studies—on semiconductors, medical devices, and performance textiles—illustrate the types of services that have upgraded efficiency, increased competitiveness, and enhanced customer relationships.

**Trade Barriers that U.S. Small and Medium-Sized Enterprises Perceive as Affecting Exports to the European Union;** William Deese, project leader

Investigation No. 332-541, USITC Publication 4455, March 2014.

<http://www.usitc.gov/publications/332/pub4455.pdf>.

## Abstract

This report catalogs trade-related barriers that U.S. small and medium-sized enterprises (SMEs) perceive as disproportionately affecting their exports to the European Union (EU) relative to large exporters to the EU. Various approaches were used to gather information directly from SMEs and other interested parties (“respondents”) for this report.

Respondents reported that numerous EU trade barriers, particularly standards-related measures, limit SMEs’ exports to the EU more than those of large exporters. They explained that while complying with standards, technical regulations, and conformity assessment procedures is costly for larger firms, it is potentially prohibitive for SMEs because many costs are fixed regardless of a firm’s size or revenue. Respondents also cited difficulties involving trade secrets, patenting costs, and logistics challenges, especially customs requirements, Harmonized System classifications, and the EU’s value-added tax system. Trade financing in the EU was reported to be a lesser problem.

U.S. services SMEs in the healthcare, engineering, testing, and audiovisual industries highlighted a lack of mutual recognition of licensing, credentials, and standards, as well as broadcasting and film quotas, language dubbing requirements, government subsidies, and intellectual property and piracy issues.

In certain industries, respondents also provided suggestions for increasing U.S. SME transatlantic trade with the EU and, at times, stories of successfully exporting to the EU.

***Forthcoming Research:***

**Digital Trade in the U.S. and Global Economies, Part 2**

Investigation No. 332-540, July 2014.

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

Investigation No. 332-543, December 2014.



# **Appendix B**

## **Data Tables for Figures**

**Table B.1** Global services: Exports and imports, 2012 (million dollars)<sup>249</sup>

Country/Region	Exports	Country/Region	Imports
Americas		Americas	
United States	621,218	United States	411,110
Other Americas	235,382	Other Americas	315,490
Total Americas	856,600	Total Americas	726,600
Europe		Europe	
United Kingdom	279,983	Germany	293,435
Germany	257,237	United Kingdom	173,891
France	210,662	France	172,085
Spain	135,819	Netherlands	119,248
Netherlands	131,235	Ireland	112,111
Other Europe	1,018,064	Other Europe	827,430
Total Europe	2,033,000	Total Europe	1,698,200
Asia/Pacific		Asia/Pacific	
China	190,440	China	280,164
Japan	142,407	Japan	174,757
India	140,705	India	127,482
Hong Kong	123,387	Singapore	117,744
Other Asia	538,361	Other Asia	479,253
Total Asia	1,135,300	Total Asia	1,179,400
Middle East & Africa	220,500	Middle East & Africa	396,000
Commonwealth of Independent States	104,600	Commonwealth of Independent States	152,000
Total Exports	4,350,000	Total Imports	4,152,200

Source: WTO, International Trade Statistics 2013, 2013, tables A8 and A9.

Note: Excludes public-sector transactions.

**Table B.2** Affiliate transactions continue to predominate as a means of trading services (billion dollars)

Year	Services supplied by majority-owned foreign affiliates	Services supplied by majority-owned U.S. affiliates	U.S. cross-border exports	U.S. cross-border imports
2004	685	541	332	254
2005	796	571	363	273
2006	890	648	404	307
2007	1,019	684	470	337
2008	1,117	702	516	372
2009	1,072	669	491	350
2010	1,155	701	539	373
2011	1,287	754	596	398
2012	NA	NA	628	415

Source: USDOC, BEA, Survey of Current Business, October 2013, 42–62.

Notes: Data prior to 2004 were calculated differently and therefore not included in this figure.

NA=Not available.

<sup>249</sup> The WTO includes the following countries under the Commonwealth of Independent States: Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyz Republic, Moldova, Russia, Tajikistan, Ukraine, and Uzbekistan.

**Table B.3** U.S. services: Travel and passenger fares accounted for the largest share of U.S. cross-border trade in 2012 (million dollars)

Service Industry	Exports	Imports
Travel and passenger fares	165,574	118,105
Professional services	142,688	84,095
Royalties and license fees	107,961	37,240
Financial services	100,752	72,150
Distribution services	45,931	57,099
Electronic services	41,523	34,438
Other services	23,711	11,538
Total	628,140	414,665

Source: USDOC, BEA, Survey of Current Business, October 2013, 42-43.

**Table B.4** U.S. services: Distribution services accounted for the largest share of U.S. affiliate transactions in 2011 (million dollars)

Service industry	Services supplied by foreign affiliates of U.S. firms <sup>250</sup>	Purchases from U.S. affiliates of foreign firms <sup>251</sup>
Distribution services	394,074	215,000
Financial services	293,469	162,568
Electronic services	193,449	58,539
Professional services <sup>252</sup>	108,270	68,943
Manufacturing	32,828	77,763
Other services	264,931	171,151
Total	1,287,021	753,964

Source: USDOC, BEA, Survey of Current Business, October 2012, 64, 66, tables 9.2 and 10.2.

Note: Trade data exclude public sector transactions.

**Table B.5** U.S. electronic services: Audiovisual services and computer and data processing services accounted for the largest share of U.S. cross-border exports and imports, respectively, in 2012 (million dollars)

Service industry	Exports	Imports
Telecommunication services	14,009	8,007
Audiovisual services	16,222	2,648
Computer and data processing services	11,292	23,783
Electronic services total	41,523	34,438

Source: USDOC, BEA, Survey of Current Business, October 2013, 42-66, table 1.

Note: Trade data exclude public-sector transactions.

<sup>250</sup> Services supplied by majority-owned foreign affiliates of U.S. parent firms.

<sup>251</sup> Services supplied by majority-owned U.S. affiliates of foreign parent firms.

<sup>252</sup> Data are underreported by the BEA to avoid disclosure of individual company information.

**Table B.6** Computer systems design and related services were the largest category of electronic services supplied by U.S. affiliates abroad in 2011 (billion dollars)

<b>Service industry</b>	<b>Services supplied by foreign affiliates of U.S. firms<sup>253</sup></b>	<b>Purchases from U.S. affiliates of foreign firms<sup>254</sup></b>
Computer systems design and related services	81.2	27.5
Internet service providers, web search portals, data processing services, Internet publishing and broadcasting, and other information services <sup>255</sup>	50.2	( <sup>256</sup> )
Telecommunications	34.7	30.9
Motion picture and sound recording industries	14.2	( <sup>257</sup> )
Broadcasting	13.2	0.2

Source: USDOC, BEA, Survey of Current Business, October 2013, 64, 66, tables 9.2 and 10.2.

Note: Trade data exclude public-sector transactions.

**Table B.7** Services accounted for the largest share of U.S. private-sector GDP in 2012 258 (billion dollars)

<b>Industry</b>	<b>GDP</b>
<b>Services</b>	
Professional services	2,475
Distribution services	2,210
Financial services	1,161
Electronic services	822
Other services	3,670
Total services	10,338
<b>Goods</b>	
Manufacturing	1,882
Nonmanufacturing <sup>259</sup>	1,056
Total goods	2,938

Source: USDOC, BEA, "Real Value Added by Industry," January 23, 2014.

**Table B.8** U.S. electronic services: Computer systems design and related services had the largest number of U.S. FTEs in 2012

<b>Service industry</b>	<b>FTEs (1,000)</b>
Computer systems design and related services	1,539
Broadcasting and telecommunications	1,116
Motion picture and sound recording industries	319
Information and data processing services	317

Source: USDOC, BEA, Table 6.5D, "Full-Time Equivalent Employees by Industry," interactive tables, September 24, 2013.

<sup>253</sup> Services supplied by majority-owned foreign affiliates of U.S. parent firms.

<sup>254</sup> Services supplied by majority-owned U.S. affiliates of foreign parent firms.

<sup>255</sup> Internet-related services are discussed in detail in USITC Inv. No. 332-531, Digital Trade in the U.S. and Global Economies, Part I, July 2013.

<sup>256</sup> Purchases from U.S. affiliates of foreign firms' data for motion picture and sound recording industries and Internet service providers et al. were suppressed to avoid disclosing individual company information.

<sup>257</sup> Purchases from U.S. affiliates of foreign firms' data for motion picture and sound recording industries and Internet service providers et al. were suppressed to avoid disclosing individual company information.

<sup>258</sup> Real value added by industry using 2009 chained dollars.

<sup>259</sup> Nonmanufacturing includes agriculture, forestry, fishing, and hunting; mining; and construction.

**Table B.9** Motion picture and sound recording industries had the highest labor productivity among all U.S. electronic service sectors in 2012

Service industry	Labor productivity (\$ per FTE)
Motion picture and sound recording industries	352,665
Broadcasting and telecommunications	348,656
Data processing, Internet publishing, and other information services	263,407
Computer systems design and related services	153,996

Sources: USDOC, BEA, Table 6.5D, "Full-Time Equivalent Employees by Industry," interactive tables, August 7, 2013; and USDOC, "Real Value Added by Industry," January 23, 2014.

**Table B.10** Wages per FTE in the private sector were the highest for electronic services in 2012

Sector	Wage and salary accruals (\$ per FTE)
Private sector	54,996
Goods	60,388
Manufacturing	63,057
Nonmanufacturing <sup>260</sup>	56,207
Services	53,786
Distribution services	46,161
Financial services	91,482
Professional services	62,273
Electronic services	96,126
Other services	37,746

Source: USDOC BEA, Table 6.3D: "Wage and Salary Accruals by Industry," August 07, 2013.

**Table B.11** Audiovisual services: U.S. cross-border trade in audiovisual services resulted in a U.S. trade surplus each year during 2008–12 (million dollars)

	2008	2009	2010	2011	2012
Exports	13,230	13,731	13,690	14,567	16,222
Imports	1,782	1,912	1,661	2,064	2,648
Trade Balance	11,448	11,819	12,029	12,503	13,574

Source: USDOC, BEA, Survey of Current Business, October 2013, 42–43, table 1.

**Table B.12** Audiovisual services: The United Kingdom was the leading market for U.S. cross-border exports of audiovisual services in 2012 (million dollars)

	Australia	Germany	Netherlands	Canada	United Kingdom
Exports	906	1,162	1,386	1,498	3,855
Imports	2	2	16	59	443
Trade balance	904	1,160	1,370	1,439	3,412

Source: USDOC, BEA, Survey of Current Business, table 4.2, October 2013, 51–52.

<sup>260</sup> Nonmanufacturing includes agriculture, forestry, fishing, and hunting; mining; and construction.

**Table B.13** Audiovisual services: The United Kingdom was the leading destination for U.S. exports of audiovisual services in 2012, while Brazil was the leading source of U.S. imports (million dollars)

Country/Region	Exports	Country/region	Imports
United Kingdom	3,855	Brazil	1,194
Canada	1,498	United Kingdom	443
Netherlands	1,386	Mexico	316
Germany	1,162	Argentina	199
Australia	906	Venezuela	139
All other		All other	
Other Europe	3,409	Other Western Hemisphere	206
Other Asia-Pacific	2,147	Other Europe	113
Other Western Hemisphere	1,543	Asia-Pacific, Africa & the Middle East	39
Africa & the Middle East	315		
Total all other	7,414	Total all other	358
<b>Total</b>	<b>16,221</b>	<b>Total</b>	<b>2,649</b>

Source: USDOC, BEA, Survey of Current Business, October 2013, 50, 51, table 4.2.

**Table B.14** Computer and data processing services: U.S. cross-border trade in computer and data processing services resulted in a U.S. trade deficit each year during 2008–12 (million dollars)

	2008	2009	2010	2011	2012
Exports	8,502	8,821	8,991	11,113	11,292
Imports	15,925	16,844	19,407	22,369	23,783
Trade Balance	(7,423)	(8,023)	(10,416)	(11,256)	(12,491)

Source: USDOC, BEA, Survey of Current Business, October 2013, 42–43, table 1.

**Table B.15** Computer and data processing services: Cross-border exports from U.S. parents to their foreign affiliates grew faster than both unaffiliated exports and exports from U.S. affiliates to their foreign parents during 2008–12 (billion dollars)

	2008	2009	2010	2011	2012
Unaffiliated exports	4.6	4.7	4.9	6.0	6.1
Affiliated exports, by U.S. parents to their foreign affiliates	2.9	3.3	3.4	4.0	4.2
Affiliated exports, by U.S. affiliates to their foreign parent groups	1.0	0.8	0.6	1.1	1.0

Source: USDOC, BEA, U.S. International Services, "Detailed statistics for cross-border trade," accessed November 5, 2013.

**Table B.16** Computer and data processing services: The United Kingdom was the leading destination for U.S. exports of computer services in 2012, while India was the leading source of U.S. imports (million dollars)

Country/Region	Exports	Country/Region	Imports
United Kingdom	2,068	India	9,948
Canada	1,236	Canada	4,373
Japan	564	Germany	1,012
Australia	510	United Kingdom	927
France	479	France	515
All other		All other	
Other Europe	3,254	Other Asia-Pacific	3,460
Other Asia-Pacific	1,569	Other Europe	1,867
Other Western Hemisphere	1,021	Other Western Hemisphere	1,287
Africa	320	Middle East	279
Middle East	271	Africa	115
Total all other	6,435	Total all other	7,008
Total	11,292	Total	23,783

Source: USDOC, BEA, Survey of Current Business, October 2013, 60–61, table 7.2.

**Table B.17** Computer and data processing services: U.S. cross-border trade with Canada yielded a significant deficit in 2012 (million dollars)

	Australia	France	Japan	Canada	United Kingdom
Exports	510	479	564	1,236	2,068
Imports	350	515	498	4,373	927
Trade balance	160	(36)	66	(3,137)	1,141

Source: USDOC, BEA, Survey of Current Business, tables 7.2, October 2013, 60–61.

**Table B.18** Computer systems design and related services: Services supplied by affiliates of U.S.-owned computer and data processing services firms abroad exceeded services supplied by foreign-owned affiliates in the United States in 2011 (billion dollars)

	2007	2008	2009	2010	2011
U.S.-owned foreign affiliates	( <sup>261</sup> )	( <sup>262</sup> )	70	74	81
Foreign-owned U.S. affiliates	17	21	21	25	28

Source: USDOC, BEA, U.S. International Services, “Detailed statistics for cross-border trade,” accessed on November 5, 2013.

**Table B.19** Telecommunication services: U.S. cross-border trade in telecommunication services resulted in a U.S. trade surplus each year during 2008–12 (million dollars)

	2008	2009	2010	2011	2012
Exports	9,999	10,102	10,911	12,851	14,009
Imports	7,761	7,579	7,986	7,792	8,007
Trade Balance	2,238	2,523	2,925	5,059	6,002

Source: USDOC, BEA, Survey of Current Business, October 2013, 41–42, table 1.

<sup>261</sup> U.S.-owned foreign affiliate data were suppressed in 2007 and 2008 to avoid disclosure of individual company data.

<sup>262</sup> Ibid.

**Table B.20** Telecommunication services: U.S. exports and imports, by country or region, 2012 (million dollars)

Country/Region	Exports	Country/Region	Imports
Brazil	3,679	United Kingdom	1,933
United Kingdom	1,719	Netherlands	659
Venezuela	1,059	Mexico	518
Argentina	1,056	Canada	417
Canada	725	India	326
All other		All other	
Europe	1,988	Other Europe	1,183
Other Western Hemisphere	1,722	Other Asia-Pacific	1,158
Asia-Pacific	1,455	Other Western Hemisphere	1,211
Africa	340	Africa	315
Total all other	5,505	Middle East	287
<b>Total</b>	<b>13,743</b>	<b>Total all other</b>	<b>4,154</b>
		<b>Total</b>	<b>8,007</b>

Source: USDOC, BEA, Survey of Current Business, October 2013, 54–55, table 5.2.

**Table B.21** Telecommunication services: U.S. cross-border telecommunications services trade yielded a deficit with the United Kingdom in 2012 (million dollars)

	Canada	Argentina	Venezuela	United Kingdom	Brazil
Exports	725	1,056	1,059	1,719	3,679
Imports	417	37	19	1,933	133
Trade balance	308	1,019	1,040	-214	3,546

Source: USDOC, BEA, Survey of Current Business, tables 5.2, October 2013, 54–55.

**Table B.22** Telecommunication services: Services supplied by U.S.-owned foreign affiliates exceeded services supplied by foreign-owned U.S. affiliates every year since 2009 (billion dollars)

	2008	2009	2010	2011
U.S.-owned foreign affiliates	( <sup>263</sup> )	32	31	35
Foreign-owned U.S. affiliates	31	30	31	31

Source: USDOC, BEA, U.S. International Services, "Detailed statistics for services supplied through affiliates," October 2013, table 9.

<sup>263</sup> Ibid.