The service sector is a large and growing contributor to the US economy. Even by the narrowest definition, it employs the majority of American workers, and many industries and subsectors within services pay average wages above the average wage in manufacturing.

Trade in services, both imports and exports, is also growing, and within the sector the share of employment in tradable activities is large. This means that a large share of the US workforce beyond the manufacturing sector is potentially exposed to the risks and opportunities of the global economy. Among that large share of tradable service jobs are many high-skill, high-wage jobs.

Few of these high-wage jobs are likely to be lost to low-wage countries. Indeed, precisely because they require a high degree of skill, they are jobs that the United States is likely to retain—and that can support exports. This book has cited numerous examples of the types of service activities that are tradable and in which the United States is likely to enjoy comparative advantage. These include engineering services like those offered by the two Siemens facilities in Wisconsin (box 1.2), advanced satellite imaging services like those marketed by GeoEye (box 5.1), and architectural services like those described in the Bay Area profiles (box 2.2), not to mention traditional services in which the United States has excelled, such as computer software.

Should the United States push for increased liberalization of trade in services? Increased trade in services would undoubtedly dislocate some US workers. But only a relatively small share of employment in tradable services is in the low-wage, low-skill activities that are likely to face competition from low-wage, unskilled-labor-abundant countries. Further, the jobs that might be affected by low-wage competition are fairly evenly distributed around the country. As a result, any dislocation associated with increased trade in these
activities would likely be spread broadly, often over large metropolitan areas, avoiding the type of concentrated dislocation that has been seen in the manufacturing sector. Most employment in tradable services, meanwhile, is in the high-skill, high-wage activities in which the United States enjoys comparative advantage. Yet participation by US service firms in the international economy lags that of manufacturing firms, in part because services have not yet been fully liberalized in countries around the world. Increased liberalization of service trade thus seems to offer considerable opportunity for these firms and their workers.

The analysis in this book yields the following conclusion: The United States should not fear increased trade in services. Instead, it should be aggressively seeking to liberalize the policy impediments to service trade wherever and whenever possible—whether in multilateral forums like the World Trade Organization, regional agreements like the North American Free Trade Agreement (NAFTA), or bilateral agreements like the recent US-Canada government procurement agreement. Indeed, the opportunities for increasing service trade are many. What, then, should be the nation’s priorities in realizing these opportunities?

Reasonable people—researchers, policymakers, and other interested participants, above all those whose living derives from the production of services—will undoubtedly have different recommendations for how to proceed. This concluding chapter presents some general observations regarding trade policy that follow naturally from the analysis presented in this book. These observations are not exhaustive, nor will they be particularly sensitive to the subtleties of the negotiations surrounding individual agreements. Instead, they are focused on the long-run, big-picture objectives that seem to flow quite logically from the analysis thus far.

Some Observations on Service Trade—and Their Policy Implications

Observation 1: The United States is relatively open to service trade; a number of large and fast-growing economies are less so.

Research by the World Bank, described in chapter 6, suggests that the United States is already relatively open to trade in services. In contrast, a number of large and fast-growing countries, notably China, India, Indonesia, and Russia, have relatively high barriers to trade in services. Other increasingly important economies, notably Brazil and Korea, maintain lower but still high barriers to service trade. These economies benefit from the open world trading regime in goods, and some of them benefit from the relatively open access that the US market provides to foreign service producers.

Service trade liberalization in these countries would allow US firms with comparative advantage in service provision to start exporting, or to increase their exports, to these countries. The US economy would benefit from increased productivity through the resulting increase in specialization. So would the
economies of other developed countries, like Canada, Japan, and many EU countries, all of which are similar in comparative advantage to the United States and would likely see their service exports grow as well. The countries that liberalize would also benefit from the increased productivity that comes from being able to import, as inputs to their own production, the world’s best services at the best price.

Implication 1: The United States should be pushing aggressively, in cooperation with other developed countries, to open these large and fast-growing markets to service trade.

Observation 2: Intellectual property is important in a number of the United States’ most important service-exporting industries.

Figure 5.3 in chapter 5 showed that US service industries differ widely in their participation in exporting, where participation is measured by their exports per worker. It is also easy to see from this figure that many of the most export intensive service industries are those with important holdings of intellectual property—copyrighted creative works, patented innovations, and so forth—and thus are heavily reliant on intellectual property protections. Motion picture and video production and distribution, sound recordings, and software all depend on these protections to remain viable in export markets.

Yet several large and fast-growing economies make perennial appearances in US government reports on countries with weak intellectual property protections. The 2010 Special 301 Report, issued by the US Trade Representative, appraises intellectual property protections in countries around the world and lists China, India, Indonesia, and Russia on its “priority watch list.”

Implication 2: The United States needs to continue to stress to its trading partners the importance of intellectual property protections for US service export industries and push for improved intellectual property protections internationally.

Observation 3: The world, led by a number of fast-growing developing countries, is about to undergo an infrastructure boom of historic proportions. Many US service firms are competitive in the types of services that will be needed for these projects.

It is estimated that over $40 trillion could be spent on infrastructure of all types worldwide over the next 25 years, more than 80 percent of it outside the United States.¹ China and India alone have infrastructure needs valued at $10 trillion over that period, and even many developed countries are facing huge expenditures to replace and refurbish their decaying infrastructure systems. All this represents a potential bonanza for construction and engineering firms and for international banks and financial service providers (see box 9.1). More than half of the sum would be spent for water and sewer treatment systems, requiring just the type of services that the Siemens divisions

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Box 9.1  A glimpse into the globally competitive engineering service arena

Engineering services are essential for the planning, design, and management of large infrastructure projects—and are tradable. They are also big business in the United States. The US engineering service industry employed almost 1 million workers in 2007 (well over 1 million when combined with architectural services and other closely related industries), more than the automobile industry and twice as many as the aerospace industry (see table B9.1.1). And with average annual wages of about $73,000, engineering service firms pay more on average than either of those manufacturing industries. US engineering and construction companies have valuable expertise that could be—and is being—exported to developing countries in the building of water and sewer treatment systems, roads, bridges, airports, seaports, railroads, and other types of projects.

Table B9.1.1  Employment and average annual wages in selected US service and manufacturing industries, 2007

<table>
<thead>
<tr>
<th>NAICS code</th>
<th>Industry*</th>
<th>Employment</th>
<th>Average annual wage (dollars)</th>
</tr>
</thead>
<tbody>
<tr>
<td>541330</td>
<td>Engineering services</td>
<td>977,031</td>
<td>73,000</td>
</tr>
<tr>
<td>541310</td>
<td>Architectural services</td>
<td>205,883</td>
<td>67,000</td>
</tr>
<tr>
<td>5413</td>
<td>Total engineering, architectural, and related services</td>
<td>1,423,209</td>
<td>68,000</td>
</tr>
<tr>
<td>3361, 3362, 3363</td>
<td>Motor vehicles</td>
<td>909,665</td>
<td>52,000</td>
</tr>
<tr>
<td>3364</td>
<td>Aerospace</td>
<td>441,418</td>
<td>68,000</td>
</tr>
</tbody>
</table>

NAICS = North American Industry Classification System

a. Figures for motor vehicles and aerospace include employment in parts manufacturing.

Source: 2007 Economic Census.

The stereotypical image of engineering service firms as small partnerships, employing a handful of professionals to serve a limited base of mostly local or regional clients, is increasingly outdated. Indeed, at least 10 such firms are in the Fortune 500. The third-largest of these (behind Fluor and KBR), and an important exporter of engineering, construction, and other services, is Jacobs Engineering Group. The company’s 2010 SEC 10-K filing describes its activities:

Our business focuses exclusively on providing a broad range of technical, professional, and construction services to a large number of industrial, commercial,
and governmental clients around the world. We provide four broad categories of services:

- Project Services (which includes engineering, design, architectural, and similar services);
- Process, Scientific, and Systems Consulting services (which includes services performed in connection with a wide variety of scientific testing, analysis, and consulting activities);
- Construction services (which encompasses traditional field construction services as well as modular construction activities, and includes direct hire construction and construction management services); and
- Operations and Maintenance services (which includes services performed in connection with operating large, complex facilities on behalf of clients as well as services involving process plant maintenance).

Headquartered in Pasadena, California, Jacobs Engineering employed about 38,500 full-time employees (including contract staff) in 2010 at offices and subsidiaries in Europe, the Middle East, Asia, and Australia as well as elsewhere in North America. That same year, Jacobs earned approximately 30 percent of its revenue from clients outside the United States.

The activities in which Jacobs Engineering operates are intensely competitive, with firms of all sizes vying for an increasingly global business. Some, like Jacobs, are publicly traded companies, whereas others, like Bechtel, are privately held. Although large, internationally well-known companies like Jacobs have an advantage in bidding for large construction and operations-and-maintenance projects, low barriers to entry in other activities such as engineering, design, and consulting give rise to myriad opportunities for smaller competitors, including new entrants. The following, also from the company’s 10-K, gives a sense of the array of competitors Jacobs faces and how that competition varies by type of service, geographic market, and project:

Our larger competitors for engineering, construction, and maintenance services for process plants include Bechtel, Fluor, Foster Wheeler, KBR, Aker Kvaerner, Technip, WorleyParsons, the Shaw Group, and AMEC. In the area of buildings, our competitors include several of the competitors previously mentioned as well as HDR, HOK, AECOM, and Turner. In the area of infrastructure, our competitors include several of the competitors previously mentioned as well as URS, Parsons Brinckerhoff, HNTB, Tetra Tech, Parsons, and W.S. Atkins. In the area of national government programs, our principal competitors include several of the competitors listed above as well as SAIC, CH2M Hill, Weston, Lockheed Martin, and Computer Sciences Corporation.

One way that Jacobs meets the competitive challenge is by actively acquiring other firms that possess key technological expertise. The firm’s 10-K also
Box 9.1  A glimpse into the globally competitive engineering service arena (continued)

10-K also describes some of its recent acquisitions, giving a further sense of the breadth of services Jacobs provides and the employment associated with these services—and of the extent to which the relevant skills remain relatively abundant across the United States:

- In April 2007, we acquired Edwards and Kelcey, Inc., a nationally recognized engineering, design, planning, and construction management firm serving public and private clients in the fields of transportation, planning/environmental, communications technology, buildings/facilities, and land development. Headquartered in Morristown, New Jersey, Edwards and Kelcey employed approximately 1,000 people in offices located primarily in the Northeastern region of the United States.

- In November 2007, we acquired Carter & Burgess, Inc. Headquartered in Fort Worth, Texas, Carter & Burgess was an approximately 3,200-person professional services firm providing architecture, engineering, design, and planning services to public and private sector clients operating in the fields of transportation, water, infrastructure programs, building programs, land development, and planning.

- In December 2009, we acquired TYBRIN Corporation, a 1,500-person professional services firm headquartered in Fort Walton Beach, Florida. Founded in 1972, TYBRIN is a leading supplier of mission planning solutions, systems engineering, software development, modeling and combat environment simulation, engineering and testing, range safety, and other services to the U.S. Department of Defense, the National Aeronautics and Space Administration, and other government clients.

- In February 2010, we acquired Jordan, Jones and Goulding, Inc., a 500-person professional services firm headquartered in Atlanta, Georgia. Founded in 1958, JJG provides engineering, planning, and consulting services for water, wastewater, environmental and other clients.


based in Wisconsin (profiled in chapter 1) provide. Box 9.2 describes the role of US service firms in an ambitious development project to build an entire city in South Korea.

The opportunity presented by this infrastructure boom is clear, as is the need to ensure that US firms have equal access to compete for the financing, architecture, engineering, project management, and construction work associated with this boom. What is less clear is exactly how to proceed. As chapter 6 described, trade in services is subject to a complex suite of impediments that are more difficult to negotiate down than tariffs. For example, licensing and accreditation are often issues for individual professional service providers,
and many countries require foreign service firms to establish a commercial presence or take on local partners. But the difficulties involved in negotiating access are not an excuse for not pushing hard for improvements.

Indeed, the United States has already made progress in negotiating access for service providers, both in regional agreements like NAFTA and in bilateral agreements like the Korea-US Free Trade Agreement. Yet such agreements are lacking with other large, fast-growing economies, and it is precisely these countries where most of the growth is going to be and where US comparative advantage in the relevant services is most pronounced. Other developed economies also have comparative advantage in services and would be natural partners in persuading the large, fast-growing countries with high service barriers to liberalize.

Implication 3: The United States, working through the General Agreement on Trade in Services (GATS), should join with other developed countries in pushing for further liberalization of business services, to ensure that US service firms and workers have the opportunity to compete in the coming infrastructure boom.
Observation 4: The WTO’s government procurement agreement is likely to prove an important framework for enabling US firms to compete for infrastructure projects—but a number of large, fast-growing economies are not signatories to the agreement.

Much of the spending for infrastructure in the coming boom is likely to be controlled or financed, at least in part, by governments—national, regional, and local. Those governments are sure to be subject to domestic political pressure to favor domestic producers in granting contracts for this work. This makes guaranteeing equal treatment in government procurement a crucial issue for foreign service providers. The WTO’s Agreement on Government Procurement was negotiated during the Tokyo Round of GATT negotiations in the early 1980s with the intention of reducing preferences to domestic firms in public procurement and opening public works spending to international trade. Its coverage was extended tenfold in the subsequent Uruguay Round and now extends to government purchases totaling several hundred billion dollars annually. However, this large sum obscures the fact that to date only a relative handful of countries have signed the agreement, virtually all of them in the developed world. In particular, none of the large developing countries expected to account for the bulk of infrastructure spending in coming decades—Brazil, China, India, and Russia—are participants in the agreement.

Nor is the lack of developing country participation the only problem: Even the current signatories sometimes find it difficult to adhere to their obligations under the agreement. The issue was highlighted by the “Buy American” provisions in the 2009 American Recovery and Reinvestment Act, the main US stimulus legislation in response to the 2007–09 recession. The act’s provisions gave US producers preferential access to government contracts financed by stimulus funds, creating difficulties not only for would-be foreign suppliers but even for US firms with Canadian subsidiaries that provide inputs to their products: Under the law, if too much Canadian content was included in a product, the product was ineligible for stimulus money.

The United States and Canada recently signed an agreement to prevent this type of distortion, but the episode shows how political considerations can bias government procurement decisions even when the countries involved are developed economies, close neighbors, and signatories to the WTO agreement. The pressures are naturally much more acute and harder to overcome when the countries are half a world apart and have very different business systems and cultures. This emphasizes the need for stronger protections in the area of government procurement. Getting all the large, fast-growing economies of the world to sign on to the WTO agreement will not solve all problems, but it would be a move in the right direction.

Implication 4: The United States, again in cooperation with other developed countries, should strongly encourage large and fast-growing countries to sign on to the WTO government procurement agreement.
Observation 5: Education matters.

Some observers contend that service offshoring negates the benefits of education, claiming that having an education does not prevent one’s job from being outsourced. But this is far from true.

It is true that having an education does not prevent one’s job from being tradable. Indeed, as previous chapters show, tradability and education are positively correlated: Workers in tradable jobs, in both manufacturing and services, tend to have more skills and more education than workers in nontradable jobs. But to argue that because a job is tradable it will therefore be traded away, and that therefore education confers no protection, is a counsel of despair—and unwarranted. In fact, high-skill, high-wage service jobs are precisely the types of jobs that are likely to stay in the United States. That is the lesson of comparative advantage—and of the US experience in manufacturing. Also, better-educated workers have lower displacement rates and higher reemployment rates. Education remains a good investment for individual workers.

Education is a good collective investment as well. The farsighted investments that the United States made in primary, secondary, and college education during the latter part of the 19th century and throughout the 20th century created the comparative advantage in skilled production that the nation enjoys today. The United States has historically been well out in front of the rest of the world in the share of its workforce that is college educated. Unfortunately, this is less true today than it has been in the past.

Figure 9.1 shows, for a number of developed and developing countries worldwide, average educational attainment for the population aged 25 to 29 and for the population aged 60 to 64; the size of each bubble represents the population of the indicated cohort in the indicated country. The developed economies have historically been relatively skill abundant countries, with the United States in the lead. This is reflected in the height of the bubbles for the 60-to-64 cohorts in these countries. The bubbles for the 25-to-29 cohorts show, however, that the rest of the world has learned the lesson that higher levels of educational attainment are strongly associated with higher living standards. A number of important countries in the world economy, including Brazil, China, Indonesia, Japan, Korea, and Mexico, have made dramatic increases in average education levels. India’s average improvement is smaller but noteworthy for the sheer number of people whose education has increased. As a result, the United States is no longer an outlier—indeed, average educational attainment actually falls in the United States as one moves from the older to the younger cohort. The failure of the United States to maintain its lead in educational attainment is likely to alter the country’s skill abundance relative to other countries, with sobering implications for the nation’s comparative advantage and living standards.

Implication 5: The United States should make access to good primary, secondary, and postsecondary education a high national priority.
Observation 6: There will continue to be dislocation of workers at the low end of the skill and income distribution, both in the manufacturing sector and increasingly in the service sector. Some of this will be driven by trade, some by automation, and it will be difficult to discern how much is due to each.

As a condition for further service trade liberalization in the GATS, the United States may find it necessary to change its regulatory practices and policies in a way that actually increases the competitive pressure on low-wage, low-skill US workers. For example, in return for concessions that favor US service producers, other countries may demand that the United States allow more temporary construction workers or nursing aides to enter the country. High-skill, high-wage US firms and workers—and consumers—would likely be the beneficiaries of such a bargain, but workers at the low end of the distribution are likely to bear a disproportionate share of the adjustment costs. In such a scenario, it would make sense to reinforce the social safety net for workers in general, but particularly for the lowest paid and least skilled, to mitigate the
downside risks they face from a dynamic economy. The extension of trade adjustment assistance benefits to service workers in 2009 was a useful start, though this modest extension of benefits has since expired. More can be done.

Implication 6: The United States should strengthen the social safety net for workers dislocated by trade and technological advancement.

The Need for Better Data on Services

The policy agenda with respect to services and service trade is challenging. As such, it will succeed only if those charged with implementing it are well informed. To make sound decisions about the service economy at home and to represent their countries effectively in negotiations on service trade, all policymakers need detailed and timely information about a range of service-related topics, including what services are currently being traded, on what scale, and with which other countries. They also need a solid basis for estimating how this trade will evolve in the future, and in particular what services might be traded tomorrow that are not yet being traded today. For that, information is needed about the intensities of the different factors used in service production, as well as about the relative abundance of those factors in different regions. Detailed information about the producers and traders of services, actual and potential, is needed as well, including information about firm size, the productive factors used and their compensation, productivity, and the extent to which firms in different industries, of different sizes, and in different locations are already engaged in trade. Perhaps most daunting of all, policymakers need reliable information not only about the services produced within their jurisdictions, but also about the services produced in other countries with which their own country might trade, now or in the foreseeable future.

The simple truth is that information about services and service trade of the necessary depth and breadth is lacking for every country in the world—not excepting the United States, although the data produced by the US official statistical agencies are far better than what is available for most countries. Appendix A presents a detailed analysis and specific recommendations for expanding and improving the collection and presentation of US data on services, drawing on the report of an MIT working group of which I was a member. However, two overarching needs can be signaled here as high priorities for any such effort:

1. *Increased industry and geographic detail on trade in services:* Current statistics on trade in services are not detailed enough to support robust empirical analysis. Increasing this detail will require the collection of information from a larger sample of firms, improved access to an adequate sampling frame to support representative sampling, and lower reporting thresholds.

2. *More-detailed information on the inputs used in domestic service production:* Current data on service production do not provide enough information...
on the factor inputs used. More information should be collected on skill intensity, capital intensity, and services purchased as inputs. These data should be collected at the establishment level to the extent possible to increase the industry and geographic detail available.

Obviously, the improvements recommended here and in appendix A will require that increased resources be allocated to the official statistical agencies, at a time when the need to tighten rather than expand the federal budget over the long run is universally recognized. However, as appendix A also shows, there are at present some unnecessary inefficiencies in how the tasks of data collection and analysis are apportioned across agencies. Although no one would suggest that removing these inefficiencies would allow the recommendations presented here to pay for themselves in full, one can be almost certain that it would go some way toward reducing the net cost. One thing that is certain is that the improved understanding of the nation’s service sector that would result from improved data collection would eventually repay the effort many times over.

Conclusion

Services in the United States have long gotten too little respect. It is no exaggeration to say that the service sector has often been treated like a poor step-child, deemed capable of performing only menial, supportive tasks while her more favored stepsisters, manufacturing in particular, capture the limelight. Championed by pundits and courted by policymakers, the stepsister sectors remain the center of attention in both domestic economic policy deliberations and international trade negotiations.

Services’ turn as the star of the ball may be coming, however. Awareness is growing not only that the service sector is the largest and the fastest growing sector in the US economy by virtually any measure, but also that many service industries—employing in the aggregate more workers than the whole manufacturing sector—pay good wages, indeed better than the manufacturing average. Service firms employ many of the United States’ best-educated and most creative workers in activities that typically pose few health and safety risks and that leave a small environmental footprint.

In short, many if not most US service jobs are jobs well worth keeping in the United States, not because they are a last resort for otherwise unemployable ex-manufacturing workers, but because they are good, high-paying, “clean” jobs. Today, however, falling costs of travel and telecommunications are exposing this formerly stay-at-home sector to international competition, leading to fears that a wide swath of service firms and workers will suffer as output and jobs are lost to foreign countries where average wages are often much lower.

These fears are understandable—every debutante is nervous on the eve of the big gala. But as this book hopes to have shown, they are also unwarranted. The US service sector is globally competitive, as evidenced most concretely by the fact that the nation’s balance of trade in services, in sharp contrast to the
merchandise balance, has been consistently positive for decades. This suggests—and the analysis in this book provides ample evidence to confirm—that the United States has comparative advantage in many, perhaps most, of the services that technology is now opening to trade. In particular, the high-skilled, high-wage jobs typical of the business service sector—a large sector that includes engineering, finance, design, computer programming, and many other activities—are precisely the kind that low-wage developing countries will find difficult to match and that therefore the United States should be able to retain. Increasing trade in services will allow the best, most efficient US service firms to expand, thus increasing overall US productivity, while US consumers and businesses gain greater access to the best services that the rest of the world has to offer.

To be sure, there are risks. Some low-skill, low-wage service workers almost certainly will be displaced by imports from other countries that have comparative advantage in those industries, just as US manufacturing lost many such jobs in the recent past. Another risk is that some of the countries to which those activities migrate will fail to reciprocate by lowering their own barriers to service trade, thereby placing an artificial handicap on US service exporters.

However, it is unlikely that the globalization gala will end with America’s fast-growing service exporters turning into pumpkins. The risks of growing service trade seem manageable, and in any case the technologies driving that carriage are almost impossible for the usual government-imposed barriers to halt or even restrain. But as I have argued, there is much that US policymakers, working with their counterparts in other developed countries through the existing WTO framework, can do to keep the carriage from veering off the road:

- They can encourage developing countries to lower their barriers to service trade, to the benefit of those countries themselves as well as that of developed country exporters.
- They can push for enhanced enforcement of intellectual property rights of all kinds, so that service exporters worldwide can realize a return that gives them an incentive to continue investing in innovation.
- They can advocate, within the context of the GATS, for a faster pace of liberalization of trade, particularly in the services needed to support the coming worldwide infrastructure boom.
- They can pressure developing countries, especially the largest and fastest-growing ones, to sign the WTO’s government procurement agreement—and set an example themselves by adhering to its letter and its spirit.
- They can reaffirm their commitment to public support for education at all levels, as education is the very basis of comparative advantage in high-skilled services.
- They can work to strengthen the social safety net for workers dislocated by trade, whatever their sector or occupation, not just because those workers deserve no less, but also as a way of enlisting them as willing social partners in liberalizing service trade.
The globalization clock may not be counting down to midnight, but there is nonetheless reason for urgency in liberalizing world trade in services. The imminent global infrastructure boom is a huge opportunity that US and other developed country firms can avail themselves of only if they are able to compete for the vast array of services that will support that undertaking. Most of that infrastructure will be built in developing countries, and it is precisely they that have the furthest to go in opening their procurement practices, safeguarding the intellectual property rights of foreign innovators, harmonizing their entry and licensing requirements with global standards, and clearing away the other entanglements that now impede service trade. Developing countries should do these things not for the sake of boosting the profits of US (and other developed country) firms and the wages of US workers—although such measures it will do that. Rather, they should do them because they will thereby gain access to the world’s best talent and know-how, allowing them to meet their infrastructure needs more quickly and cheaply and with the best practices and methods. Thus, service trade liberalization is as much in their interest as it is in the interest of US service providers and the US economy more broadly. For their part, the United States and the other developed countries should be encouraging and supporting this liberalization while ensuring that their own policies toward the service sector are in harmony with each other and supportive of beneficial trade for all.