

American Companies and Global Supply Networks

Driving U.S. Economic Growth and Jobs by Connecting with the World

Matthew J. Slaughter



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December 2012

This report was sponsored and published by Business Roundtable, the United States Council for International Business and the United States Council Foundation. The views expressed in this report are those of the author.

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Executive Summary

America today sits at an economic crossroads, unsure of what path to take to confront its competitiveness challenge of too little economic growth and too few jobs. The good news is there is a future in which America can create millions of good jobs and strengthen its economic growth by seeking opportunities in global markets via international trade and investment. Doing so will require thoughtful U.S. policies that promote U.S. competitiveness and are based on a sound understanding that the success of American companies, and of the U.S. workers they employ, increasingly hinges on their success as globally engaged companies.

This report aims to provide that understanding by explaining what American companies must do to succeed in today's dynamic global economy: an explanation — based on current statistics, academic and policy research, and case studies — of the mindset, goals and methods that create success in innovative, forward-looking companies. The report makes three main points about globally engaged U.S. companies.

- ▶ **First, they are fundamentally American companies driving the capital investment, research and development (R&D), and international trade that support economic growth and well-paying jobs in the United States.** As a group, they have long performed large shares of such productivity-enhancing activities in America. They employ tens of millions of Americans, invest hundreds of billions in U.S. R&D and capital, and buy trillions in goods and services from U.S. vendors, ultimately producing trillions in American goods and services. They foresee maintaining a major U.S. presence well into the future. In the United States, like much in America, they are a richly diverse group in size, employment, industry and customers.
- ▶ **Second, their success in America increasingly hinges on their being globally engaged.** To remain dynamic and innovative, they must engage with the world. They venture abroad to meet the growth in global demand that, over the past generation, has been much faster than that in the United States and thus presents vast new markets with billions of new customers. They venture abroad to refine their operations by creating and integrating into global supply networks, which include both U.S. and foreign companies. Their success in America increasingly hinges on creative new ways to make goods and services around the world. “Made in America” increasingly involves the rest of the world.
- ▶ **Third, their engagement around the world boosts hiring, investment, and R&D in their U.S. operations.** They create and support the jobs that America needs, but their job creation is neither simple nor static. They create jobs in America connected to growth in global demand and to their global supply networks. Expansion abroad by U.S. companies tends to complement their U.S. operations, with more hiring and investment abroad often boosting hiring, investment, and R&D in their U.S. operations. And they create jobs in America in other companies, not just in themselves. In particular, they create jobs in small and medium-sized American enterprises that become part of their global supply networks.

There is no single strategy for what American companies must do to succeed and create jobs when venturing abroad. To stay ahead of intense international competition, American companies must create, implement and change strategies from a truly global perspective, with dynamic differences in successful strategies both across companies at a point in time and within companies over time. The intensity of worldwide competition means globally engaged U.S. companies need flexibility to experiment, learn, fail, adjust and succeed.

Key Facts

Globally engaged U.S. companies are fundamentally American companies. As a group, they have long performed large shares of America's productivity-enhancing activities that create tens of millions of well-paying jobs. This group, like much in America, is richly diverse in size, employment, industry and customers.

- ▶ Multinational companies operating in the United States in 2010 employed 28.1 million Americans, performed \$253.8 billion in research and development (R&D), invested \$587.3 billion in capital, and bought from U.S. suppliers more than \$8.0 trillion in goods and services.
- ▶ The worldwide operations of U.S.-headquartered multinational companies are highly concentrated in America in their U.S. parents, not abroad in their foreign affiliates: In 2010, U.S. parents accounted for 67.3 percent of their companies' worldwide employment, 72.5 percent of capital investment, and 84.3 percent of R&D.
- ▶ Today about 26 percent of U.S.-based multinational companies have U.S. parent companies that are classified by the U.S. government as small businesses because they employ fewer than 500 people.

To remain dynamic and innovative, U.S. companies must engage with the world, and a primary motive for expanding abroad is to meet the rapid growth in global demand. With more than 95 percent of the world's consumers living outside the United States, the success of American business increasingly hinges on venturing into the global marketplace for new customers.

- ▶ From 1991 through 2011, growth in U.S. gross domestic product (GDP) averaged about 2.4 percent. This growth was slower than what much of the world achieved over this generation: averages of 3.4 percent for the overall world, 5.0 percent for emerging and developing countries, 6.6 percent in India, and a remarkable 10.4 percent in China. The U.S. share of world GDP fell from 32.3 percent in 2001 to just 21.6 percent in 2011.
- ▶ Because foreign markets are growing faster than the U.S. market, for U.S.-based multinational companies output growth has been much faster abroad than at home. Over 1999–2009, value added across all their foreign affiliates grew at an annual average of 7.0 percent — versus an annual average of just 1.7 percent in their U.S. parents. Average affiliate output growth was 8.4 percent in Brazil, 22.8 percent in China, 24.9 percent in Eastern Europe and 26.8 percent in India.
- ▶ More than 90 percent of what foreign affiliates of U.S.-based multinationals produced abroad in 2009 was sold abroad, rather than being imported back to America.

Another essential reason why U.S. companies venture abroad is to refine operations by creating and integrating into global supply networks. Their success in America increasingly hinges on expanding into the world for creative new ways to produce goods and services.

- ▶ The cumulative share of foreign value added in world exports rose by about 14 percentage points from 1970 to 2009, doubling from 13 percent to about 27 percent. The foreign content of U.S. exports tripled, rising from about 7 percent in 1970 to 22 percent in the late 2000s.
- ▶ From 1989 to 2009, the share of intermediate inputs in total sales rose for both the U.S. and foreign operations of U.S.-based multinationals: from 66.6 percent to 73.3 percent for U.S. parents and from 71.7 percent to 76.5 percent for foreign affiliates.

Global demand growth and global supply networks tend to create American jobs. Expansion abroad by U.S. multinational companies tends to complement their U.S. operations. Globally engaged U.S. companies also create jobs in America in other companies — including in their small-business suppliers.

- ▶ The U.S. parent enterprise of the typical U.S. multinational buys more than \$3 billion in inputs (goods and services) from more than 6,000 American small businesses, which is more than 24 percent of its total input purchases.
- ▶ One study of all U.S. multinationals in manufacturing from 1982 to 2004 found that a 10 percent increase in foreign-affiliate employee compensation causes an average response of a 3.7 percent increase in that affiliate's U.S. parent employee compensation.
- ▶ From 1999 through 2009, the percentage decline in U.S. manufacturing jobs was larger among those companies that were not part of a U.S.-based multinational company — 40.7 percent — than among the U.S. parents in U.S. manufacturing — 23.9 percent.
- ▶ From 1999 through 2009, U.S. parent employment in services rose by 1.26 million.

I. Introduction: The Competitiveness Challenge of Building American Jobs Connected to the World

America today sits at an economic crossroads, unsure of what path to take to confront its competitiveness challenge of too little economic growth and too few jobs. America's labor market is deeply strained, with too few Americans finding full employment or earning growing paychecks. This hardship is coloring Americans' mood and outlook. Many American families are anxiously wondering, "Where is the growth, and where are the jobs?"

The good news is there is a future in which America can answer these questions with strong growth, more jobs and rising wages. Creating this future will take persistence because of the magnitude of the challenge. It will take imagination to craft policies to support the employers that ultimately create growth and jobs. And it will take determination to base these policies on a sound understanding of how companies actually succeed in today's dynamic global economy. This optimistic future is not guaranteed. But it is no doubt attainable.

The fundamental economic question facing America today is whether the country can craft policies that help U.S. companies compete globally so they can expand activities in America that are connected to the global marketplace — where more than 95 percent of the world's customers live. Can U.S. policies encourage globally engaged companies to stay competitive to help build more jobs in America that are connected to the world?

The answer to this question depends critically on understanding what companies in America must do to succeed in today's dynamic global economy. Too many policy conversations are based on dreams either of how companies used to operate in the past or of how companies might operate in some idealized future. These visions see companies that are the world's best in all activities and all industries; companies that manufacture goods 100 percent "Made in America" using only U.S. workers, capital, ideas and inputs; and companies that do a bit of exporting to the rest of the world as a pleasant fillip to their main focus of serving the domestic U.S. market. These visions are no longer realistic nor viable in today's global marketplace.

Sound policy should be based on a solid understanding of what American companies must do to succeed in today's dynamic global economy. This report aims to provide that understanding: an explanation — based on current statistics, academic and policy research, and case studies — of the mindset, goals and methods that create success in innovative, forward-looking companies.

The report contains three main messages about globally engaged U.S. companies — that is, companies in America that engage the world via connections such as international trade or international investment.

- ▶ **First, they are fundamentally American companies.** As a group, they have long performed large shares of America’s productivity-enhancing activities — capital investment, R&D, and international trade — that create tens of millions of well-paying jobs. They foresee maintaining a major U.S. presence well into the future. This group, like much in America, is richly diverse in size, employment, industry and customers.
- ▶ **Second, they are deeply global as well.** To remain dynamic and innovative, they must engage with the world to meet the growth in global demand by serving new customers; refine operations by creating and integrating into global supply networks, which include both U.S. and foreign companies; and learn by seeking new mindsets, ideas and colleagues. Their success in America increasingly hinges on their competitiveness in the global marketplace.
- ▶ **Third, they create and support the jobs that America needs.** But their job creation is neither simple nor static. They create jobs in America connected to growth in global demand and to their global supply networks. And they create jobs in America in other companies, not just in themselves — jobs in small-business suppliers, in particular.

There is no single strategy for what American companies must do to succeed and create jobs when venturing abroad. To stay ahead of intense international competition, American companies must create, implement and change strategies from a truly global perspective, with dynamic differences in successful strategies both across companies at a point in time and within companies over time. The intensity of worldwide competition means globally engaged U.S. companies need flexibility to experiment, learn, fail, adjust and succeed.

How these companies create jobs in America when venturing abroad is similarly dynamic. They both expand and reduce jobs as strategies and opportunities evolve, with net payrolls often rising but sometimes falling — often both rising and falling across different activities at the same time. America can indeed create millions of new jobs connected to the world. It can do this by fostering in its leading companies the flexibility to continually refine what they make, how and where they make it, and how and where they sell it.

There is no good alternative to a policy framework based on a sound understanding of what American worldwide companies must do to succeed. Without this understanding, America risks turning inward in a way that would leave its workers even more stagnant and isolated from a world economy that will grow in opportunity whether or not America plays a role. The world and the options it presents to successful companies in the 21st century are dramatically expanding. The United States cannot rest on past strengths. U.S. policymakers must craft policies aimed at sustaining an environment that both attracts the world’s best companies and helps these companies compete globally.

America can undoubtedly meet this challenge. But doing so will require U.S. policies that help all companies in America — big and little, U.S. and foreign, young and old — compete globally.

II. Globally Engaged U.S. Companies Are Fundamentally American

U.S. companies with worldwide operations are fundamentally American companies. As a group, they have long performed large shares of America's productivity-enhancing activities — capital investment, R&D, and international trade — that create tens of millions of well-paying jobs. They foresee maintaining a major U.S. presence well into the future. This group, like much in America, is richly diverse in size, employment, industry and customers.

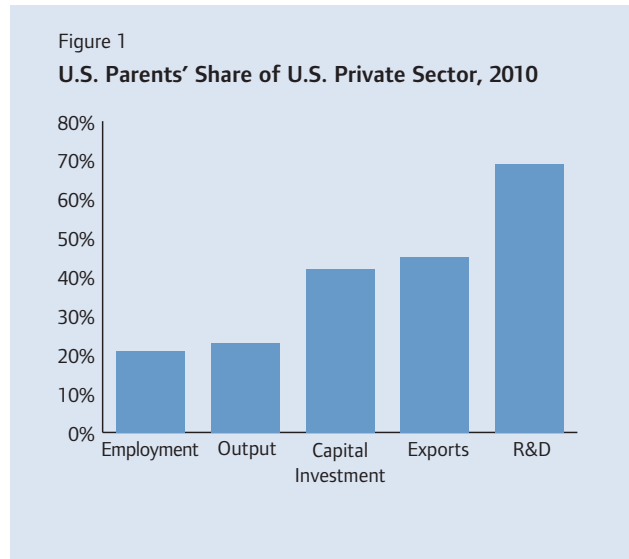
It is sometimes claimed that globally engaged U.S. companies — that is, companies in America that engage the world via connections such as international trade or international investment — retain little activity in America because they locate abroad most of their employment, capital investment and other key activities.

This claim is incorrect. In particular, both U.S.-headquartered multinational companies and foreign-headquartered multinational companies that operate in America are fundamentally American. They have long performed large shares of America's productivity-enhancing activities — capital investment, R&D, and international trade — that create tens of millions of well-paying jobs. And the global operations of U.S.-based multinationals are highly concentrated in America in their U.S. parents, not abroad in their foreign affiliates.

Globally engaged companies maintain a large presence in America, both relative to the overall U.S. economy and, for U.S.-based firms, relative to the size of their foreign affiliates. And within this set of companies there is rich diversity in their overall size, employment opportunities, industries of operation, and blend of customers here and abroad.

Globally Engaged U.S. Companies Are a Large Part of the Overall U.S. Economy

As a subset of globally engaged U.S. companies, U.S.-headquartered multinational companies perform large shares of America's productivity-enhancing activities — capital investment, R&D, and international trade — that create tens of millions of well-paying jobs for their American workers. Each year the Bureau of Economic Analysis (BEA) of the U.S. Department of Commerce conducts a survey that, by legal mandate, tracks all multinational companies headquartered in the United States — for each multinational both its U.S. “parent” operations and also the operations of each of its foreign affiliates (see Appendix for definitions and details). Figure 1 reports the share of important activities in the overall U.S. private sector accounted for by the U.S. parent operations of U.S.-headquartered multinationals in 2010, the most recent year of available data.¹



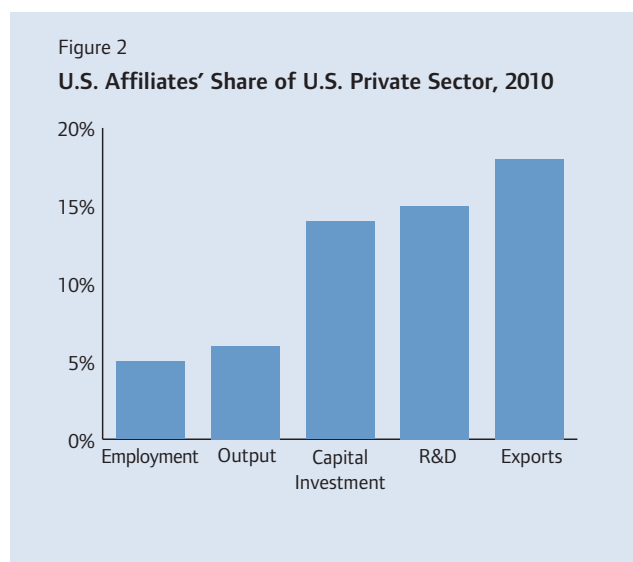
The parent operations of U.S.-based multinationals perform large shares of America's innovative activities that lead to millions of high-paying American jobs and support overall growth.

- ▶ **Output:** Parent companies produced 23.0 percent of all private-sector output (measured in terms of GDP) — nearly \$2.9 trillion.
- ▶ **Capital Investment:** Parent companies purchased \$438.8 billion in new property, plant and equipment — 42.3 percent of all private-sector capital investment.
- ▶ **Exports:** Parent companies exported \$573.3 billion of goods to the rest of the world. This constituted 44.8 percent of the U.S. total.
- ▶ **R&D:** To discover new products and processes, parent companies performed \$212.5 billion of R&D. This was approximately 68.8 percent of the total R&D performed by all U.S. companies.

All these innovative activities contribute to millions of well-paying jobs in America. In 2010, U.S. parent companies employed more than 22.8 million U.S. workers, 20.5 percent of total private-sector payroll employment. Of these jobs, 30.3 percent — more than 6.9 million — were in manufacturing, far higher than manufacturing's 10.7 percent share of all jobs in the overall U.S. private sector today. Total compensation at U.S. parent companies exceeded \$1.6 trillion — a per-worker average of \$70,682, about a third above the average for the rest of the private sector.

Moreover, the important contribution of U.S. parent operations to the overall U.S. economy has been quite stable for decades. In 1988, for example, U.S. parents' capital investment and R&D spending were 31.4 percent and 72.5 percent, respectively, of the economywide private-sector totals — very close to the 2010 shares. This stability over time demonstrates their ongoing contributions to the overall U.S. economy.

The other important subset of globally engaged U.S. companies operating in America is the U.S. affiliates of foreign-headquartered multinational companies (see Appendix for exact definitions and details). Like the U.S. parents of U.S.-based multinationals, the U.S. affiliates of foreign-based multinationals perform large shares of America's productivity-enhancing activities — capital investment, R&D, and international trade — that create millions of jobs and high average compensation for their American workers. Figure 2 reports their share of important activities in the overall U.S. private sector accounted for in 2010, the most recent year of available data.²



U.S. affiliates of foreign-based multinationals perform large shares of America's innovative activities that lead to millions of high-paying American jobs and support overall growth.

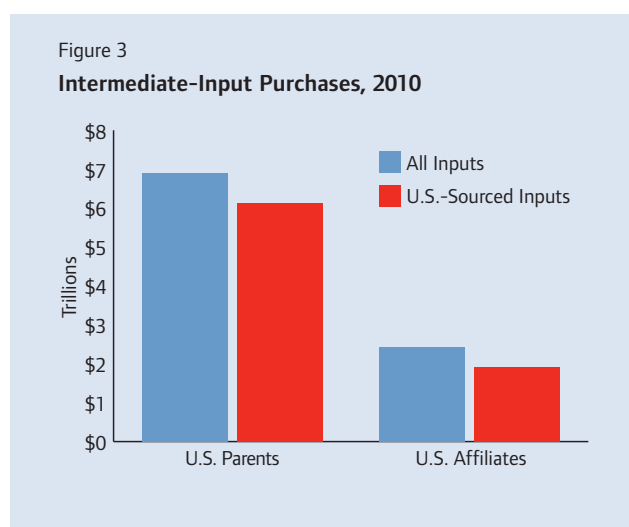
- ▶ **Output:** U.S. affiliates produced 5.8 percent of all private-sector output (measured in terms of GDP) — \$649.3 billion.
- ▶ **Capital Investment:** U.S. affiliates purchased \$149.0 billion in new property, plant and equipment — 14.4 percent of all private-sector capital investment.
- ▶ **R&D:** To discover new products and processes, U.S. affiliates performed \$41.3 billion of R&D. This was approximately 15.3 percent of the total R&D performed by all U.S. companies.
- ▶ **Exports:** U.S. affiliates exported \$229.3 billion of goods to the rest of the world. This constituted 17.9 percent of the U.S. total.

All these innovative activities contribute to millions of well-paying jobs in America. In 2010, these U.S. affiliates employed nearly 5.3 million U.S. workers, 4.7 percent of total private-sector payroll employment. Their total compensation was \$408.0 billion — a per-worker average of \$77,409, more than a third above the average for the rest of the private sector. Of these jobs, 37.7 percent — nearly 2.0 million — were in manufacturing, far higher than manufacturing’s 10.7 percent share of all jobs in the overall U.S. private sector today.

Globally Engaged U.S. Companies Do Substantial Business with Domestic Companies in America

Multinational companies also contribute to the U.S. economy through their interactions with domestic U.S. firms and, more broadly, with schools and many other American institutions that foster skills, jobs and overall productivity. The performance of domestic companies is enhanced by exposure to new techniques and practices of multinational companies, as an important part of the broader gains they realize from access to the global marketplace. The scope for these links from multinational companies to other domestic companies is very large. In particular, to make competitive goods and services, successful global companies rely on a wide range of intermediate inputs — i.e., of goods and services made by other companies and purchased for use by their own workers and capital.

Just how much business is this for domestic companies supplying these American worldwide companies? Figure 3 answers this important question. For both U.S. parents of U.S.-based multinationals and the U.S. affiliates of foreign-based multinationals, it reports both the dollar value of all inputs purchased and also the dollar value of all inputs purchased from other U.S. companies (rather than from companies abroad). All data are for 2010, the most recent year available.³



One striking fact of Figure 3 is the massive quantity of intermediate inputs purchased by these two groups of worldwide companies in America: nearly \$6.9 trillion for U.S. parent companies and more than \$2.4 trillion for U.S. affiliate companies — more than \$9.3 trillion total. And an equally striking fact is that the large majority of these inputs are purchased from other American companies, not

from companies abroad. U.S. parent companies bought 88.9 percent — more than \$6.1 trillion — of their inputs from other companies in the United States; U.S. affiliate companies bought 78.7 percent — more than \$1.9 trillion — of their inputs from other companies in the United States. Moreover, as Section V discusses, the typical U.S. multinational buys more than \$3 billion in inputs (goods and services) from more than 6,000 American small businesses, which is more than 24 percent of its total input purchases.

Out of every dollar spent by parent and affiliate companies on intermediate inputs, about 89 cents and 79 cents, respectively, is paid to other companies in the United States — not to companies abroad. And this heavy reliance on domestic suppliers has been quite stable for decades: In 1977, U.S. parents purchased 91.3 percent of their inputs from other companies in the United States.

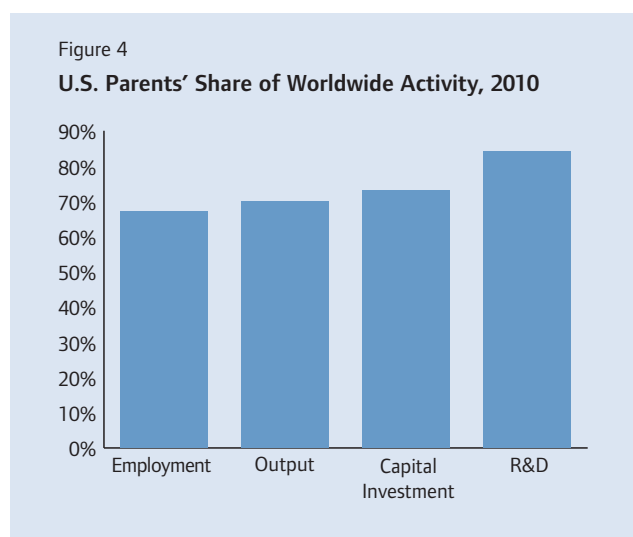
Beyond sales, suppliers to globally engaged companies often gain a wealth of knowledge about technology, management and many other productivity-leading practices through formal and informal channels. Indeed, these connections can be critical for suppliers' long-term success.

The bottom line is that multinational companies have long played a substantial role in the U.S. economy. They employ tens of millions, invest hundreds of billions of dollars in R&D and capital, and buy from vendors and ultimately produce trillions of dollars in goods and services.

The case study on page 14 highlights how globally engaged U.S. companies partner with smaller U.S. companies to innovate — to the benefit of all involved.

The United States Remains the Anchor for U.S.-Based Multinational Companies

What about the magnitude of U.S. parent activities relative to the scale of their foreign affiliates? Figure 4 reports the share of U.S. multinationals' 2010 worldwide employment, output, capital investment, and R&D that was accounted for by their U.S. parent operations.⁴



CASE STUDY: ExxonMobil and Lokring Technology

Global companies do substantial business with and create jobs in America in other companies as well as in their own. In particular, they create jobs in small and medium-sized enterprises (SMEs) within their global supply networks. Many SMEs thrive because their partnership with large global companies in America allows them to reach new customers in international markets, boost their revenue, and generate new ideas and best practices that enhance their competitiveness. A concrete example of the two-way benefits of such partnerships is ExxonMobil's commitment to finding technical solutions to its global business challenges through mutually beneficial partnerships with key suppliers like Lokring Technology, which employs just under 100 workers at its Cleveland, OH, headquarters.

ExxonMobil plays a leading role in providing the energy the world needs for economic growth and well-being. This role is clearly reflected in its 2011 revenues of \$486.4 billion and in its 82,100 employees across dozens of countries. Integral to ExxonMobil's success is continually seeking new ideas and business solutions through innovation incubators such as its Maintenance Efficiency Venture (MEV), which was created in 2005 to evaluate new technologies in the market and identify products from suppliers that could improve efficiency and lower operating costs in its 37 worldwide sites for refining and chemical manufacturing.

In 2007, MEV was examining options for piping in these 37 sites. Refining and chemical sites regularly need to have pipes installed, repaired and replaced due to new construction, modification or corrosion. The longstanding approach for such work — "hot-work" welding — carries several important challenges. First and most important is safety: The heat of welding must be carefully managed to minimize the risks of injury, fire or explosion. The second is efficiency: Welders worldwide are in dwindling supply (in many countries the average age of welders now exceeds 55), and thus costs were quickly rising. Third is productivity: Plant up-time is critical, and pipe-work installation can cause delays.

As an alternative to hot-work welding, in 2007 MEV identified a pipe-fitting technology made by Lokring Technology, an ISO-9001-certified firm that, since the late 1980s, has been designing and manufacturing patented technologies for fluid and gas piping for a wide range of industries, including marine, refining, petrochemicals, and offshore oil and gas. At the time Lokring was already a supplier to ExxonMobil. This relationship deepened with the MEV decision to support use of Lokring's pipe-fitting technology, which requires no heat, is quick to install and can be used by properly trained technicians without any welding experience. The gains have been large: productivity and overall cost savings of about two-thirds in many settings and much lower safety risks thanks to no hot work.

This expanded partnership has benefited both companies: for ExxonMobil a safer, less-expensive technology for its facilities worldwide and for Lokring not just more business but also enhanced learning about and access to foreign markets. Indeed, one of the largest benefits has been ExxonMobil supporting Lokring's entry into new countries. Japan is one prominent example, where prior to the MEV partnership Lokring had no presence. MEV worked with Lokring to meet Japanese piping specifications to use Lokring product in ExxonMobil's Japanese facilities. In addition, ExxonMobil's Japanese subsidiaries drove Lokring to establish in-country distribution channels to service new customers in additional industries. Lokring President William H. Lennon says, "Our ExxonMobil partnership has been a catalyst for our international expansion. There is no doubt that this partnership allowed us to enter the Japanese market years earlier — and much stronger — than we would have if entering on our own. Our global expansion has created jobs in these countries and in Ohio as well."

The key message of Figure 4 is that the worldwide operations of U.S. multinational companies are highly concentrated in America in their U.S. parents, not abroad in their foreign affiliates.

- ▶ **Employment:** U.S. parents account for 67.3 percent of worldwide employment of U.S. multinationals — 22.8 million parent workers versus 11.1 million at affiliates. This translates into a ratio of about 2.1 U.S. employees for every one affiliate employee.
- ▶ **Output:** U.S. parents account for 69.9 percent of worldwide output (in terms of value added) of U.S. multinationals — nearly \$2.9 trillion versus about \$1.2 trillion.
- ▶ **Capital Investment:** U.S. parents undertake 72.5 percent of worldwide capital investment by U.S. multinationals — \$438.3 billion versus \$166.3 billion. For every \$1 in affiliate capital expenditures, parents invested \$2.64 worth in the United States.
- ▶ **R&D:** U.S. parents perform 84.3 percent of worldwide R&D by U.S. multinationals — \$212.5 billion versus \$39.5 billion or \$5.38 in parent knowledge discovery for every \$1 by affiliates.

The United States, not abroad, is where U.S. multinationals perform the large majority of their operations. Indeed, this U.S. concentration is especially pronounced for capital spending and R&D, which reflects America's underlying strengths of skilled workers and legal protections such as intellectual-property rights that together, as Section IV discusses, induce global supply networks to concentrate in America tasks that are intensive in human and physical capital.

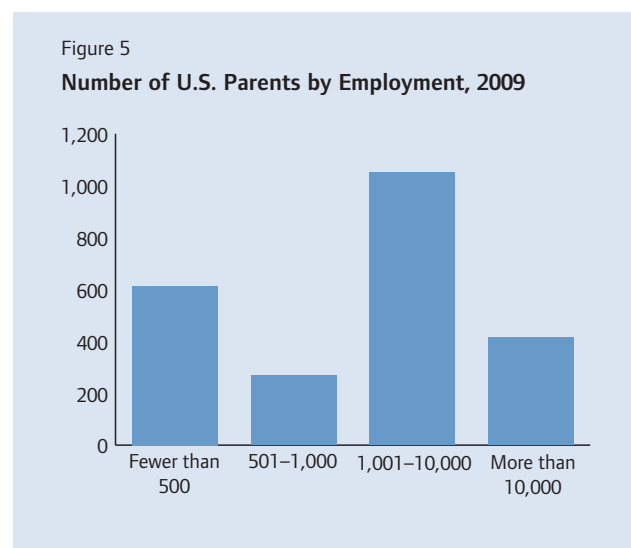
This much larger scale of U.S. parents than foreign affiliates has been present for decades. A generation ago, the share of U.S. parents in the worldwide activity of U.S. multinationals was slightly higher. In 1988, U.S. parents accounted for 78.8 percent of U.S. multinationals' worldwide employment and 79.2 percent of their worldwide capital investment. So over the past generation, the foreign-affiliate shares of employment and investment have risen by about 0.5 percentage points per year. As this report will document, however, this rise has been driven mainly by ongoing expansion of parents that was outpaced by even faster expansion of affiliates, not by parent contraction. Faster affiliate expansion, in turn, has been driven mainly by faster economic growth abroad and thus, as Section III discusses, faster growth in customers there.

The bottom line is that the United States firmly remains where U.S.-based multinational companies locate the majority of their global operations.

Globally Engaged U.S. Companies Are Richly Diverse in Size and Industry

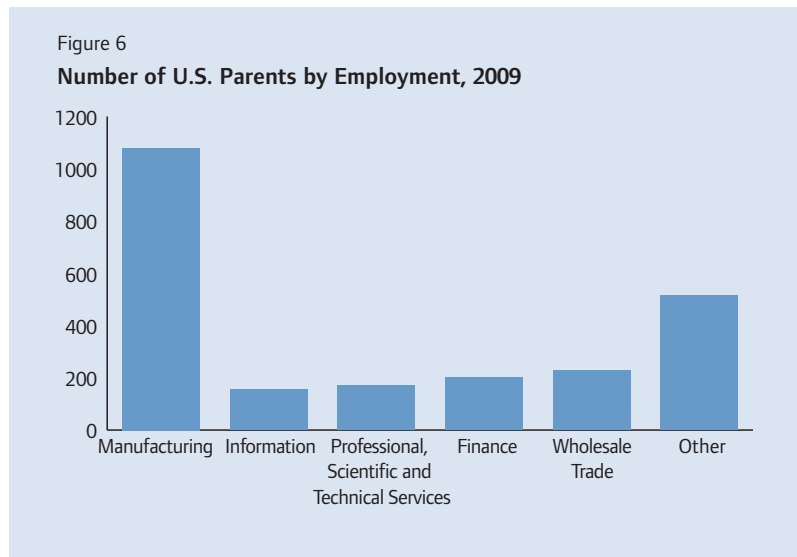
As with much in America, within the group of American companies with worldwide operations there is rich diversity in their overall size, industries of operation, and relative reliance on customers here and abroad.

Clear evidence of this diversity in terms of size is well demonstrated by U.S.-based multinational companies. By virtue of having operations outside America, in scope and in aspiration all these multinationals are expansive. Yet there are striking differences in their size in terms of common metrics such as employment and sales. Figure 5 documents this wide range: For the most recent year of data available, 2009, it splits the 2,347 U.S.-based multinational companies into four groups measured by the number of U.S.-parent employees.⁵



At the one end of the spectrum, 415 companies each employ more than 10,000 people in America — indeed, an average of 43,630 workers each. At the other end of the spectrum, nearly 50 percent more multinationals, 613, each employ fewer than 500 people in America — and thus, as this report later discusses, fit the U.S. government definition of being a small or medium-sized enterprise (SME). Many of these SME multinationals are likely dynamic, fast-growth companies that were recently “born” into the group of U.S.-based multinationals by establishing their first foreign affiliate. Many of America’s largest and most successful companies today once started small, with the quintessential person pursuing a dream from a garage or dorm room. The fact that today 26.1 percent of U.S. multinationals are SMEs speaks to how diverse these important companies truly are.

Another measure of the rich diversity among American companies with worldwide operations is their primary industry of operation. For the most recent year of data available, 2009, Figure 6 splits the 2,347 U.S.-based multinational companies into six broad industry categories, with each parent company classified into its primary industry.⁶



Less than half (46.0 percent) of all parents operate in manufacturing as their main industry. The majority are spread across a variety of services and other sectors: information (6.6 percent); professional, scientific and technical services (7.2 percent); finance (8.6 percent); wholesale trade (9.8 percent); and all other industries (21.9 percent), which includes sectors such as mining, retail trade and utilities. And over time the share of U.S. multinationals in manufacturing has been falling: It was 50.9 percent in 1999. As discussed in the following section, this rising importance of services in multinationals reflects both demand growth abroad and global supply networks that increasingly span all industries.

Among Globally Engaged U.S. Companies, There Is Striking Diversity in Their Markets and Customers

To provide further insight into how successful companies in America are fundamentally American yet also richly diverse, this report surveyed the members of Business Roundtable and the United States Council for International Business. Each member company was asked a set of three questions about the relative importance of its U.S. and global customers.

The 121 companies that at least partly responded to this survey together account for about 5.2 percent of the 2,347 U.S.-based multinationals tabulated by the BEA in 2009. However, the approximately \$4.3 trillion in 2011 global revenue earned by these responding companies accounts for well over a third of the total revenue earned by all U.S. multinationals today. Moreover, responding companies span a broad range of industries such as manufacturing, information technology (IT), telecommunications, finance, retail, transportation and health care. The combination of the size and industry breadth of these 121 responding companies suggests that their collective responses are reasonably representative of global companies operating in America.

Question 1 documents how important the United States remains to worldwide companies, even as many of them also depend on markets abroad. Here is the question along with its average response (i.e., mean response — the median response is nearly identical).

1. IN 2011, WHAT WAS THE SPLIT OF YOUR COMPANY'S GLOBAL REVENUES BETWEEN SALES TO U.S. CUSTOMERS AND SALES TO CUSTOMERS IN THE REST OF THE WORLD?

	United States	Rest of World
Average Response	59.6%	40.4%

Yes, world markets matter for these companies, as Section III discusses, but for the typical large company in America the majority of its revenues still come from U.S. customers. Within this average lies a wide range of sales mixes. Eighteen of the 121 companies, or 14.9 percent, derive at least 90 percent of their global revenues from the United States. Seventy-eight of the 121, or 64.5 percent, derive at least 50 percent of their global revenues from the United States. And another 18 of the 121, or another 14.9 percent, derive less than one-third of their global revenues from the United States.

Question 2 further documents the continued importance of the United States to worldwide companies — as well as the growing significance of global markets for them. Here is the question along with its average response for each of five years (i.e., mean responses — median responses are nearly identical).

2. IN RECENT YEARS, WHAT HAVE BEEN THE AVERAGE ANNUAL RATES OF GROWTH FOR YOUR COMPANY'S U.S. REVENUES AND ITS NON-U.S. REVENUES?

	United States	Rest of World
2011	9.4%	16.3%
2010	9.4%	14.1%
2009	-7.2%	-8.7%
2008	6.7%	18.8%
2007	8.5%	31.6%

In all recent years except during the depth of the world financial crisis in 2009, these companies' average revenues were still growing in the United States. Yes, on average growth abroad was faster in these four other years, a development examined in Section III. Yet looking beyond these averages at individual companies again reveals a wide range of experiences. The share of companies reporting faster growth abroad than in the United States was 81.8 percent in 2011, 78.2 percent in 2010, 57.0 percent in 2009, 82.3 percent in 2008 and a remarkable 91.2 percent in 2007.

The third and final question of this survey asked companies where they foresee future growth. The replies further demonstrate that the United States remains an important market to these companies but also that other world markets are growing more important.

3. OVER THE NEXT 5–10 YEARS, WHICH THREE COUNTRIES DO YOU THINK WILL GENERATE THE MOST REVENUE GROWTH FOR YOUR COMPANY (IN TERMS OF DOLLARS, NOT PERCENTAGE)?

A striking 82.5 percent of companies responding to this question — 94 of 114 — listed the United States as one of their three largest revenue-growth markets over the next several years. Indeed, a remarkable 80 of the 114 — fully 70.2 percent — forecast that the United States will be the country generating the most revenue growth over the next several years. For so many of these companies, their success will still partly depend on meeting the needs of their American customers.

At the same time, so many of these companies' success will increasingly depend on engaging the world and its rich array of customers abroad. Seven other countries were cited as the largest growth country — including 20 companies forecasting that their biggest revenue gains will come from China. Twenty-three distinct countries were forecast to provide the second-largest revenue gains in the future. China was cited most (by 35 companies), followed by Brazil (17 companies) and India, Canada and the United States (8 companies each). And 24 distinct countries were forecast to provide the third-largest revenue gains in the future. Brazil was cited most (by 18 companies), followed by China (14 companies) and India (13 companies). Reflecting the rich diversity of global strategies for these 114 reporting companies, a total of 31 distinct countries spanning all six inhabited continents were listed in reply to this question.

CENTRAL MESSAGE OF SECTION II: *Globally engaged U.S. companies are in many ways fundamentally American companies. They have long performed large shares of America's productivity-enhancing activities that create tens of millions of well-paying jobs. They foresee maintaining a major U.S. presence well into the future. And within this group, they are richly diverse in size, industry and customers. For all these companies, however, successful engagement in America increasingly requires them to also be dynamically engaged with the world — for demand growth, supply networks and ideas that shape all their operations. Sections III and IV examine the many ways in which it is essential for these companies, from their strong foundation in America, to also be global.*

III. Companies in America Must Venture Abroad To Sell to New Customers

Increasingly, successful companies in America are deeply global as well. To remain dynamic and innovative, they must engage with the world. And a primary motive for expanding abroad is to meet the growth in global demand that has been much faster than that in the United States. Their success in America increasingly hinges on venturing into the global marketplace for new customers.

Companies in America increasingly succeed not just because of their many important U.S. activities documented in Section II but also because of their engagement in the global marketplace. More and more, successful companies in America are deeply global as well.

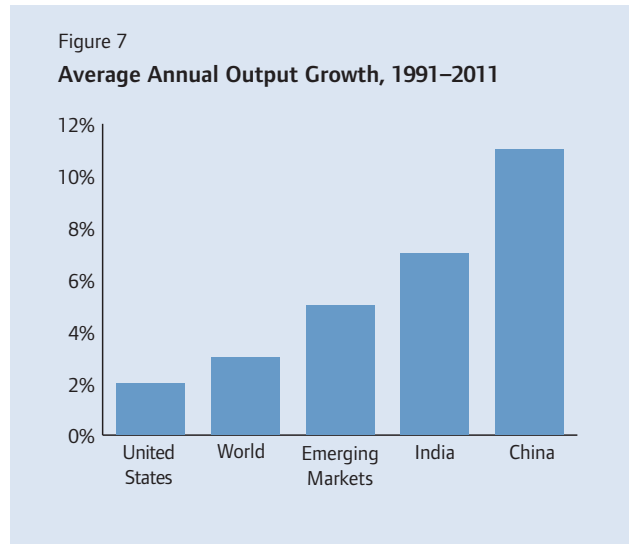
One of the important reasons to engage the world is to access foreign customers in faster growing international markets. More than 95 percent of the world's population, with the large majority of the world's purchasing power, lives outside of the United States. New customers abroad can expand a company's revenues, profitability and employment much more than can the U.S. market alone. And companies expand their access to foreign customers not just through exporting but also through sales of their foreign affiliates in those other countries. Each company uses a rich range of business strategies that must be continually refined to remain competitive.

Growth in Demand Abroad Has Long Exceeded Growth in Demand in America

Companies succeed in large part because they grow: They create goods and services that they sell in expanding amounts to their customers. This demand growth is what underpins growth in profitability and, ultimately, jobs. Companies that are not growing revenues and profitability cannot sustainably boost their payrolls and paychecks. The demand growth that is the fuel for globally engaged companies to succeed is increasingly outside of the United States. This means that one of the main drivers of the global engagement of companies is access to demand and customers abroad. New customers abroad can expand an American company's revenues, profitability and employment, much more than can the U.S. market alone.

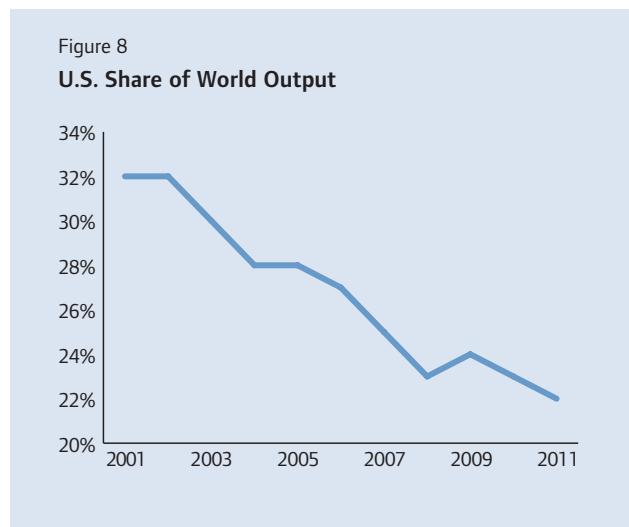
The market-growth data are striking. Today the United States remains the world's largest single-country market, with a 2011 GDP (the value of all newly produced goods and services) of \$15.1 trillion. Serving this market remains a powerful imperative for companies; indeed, Section II documents how essential the U.S. market is expected to remain for so many companies in America.

Despite the still-large size of the U.S. economy, in the past generation the United States has been a slow-growth market compared with much of the world — and thus connecting with foreign customers has become more imperative for so many U.S. companies. Figure 7 reports the average annual growth rates of GDP for the past generation for the United States and elsewhere.⁷



From 1991 through 2011, growth in U.S. GDP averaged about 2.4 percent. This was slower than what much of the world achieved during this time: averages of 3.4 percent for the overall world, 5.0 percent for emerging and developing countries, 6.6 percent in India, and a remarkable 10.4 percent in China. Indeed, one of the most notable features of globalization over the past generation has been the surge in economic growth in so many emerging markets — driven in large part by their governments opening their markets to international trade and investment.

These growth-rate differentials carry significant implications for the size of national markets and their prospective customers. At an annual rate of growth of 2.4 percent, the U.S. market doubles in size every 29.4 years. The comparable doubling periods for India and China over the past generation have been just 11.0 and 6.9 years, respectively. The cumulative impact of much faster growth outside America is that the United States accounts for a steadily falling share of total world output. Figure 8 plots the U.S. share of total world GDP over the past decade.⁸



The U.S. share of world GDP steadily fell from 32.3 percent in 2001 to just 21.6 percent in 2011 — a cumulative decline of 10.6 percentage points, or about one percentage point per year. The flip side of Figure 8 is that many fast-growth countries now account for rising shares of the world economy. Most notably, China in 2010 surpassed Japan as the world’s second-largest national economy. Another striking implication of Figure 8 is by how much the dollar value of market-size growth in the United States is now exceeded by the rest of world. In 2011, GDP grew by \$568 billion in the United States — but by more than \$6 trillion in the rest of the world and by a stunning \$1.2 trillion in China alone.

Rapid growth in foreign output has meant rapid growth in foreign income that fuels spending by both businesses and households abroad. The large size of the customer base in these foreign markets — and the size it soon may be — is striking. One recent study forecasts that by 2025, annual household consumption in emerging markets will reach \$30 trillion — what they term “the biggest growth opportunity in the history of capitalism.” Based on estimates that a household income of \$10 per day is the key threshold at which families can afford large consumer purchases such as refrigerators and televisions, this study forecasts that the size of the world’s “consumer class” will rise from 2.4 billion people today to 4.2 billion people in 2025.⁹

The bottom line is that to achieve strong revenue growth, many successful companies must expand their access to foreign customers. This has been increasingly true over the past generation, and all plausible forecasts are that this will remain true far into the future. Most current public and private forecasts are for the United States to average GDP growth of only about 2.5 percent over the next many years. For example, the nonpartisan Congressional Budget Office is currently forecasting U.S. real GDP will grow by an average of just 2.3 percent from 2012 to 2022. Barring catastrophe in the rest of the world, this 2.5 percent will be far below the market growth realized by dozens of other countries.

The baseline economic growth that fuels much of the growth in globally engaged U.S. companies — customers, revenues, profits and jobs — will continue to be strongest abroad.

The case study on page 24 highlights how important foreign markets are to the growth of globally engaged U.S. companies.

CASE STUDY: IBM

Over its 101-year history, integral to IBM's success has been a willingness to continually reinvent itself by creating new products and services — including through international ventures that grow revenues and bring new ways to produce its products and services. This dynamic innovation has been the foundation for the company to remain a strong employer in the United States.

Over the past generation, IBM has shifted from falling-margin hardware toward higher-margin software and services. In the last decade alone, IBM's software revenue has doubled and profits tripled. At the same time, IBM's business has increasingly come from its Growth Markets unit, which includes high-growth markets such as China, India, Brazil and Vietnam. This unit's share of IBM's overall revenue has risen from 11 percent in 2000 to 21 percent in 2010 and is forecast to reach 30 percent in 2015.

To profitably maintain its high-value focus amidst its dramatic transformations, IBM remained committed to investing in knowledge. The company today invests about \$6 billion annually in R&D. In 2011, IBM became the first company to be issued more than 6,000 U.S. patents in a single year. This tally of 6,180 was generated by more than 8,000 IBM inventors residing in 46 U.S. states and 36 countries; indeed, IBM inventors abroad collaborated on more than 26 percent of that year's patents. Perhaps even more remarkable, 2011 marked the 19th consecutive year that IBM was awarded more U.S. patents than any other company.

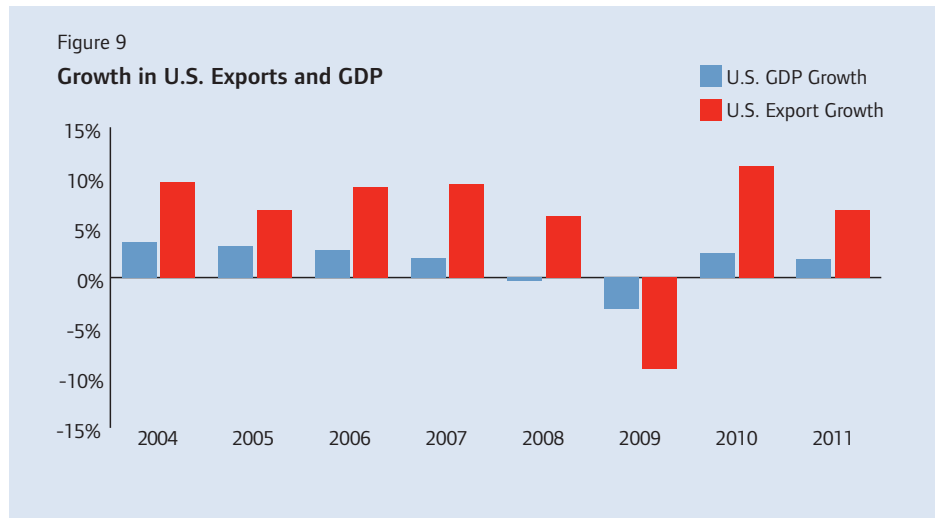
IBM WebSphere has been a cornerstone of IBM's growth into software and its expansion into new markets around the world. Launched in 1998, WebSphere has grown and evolved much like the Internet itself: As the leading software for on-demand business, it has paved the way for commerce becoming electronic, and it has enabled nearly all aspects of business operations — customer relations, accounting and human resources — to become Web-enabled. WebSphere has helped IBM become the world's second-largest software company, allowing IBM to engage in new ways with existing customers and connecting it with fast-growth companies and international markets. In turn, IBM has learned from these customers' innovations to better develop its own new products and capabilities.

By creating new product offerings for customers in new markets, IBM's WebSphere business has grown consistently and significantly while employing thousands both in the United States and worldwide. A prominent example of IBM's U.S. employment built on global demand is found in the Research Triangle Park (RTP) near Raleigh-Durham, NC, where one of IBM's largest North American software labs hosts a major proportion of the global workforce behind the creation and maintenance of many WebSphere products. The RTP WebSphere team spans roles including client-facing consultants, support engineers, software architects and developers, software testers, technical writers, marketers, strategists, and product managers. Many of these RTP professionals collaborate closely with other software labs in IBM's worldwide network such as those in Massachusetts, Texas and New York — as well as those in Canada, China, Germany, India and the United Kingdom.

The bottom line of producing high-growth software products for a global market is that IBM employs more "software engineers" in the United States than any other job category. This high-skill occupation was ranked number one by CareerCast.com on its 2012 list of best jobs in America. "Mathematician" was ranked number 10 on that same list, and IBM is among America's largest private employers of mathematicians.

Meeting Growth in Demand Abroad Through Exports

How do companies in America meet these expanding customer opportunities abroad? For many companies, exporting from America is an important way. Figure 9 documents how important exports have become for America overall. For several recent years, Figure 9 reports the rate of growth of both U.S. exports and also overall U.S. GDP.¹⁰

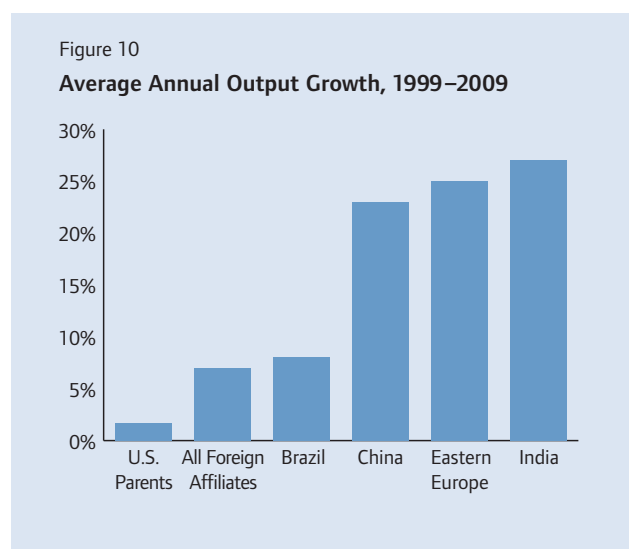


Every year since 2004, except during the trough of the worldwide recession in 2009, U.S. exports to the rest of the world have grown by more than has overall U.S. GDP. Much of this export surge has been driven by the faster GDP growth outside of America documented above. In absolute dollars, over the period covered by Figure 9, U.S. exports have more than doubled, from \$1.02 trillion in 2003 to \$2.09 trillion in 2011. Growth has been strong not just in exports of goods but also in exports of services. And growth has been strong to a number of the fast-growth countries discussed previously — in particular, to the BRIC countries of Brazil, Russia, India and China. The net result has been a commensurate surge in the importance of exports to the total U.S. economy. In 2011, exports as a share of U.S. GDP reached 13.9 percent — the highest share since at least 1947 (the earliest year of these statistics).

Serving foreign customers via exports is increasingly essential to the competitive strength of companies in America.

Meeting Growth in Demand Abroad Through Affiliate Sales

In addition to exports, many globally engaged U.S. companies serve foreign customers through another essential channel: sales by their foreign affiliates. Reflecting the broad global growth trends documented previously, U.S.-based multinational companies have been growing revenues much faster outside America than inside. Figure 10 reports the average annual growth in real output for all U.S. parents, all foreign affiliates and affiliates in select regions over the most recent decade, 1999–2009, of available data.¹¹



For U.S.-based multinational companies, output growth has been much faster abroad than at home. Over 1999–2009, value added grew much faster in their foreign affiliates — an annual average of 7.0 percent — than did value added in their U.S. parents — an annual average of just 1.7 percent. In turn, average affiliate output growth was even faster in many fast-GDP-growth countries discussed previously: 8.4 percent in Brazil, 22.8 percent in China, 24.9 percent in Eastern Europe and 26.8 percent in India.

And in contrast to the commonly heard assertion that foreign affiliates of U.S. multinationals are producing goods and services simply for sending back to America, these affiliate sales have long been predominantly to serve customers in host countries — especially fast-growing countries. In the words of the U.S. Department of Commerce:

Between 1999 and 2009 ... the purpose for production abroad appears to be unchanged. The longstanding tendency for foreign affiliates to serve as a means for parents to access foreign markets rather than as a low-cost base of production from which to sell to their U.S. customers was evident in both 1999 and 2009. In both years, about 90 percent of the goods and services produced by foreign affiliates were sold to foreign customers. However, the importance of the individual foreign markets shifted away from high-income, highly developed economies toward emerging markets.¹²

The overwhelming majority of what affiliates produce abroad — 91.1 percent in 2009 — is sold abroad, rather than being imported back to the United States.

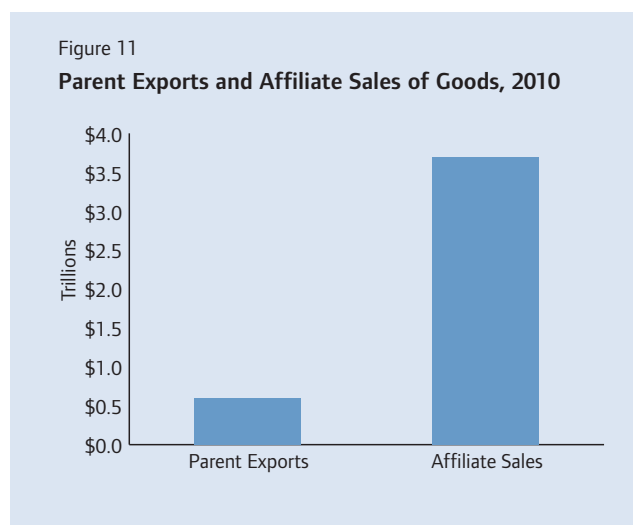
Rapid growth in revenues of foreign affiliates reflects a longstanding strategy for many U.S.-based multinationals of serving foreign markets through affiliate sales in host countries. Exporting is critical to many companies — but for many multinationals so, too, are affiliate sales.

There are several reasons to access foreign customers via affiliate sales of goods. One is avoiding the costs of political or natural barriers to exporting, such as host-country import tariffs and quotas. Another is after-sales maintenance and support. Many goods made by U.S. multinationals are technology and/or capital intensive, a reflection of America's relative strength at these activities. These intricate goods — aircraft engines, elevators, earth movers — often require extensive after-sales maintenance and support services provided via affiliates. And a third is knowledge and goodwill gained from proximity to customers and local markets: On-the-ground presence is often required to understand the evolving needs of key customers.

The importance of affiliate sales of services is immediately apparent. Wholesale trade, distribution, retail trade, financial services — the inherent nature of these and many other services means they cannot be cost-effectively exported. Indeed, many services can be made only when the producing firm physically co-locates with the consumer: Retailers need local cashiers, insurers need local agents, hotels need local housekeepers and so forth.

Beyond goods and services, U.S. multinationals are also involved in resource exploration and production — petroleum, natural gas, utilities — and also agriculture. For these companies, not only are their customers often spread around the world but the basic materials they need to access to produce are also. Expansion abroad for these firms is essential to conduct business.

Figure 11 documents just how critical affiliate sales are to U.S. multinationals successfully generating revenue in foreign markets. It reports for the most recent year of available data, 2010, the value of U.S.-parent goods exports and of foreign-affiliate goods sales.¹³



In 2010, U.S. parents exported \$573.3 billion in goods to foreign markets. That was a lot — but that same year the affiliates of these parents sold more than \$3.7 trillion in goods.

For every dollar of goods that parents exported in 2010, their foreign affiliates sold \$6.48 in goods.

The optimal blend of parent exports and affiliate sales varies widely both across companies and over time. For U.S. multinationals altogether, the relative importance of affiliate sales has been rising over time: In 1999, for every dollar of goods that parents exported abroad their foreign affiliates sold about \$4.00 in goods. Some multinationals serve foreign customers almost entirely through parent exports; others do it almost entirely through affiliate sales. To remain competitive, companies must continually refine their best strategy of exports and affiliate sales. No single strategy works best for all companies at all times.

The case study on page 29 highlights how foreign projects undertaken by a globally engaged U.S. company provide new business opportunities and ideas for both that company and other U.S. companies.

CENTRAL MESSAGE OF SECTION III: *Competitive American companies access foreign customers as a cornerstone of attaining and maintaining worldwide growth. And companies expand their access to foreign customers not just through exporting but also through sales of their foreign affiliates in those other countries — a rich range of possibilities from which each company must continually determine its own best strategy. Success in America increasingly hinges on venturing into the world for new customers in new markets.*

CASE STUDY: The Dow Chemical Company

The Dow Chemical Company has been one of America's most innovative ever since its founding in 1897 in Midland, MI, by Herbert H. Dow. More than 30 percent of its 2011 global sales of \$59.9 billion came from products introduced in the past five years. The company has R&D laboratories with 5,500 Dow researchers located in more than 10 countries, including the United States, and has doubled its number of filed U.S. patents since 2006. Expanding globally has long been critical for Dow to reach new customers in new markets and to sustain its innovation edge by learning new ideas and ways to provide products from its experiences around the world. This expansion and innovation supports Dow's success worldwide — including its U.S. workforce and its U.S. suppliers and their workers.

Dow's largest global venture is Sadara Chemical Company. Announced in 2011, Sadara is a \$20 billion joint venture with Saudi Arabian Oil Company (Saudi Aramco) to construct in the Kingdom of Saudi Arabia a fully integrated chemicals complex. Scheduled to come online in the second half of 2015 and to span eight square kilometers, this petrochemical facility will be one of the world's largest (the largest ever built in a single phase) and is expected to ultimately create thousands of direct and indirect employment opportunities through the complex and related investments.

The benefits Sadara will bring to both Dow and Saudi Aramco are clear. The Kingdom aspires to diversify its economy, and building chemicals capacity that can take advantage of its plentiful petroleum feedstock is a natural step in that direction. Dow's industry-leading technologies and world-class operational and marketing capabilities make it a strong partner for this endeavor. Building Sadara in Saudi Arabia reduces the costs of that essential petroleum feedstock to expand the venture's possibilities. Twenty-six manufacturing units are planned that, when fully operational, will make many products for the first time in Saudi Arabia. Sadara is forecast to produce more than 3 million metric tons annually and generate \$10 billion in revenue in industries including adhesives, construction, packaging and transportation.

Since 2007, Sadara has generated more than \$1 billion in contracts for 18 U.S. companies that are providing engineering, design and other high-value services. For example, in August 2011, U.S.-based Fluor Corporation was awarded a substantial contract to provide engineering, procurement and construction-management services at the Sadara site. During the last three years, approximately 700 U.S. workers at leading engineering companies were engaged to support engineering and design work for Sadara. Many of these highly skilled, professional engineering roles will remain engaged for the next three years. As the project progresses into construction, it is estimated that approximately 2,500 U.S. workers will be involved in delivering goods and services through parts and equipment manufacturing. With many U.S. suppliers continuing to provide tools, equipment, spare parts and services to Sadara after it becomes fully operational, this joint venture will sustain jobs over the long term both in the United States and around the world.

IV. Companies in America Must Venture Abroad To Produce in New Ways

Increasingly, successful companies in America are deeply global as well. To remain dynamic and innovative, they must engage with the world. And a primary motive for expanding abroad is to refine operations by creating and integrating into global supply networks. Their success in America increasingly hinges on venturing into the world for creative new ways to produce goods and services.

More and more, successful companies in America are deeply global as well. Section III documents how competitive American companies access foreign customers as a cornerstone of attaining and maintaining worldwide growth.

Another important reason that successful U.S. companies must engage the world is to produce more creatively and efficiently. A distinguishing feature of the world economy over the past generation has been the disintegration of production. Through the use of sophisticated technology, companies increasingly produce within elaborate global supply networks in which final products are made by companies of all sizes in many stages spanning many countries, linked together by knowledge, trade and investment. As with accessing global demand, no single strategy works best for all companies at all times. How to best produce goods and services varies widely both across companies and over time.

The case study on page 32 highlights how globally engaged U.S. companies partner with other U.S. companies to invent products and processes to stay competitive by better serving customers.

The Proliferation of Global Supply Networks: Three Main Causes

How companies produce their goods and services today differs dramatically from earlier generations, when companies made in house more of the components and value of their products. The proliferation of global supply networks is a striking and (barring catastrophe) irreversible feature of the world economy in which companies must operate to succeed. Three main forces account for their rise.

One has been widespread reductions in political barriers to trade, investment and even immigration. At the multilateral level, the Uruguay Round, in many ways the most comprehensive trade agreement ever, was implemented in the years after its 1994 closing. At the national level, a number of far-reaching unilateral, bilateral and regional liberalizations have been implemented in the past generation, including the North American Free Trade Agreement in 1994 and China's accession to the World Trade Organization (WTO) in December 2001. At the industry level, the WTO Information Technology Agreement was signed in 1996, whereby 70 countries representing about 97 percent of world trade in IT products agreed to eliminate duties on hundreds of intermediates, capital goods and final products in the IT industry.

CASE STUDY: Procter & Gamble and Appleton Papers

With sales in more than 180 countries, Procter & Gamble (P&G) is a globally integrated enterprise that continually refines what it does where to best meet the evolving needs of its customers and to grow its business. To gain and maintain global competitiveness, expanding abroad has long been critical for P&G. This global engagement directly supports P&G's U.S. operations and workers. Indeed, one in five P&G U.S. jobs — and two in five P&G jobs in its home state of Ohio — depend directly on its global business. P&G's dynamism also supports its supplier network — important partners like Appleton Papers, which employs almost 1,600 U.S. workers.

Many of P&G's laundry customers around the world value laundry products that are scented. The rough-and-tumble process of motorized washing machines and dryers long presented a major challenge for integrating perfumes into products such as washing detergent and dryer softeners: how to prevent perfume from washing down the drain in the washer or from evaporating in the heat of the dryer? The technology solution is known as microencapsulation: a process in which a solid, liquid or gaseous core is encased in tiny capsules that span one to several hundred microns in diameter. These capsules can regulate the release of the core perfume when the capsule wall is thinned or breached by pressure or friction — e.g., when a softener tumbles amidst clothes in a hot dryer.

Beginning around 2000, P&G had a renewed interest in microencapsulation of perfume. But at that time existing technologies were either too expensive and/or too poorly performing in controlling the release of perfumes. So, P&G launched a search for possible partners to help solve this problem.

Enter Appleton Papers, a company founded in 1907 in Appleton, WI, whose nearly 1,600 employees work across four manufacturing sites while collectively owning the entire company. Appleton had decades of experience in microencapsulation — albeit in the completely different industry of carbonless paper, which it launched with NCR Corporation in 1954 and which has been hailed by the Technical Association of the Pulp and Paper Industry as one of the outstanding paper-related inventions of the past half-century. Researchers at P&G and Appleton realized that Appleton's microencapsulation expertise could solve the perfume needs of P&G's customers. Thus, a new P&G supplier was created.

Because of P&G's aspiration to provide this microencapsulated innovation to its customers around the world, becoming a P&G supplier brought the opportunity for substantial growth for Appleton. In 2005, the company launched plant-sized production trials of perfumed microcapsules (PMCs). In 2006 and again in 2009, the company expanded its plant in Portage, WI, to provide the capacity to produce the needed PMCs. Encapsys, Appleton's microencapsulation division, has increased capsule volume by 40 percent, its manufacturing capacity has doubled and its number of employees has more than doubled.

For P&G, this new supplier partnership met its highest expectations. Today PMCs are in several P&G products in 65 countries. In 2008, P&G recognized Appleton as one of only 61 recipients of its Supplier Excellence Award, among a pool of 80,000 global suppliers. P&G similarly awarded Encapsys its Business Partner Excellence designation in 2011 — one of 86 designees from among a pool of more than 75,000 suppliers. And in 2012, Encapsys received the External Business Partner Excellence award as one of 85 designees. "The Procter & Gamble Business Partner Excellence award carries tremendous credibility and esteem," said Kent Willetts, senior vice president for Appleton. "It's a trust mark, a seal of approval that reflects the collaborative culture that underpins our relationship."

Government restrictions on inward and outward foreign direct investment (FDI) have also fallen. Each year the United Nations Conference on Trade and Development (UNCTAD) tallies the world's investment-policy changes and categorizes each as more or less restrictive. Every year since 2000, somewhere between 67.9 percent and 97.9 percent of each year's policy changes have been to liberalize FDI, not restrict it. Indeed, in 2001, UNCTAD identified only two cases of new FDI restrictions. Along with FDI, liberalization has often involved reform of tax policies to attract investment.

A second important force driving global supply networks has been the choice of many mainly labor-abundant countries to allow their billions of citizens to integrate into the global economy by lowering trade and investment barriers — rather than choosing to prevent globally engaged companies from competing in their markets, as so many countries did over much of the 20th century.

Consider the two prominent examples of China and India. From the founding of the People's Republic of China in 1949 until the start of the "open door" policy reforms in 1978, China operated a command-and-control economy with virtually no markets — domestic or international. But since 1978, a key driver of China's growth miracle has been opening to inward investment by global companies. It has been much the same with India: From the founding of the Republic of India in 1947 until its balance-of-payments crisis in 1991 that triggered policy reforms, India heavily protected itself from the broader world economy. But since 1991, India has surged in growth by permitting more international trade, investment and even immigration. Despite the many barriers they still face, global companies have gained production (and sales) opportunities in countries like China and India that were simply impossible pre-reform.

The third and perhaps most dramatic force driving global supply networks has been IT innovations that have driven to near zero the cost of global communication and information transmission. In the past generation, connectivity and communication facilitated by IT and the Internet have dramatically reduced the costs of trading many goods and, for international trade and investment in services, vastly expanded the scope of what activities are tradable.

This IT revolution has interacted with the first two forces. The conscious choice of so many countries to connect to the global economy, plus the falling policy barriers to the international flow of ideas, people, capital and products, have opened to global companies dramatically more options for how to configure what they produce where. But in many ways it has been IT that has made these options both low-enough cost to do and also manageable despite this complexity.

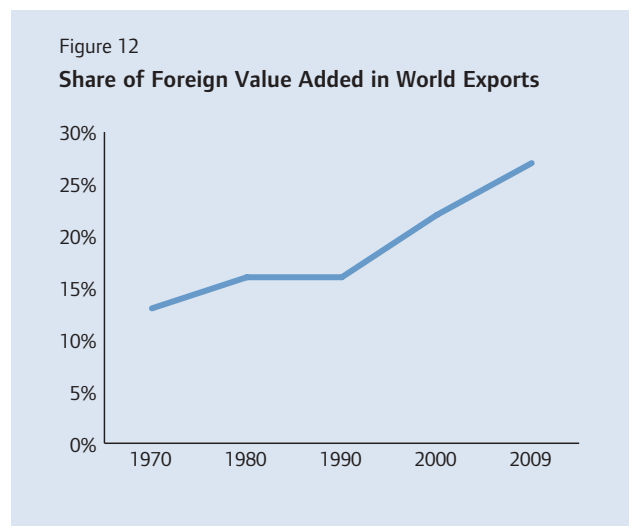
The net result of these three forces has been a proliferation of global supply networks: elaborate and fluid structures in which companies locate different production tasks in different countries, some performed in house and others with external partners. The productivity gains have been enormous: more innovation, lower costs, faster customer responsiveness and lower risks. The result in so many industries and so many countries is globally engaged companies, each determining and building its strengths in partnership with the strengths of other companies.

The Proliferation of Global Supply Networks: Empirical Evidence

Some of the most striking evidence of these global supply networks has been compiled for particular industries and products.¹⁴ IT has arguably been the vanguard industry in establishing and expanding these networks — in part because IT remains the only industry since the WTO's founding to have a global agreement eliminating all tariffs on the agreed-upon set of products. On many measures IT is one of the world's most dynamic industries, with a stunning array of new-product innovations and equally stunning declines in quality-adjusted prices. It has also long been one of the world's most globally engaged industries, with elaborate supply networks linking ever-shifting stages of production via worldwide flows of capital, ideas, people, and trade in goods and services. These networks continue to evolve today from their inception decades ago when leading IT-hardware companies began unbundling their production of computers and related goods. Dozens of countries participate in today's networks, each according to its comparative advantage — design in skill-abundant countries like America, assembly in labor-abundant countries like China. And the gains of these global networks have accrued far beyond the participating IT companies themselves to encompass the world's IT-using companies and consumers.

More-systematic evidence on the rise of global supply networks is more challenging to generate. A major reason is that their dynamic fluidity has so rapidly outpaced government statistical agencies, the key foundations of which were built generations ago when companies made predominantly goods (not services) using predominantly national (not international) inputs.

One of the newest and most ambitious studies combines global data on trade and production with a set of plausible assumptions and careful calculations to decompose observed trade flows accounted for by value added in exporting countries and value added in other countries.¹⁵ In a world without any global supply networks, 100 percent of each country's exports would embody its own value added: All exports would embody stages of production done only in that country. The more extensive are global supply networks, the more each country's observed exports embody tasks and inputs done abroad and then imported into that country to be combined with certain locally specialized tasks and inputs. Figure 12 reports the estimated share of foreign value added in world exports every 10 years from 1970 to 2009.



Adding up the exports of each country, the cumulative share of foreign value added in observed world exports rose by about 14 percentage points from 1970 to 2009, doubling from 13 percent to about 27 percent. Most of that increase occurred after 1990, and all four major sectors studied experienced rising shares in the 2000s. Consistent with the discussion above, countries with the largest estimated increase in foreign content of their exports were countries undergoing structural changes to open to the world and also countries entering into free-trade agreements. Ongoing global trends such as rising educational attainment suggest that the trend in Figure 12 will continue in future years.

Other research has employed other methods, data and assumptions to measure other aspects of the proliferation of global supply networks. Many studies attempt to distinguish trade in final goods from trade in components, inputs and service-related tasks. Faster growth in components, intermediates and tasks than in trade in final goods is pervasive.

- ▶ Worldwide, from 1990 to 2000, trade in parts and components grew by an annual average of 9 percent — versus just 6.5 percent for all world trade including final goods.
- ▶ Between 1984 and 1996, Asian exports of parts and components grew by more than 500 percent, in contrast to just 300 percent growth in total Asian exports.
- ▶ Chinese trade grew by more than 800 percent between 1995 and 2008, with about half of this massive growth accounted for by trade in intermediates imported into the country and then exported after assembly and other tasks were performed in China. For computers, it is estimated that 95 percent of the value of Chinese exports was produced in other countries.

The United States Is Steadily Integrating into Global Supply Networks

Many successful companies in America have, to stay globally competitive, been at the forefront of creating and expanding global supply networks. Products made in America in their entirety are increasingly rare. Rather, more U.S. output — and thus more U.S. jobs — are connected to these global networks. “Made in America” increasingly involves the rest of the world.

What positions in these networks do companies in America tend to occupy? The United States historically offers several strengths that are well suited to many high-value, firmwide functions: e.g., highly educated and motivated workers, deep capital markets, and a culture of innovation and risk-taking. These American advantages contrast with many lower income countries abundant in motivated workers well matched to lower value, labor-intensive tasks. Thus, companies in America tend to support well-paying U.S. jobs that involve some of the most integrative and complex parts of global supply networks such as R&D, skilled production, logistics, management, and marketing.

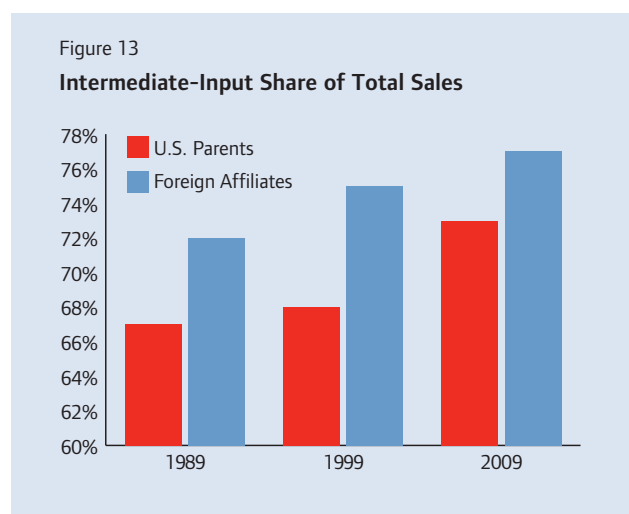
These positions of America in global supply networks are not fixed, however. Companies continually refine their strategies because a successful network today may well not be tomorrow. A fundamental reason that optimal network strategies change so rapidly is that the three basic forces driving these networks discussed previously continue to change so rapidly. Emerging countries continue to grow and to open their economies to global companies, policy restrictions continue to tumble, and IT innovations continue at a dizzying pace.

All of this means there are large and ever-changing differences in successful network strategies for American companies — across companies at a point in time and within companies over time. It is simply unrealistic to expect a successful American company to operate in the future like it does today in terms of whom it employs doing what tasks where in the world. Companies that do not innovate are companies that global competition overtakes — and thus that ultimately fail.

There is no comprehensive and flawless measure of America's integration into global supply networks. America, like other countries, has major holes in its statistical infrastructure that limit understanding of this critical feature of how America works. The ambitious study underlying Figure 12 estimated that the foreign content of U.S. exports has tripled in the last 40 years, rising from about 7 percent in 1970 to 22 percent in the late 2000s — with a much sharper rise since 1990. This rising connectedness of American production to the world carries two important trade implications.

One is the rising importance of trade in services, beyond trade in goods. Many of America's strengths in global supply networks discussed previously are services that are increasingly exported abroad to organize and optimize production. These strengths appear clearly in America's positive and growing trade surplus with the world in services — a surplus that reached a record \$179.0 billion in 2011 on the back of a record \$604.9 billion in services exports. The second important trade implication of America's engagement in global supply networks is not just rising exports but rising imports as well. In 2011, fully 62 percent of America's more than \$2.2 trillion in goods imports were intermediate inputs that were used in America with American workers, capital and know-how. Success in these networks requires U.S. companies to import as well as export.¹⁶

Publicly available data on U.S.-based multinational companies shed additional light on how important these networks have become to American business. Figure 13 provides one indicator of the growing role of these networks. For each of three years 1989, 1999 and 2009, it reports the share of total sales of U.S. parents and foreign affiliates that is accounted for by intermediate inputs purchased rather than by value added by these business segments themselves.¹⁷



The key message of Figure 13 is that over the past generation, the share of intermediate inputs in total sales has risen for both the U.S. and foreign operations of U.S.-based multinationals: from 66.6 percent in 1989 to 68.0 percent in 1999 and 73.3 percent in 2009 for U.S. parents and from 71.7 percent in 1989 to 74.5 percent in 1999 and 76.5 percent in 2009 for foreign affiliates. These high and rising shares are a clear indicator of the deepening engagement of these companies in global supply networks.

Beneath these aggregate shares for all multinationals, at the level of different activities one can see further evidence of the dynamic evolution of production. Consistent with the idea that companies in America tend to focus on knowledge-intensive tasks within global supply networks, from 1999 to 2009 the average annual rate of growth of R&D spending in U.S. parents, 4.4 percent, far exceeded the average annual rate of growth in overall parent value added, 1.7 percent. Similar evidence of the evolving knowledge intensity of U.S. parents can be seen in the ratio of U.S. parent capital-investment spending to R&D spending: This ratio fell from 3.3 in 1999 to just 2.1 in 2009, because of much faster growth in R&D spending. Many multinationals have been specializing more in creating the ideas that are critical for improved products and processes.

Looking at the level of different industries offers additional insight into the dynamic evolution of how these companies produce. Each year, each parent and affiliate enterprise is classified in a single primary industry that accounts for the largest share of that enterprise's sales. Companies that are changing their positions in global supply networks sometimes switch primary industry of classification — and this trend has increased over time as companies switch focus from making goods to making services. In the words of the U.S. Department of Commerce:

The tendency for U.S. sellers of goods to shift their activities from manufacturing toward wholesale trade predates 1999, but it has been growing in importance. For example, the number of parent companies whose primary industry classification changed from manufacturing to wholesale trade in 1999-2009 (47 companies) more than doubled from the preceding 10-year period (20 companies). The acceleration in this trend may be partly related to the rise of global value chains in firms' business strategies.¹⁸

This blurring of traditional distinctions between goods and services, not just across but even within companies, is a hallmark of global supply networks. These networks allow the production of goods to be unbundled into a collection of inputs that are not just goods but services as well — and conversely for the production of services. Successful globally engaged companies must continually shift the blend of goods and services they produce and sell. One recent study found that companies whose main line of business was *manufacturing* are among America's largest exporters and importers of *services* spanning R&D, business processing, and management consulting.¹⁹

The rising role of global supply networks is evident even among America's newest and smallest companies. Recall from Section II that in 2009, 26.1 percent of all U.S.-based multinationals employed fewer than 500 people in the United States. These SME multinationals had faster growth in affiliate employment over the 2000s than did larger multinationals — an annual average of 9.2 percent, in

contrast to the annual average of 3.1 percent for all affiliates. And many start-up companies are deeply connected to the global economy. One recent study found that 25 percent of all U.S. high-technology firms established between 1995 and 2005 had at least one foreign-born founder. In 2005, these new companies employed 450,000 people and generated more than \$50 billion in sales.²⁰

It is essential to note that one of the most important ways that successful companies in America have integrated into global supply networks has been attracting the FDI of foreign-headquartered multinational companies. Over the past generation the U.S. presence of these companies expanded considerably. Between 1987 and 2002 their U.S. employment more than doubled, from 2.6 million to 5.6 million, as did many other activities like capital investment. Why do these global companies invest in America? For many, a major reason is to expand revenues in the world's largest single-country market. But another major reason is to integrate into their global supply networks American strengths such as its deep talents in science, engineering, marketing and management. The net result of all this dynamic FDI is that these companies today are an important part of the U.S. economy, as Section II documents.

The case study on page 39 highlights how FDI in the United States benefits U.S. workers and the U.S. economy overall.

CENTRAL MESSAGE OF SECTION IV: *Connection to global supply networks has become an integral dimension of success for American companies. A primary motive for expanding abroad is to refine operations by creating and integrating into global supply networks. Their success in America increasingly hinges on venturing into the world for creative new ways to produce goods and services. "Made in America" increasingly involves the rest of the world.*

CASE STUDY: Siemens

Siemens is a global leader in electronics and electrical engineering that has operated in the United States since 1854 and today employs some 60,000 Americans across all 50 states. Siemens' Norwood Manufacturing Facility in Ohio is a good example of how U.S. affiliates of foreign-headquartered multinational companies invest in the United States to tap into American strengths — such as in engineering and the sciences — and create and support high-paying U.S. jobs connected to global production networks.

In 1898, the Bullock Electric Company built a factory in Norwood, OH, to manufacture motors. In 1921, Allis Chalmers bought this factory, which in 1978 became a Siemens-Allis joint venture until Siemens purchased the factory outright in 1987. In late 2007, Siemens completed a three-year, \$35 million investment in this Norwood facility that by then had been in continuous operation for more than a century and had become one of Siemens' oldest manufacturing sites in the world. Siemens spent more than \$10 million to renovate and expand existing buildings and more than \$17 million to purchase new machinery and equipment — about half of which were capital goods for sustained R&D. Today, the Norwood facility employs about 500 American workers.

With this large investment, Siemens transformed the Norwood Facility into a global R&D center for Siemens motors sold throughout the world. Norwood specializes in designing, testing and producing motors that meet or exceed the standards of the American Petroleum Institute (API). API motors are widely recognized as more robust, longer lasting and better able to endure harsher conditions than conventional motors. As a result, Norwood's API motors are in high global demand in many quality-sensitive sectors including metals, mining, oil and gas, and utilities. Norwood exports directly about 12 percent of its motors — a share that rises to about 30 percent when including sales to original equipment manufacturers (OEMs) that eventually ship their systems out of the country.

Norwood's R&D workers collaborate closely with the Siemens Nuremberg (Germany) factory as well as with other Siemens sites in the European Union, China and India. This collaboration includes joint design and production initiatives that lead to global solutions drawing on the respective strengths of each facility. For example, Nuremberg can rely on Norwood to support customers whose products must conform to API and other U.S. standards.

The success of the Norwood Manufacturing Facility is demonstrated by its recognition as *Plant Engineering* magazine's Top Plant of 2009. And the ultimate foundation of this success has been its employees. "By using high-end manufacturing processes and with a highly skilled and productive workforce, one of our oldest plants in the world now has a chance to become a leading manufacturing facility in the U.S.," said Eric Spiegel, president and CEO of Siemens USA. Many of the 500 Siemens colleagues working at Norwood include third-generation employees whose parents and grandparents worked there as well. Said Norwood employee and President of IUE-CWA Local 765 Wayne Cupp, "I think if these walls could talk, I think they would tell us that the same drive and the same pride continues on that it did 100 years ago. ... I've been able to buy a house, I've been able to get my kids through college. You know we used to call it the American Dream? Well, the American Dream is right here in Norwood."

V. Globally Engaged U.S. Companies Create American Jobs That Are Connected to the World

The balance of research to date shows that global demand growth and global supply networks tend to create American jobs. Expansion abroad by U.S. companies tends to complement their U.S. operations, with more hiring and investment abroad tending to boost hiring, investment, and R&D in their U.S. operations. Globally engaged U.S. companies also create jobs in America in other companies. In particular, they create jobs in SMEs within their global supply networks. Many SMEs thrive because their partnership with globally engaged U.S. companies generates not just revenue but also ideas and best practices that enhance their competitiveness.

How Globally Engaged U.S. Companies Create American Jobs When They Expand Abroad: Important Concepts

How are American jobs created that are connected to the global demand growth and supply networks discussed above? It is important to understand that jobs are created not just by exporting goods and services to these markets but also by producing and selling in the world's markets through FDI in foreign affiliates.

The link between exports and American jobs is clear: When companies in America gain new customers abroad for their goods and services, meeting this demand creates new American jobs in these companies. Because of the rich variety of goods and services America exports and the rich variety of production methods used by companies in America, the link from exports to jobs varies across companies, industries and time. That said, research has documented the many ways in which exporting companies tend to be stronger than nonexporters — even in the same detailed industry. Exporters tend to have about twice as many employees and sales. On a per-worker basis, they tend to be about 10 percent more capital and skill intensive. Their productivity and wages are also about 10–15 percent higher — much like the premium documented in Section II for jobs at multinationals.

The case study on page 42 highlights how globally engaged U.S. companies help American SMEs expand their business globally.

Less well understood is the link between jobs in America and investment and other business activities abroad. Much of the public policy discussion surrounding U.S. multinationals assumes that engagement abroad necessarily substitutes for U.S. activity — in particular, for employment and capital investment. This substitution concern misses the several channels through which the global engagement of U.S. multinationals tends to support, not reduce, their operations in America. Foreign-affiliate activity tends to complement, not substitute for, key parent activities in the United States. Three crucial features of how multinationals actually work that belie the substitution idea are complementarity, scale and scope.

CASE STUDY: FedEx and OtterBox

Integral to the success of many small and medium-sized U.S. businesses is their collaboration with large globally engaged U.S. companies. With similar standards in areas such as innovation and commitment to the customer, Memphis-based FedEx Corporation and Colorado case manufacturer OtterBox have benefited each other over the years.

Based in Fort Collins, CO, OtterBox is a well-known name providing premiere protective solutions for handheld technology. Despite the stagnant U.S. economy of recent years, OtterBox has experienced dramatic growth: From 2008 to 2011, the company increased revenue by more than 3,000 percent. The City of Fort Collins economic advisor, Josh Birks, noted that “[i]n the midst of the Great Recession, they were buying up property in downtown, hiring dozens of employees a month, and all of that has had a very stabilizing effect on our economy.” As a result, OtterBox has been ranked as one of the fastest growing private companies in America by *Inc. Magazine* every year since 2010 and was recognized among the best medium-sized businesses to work for by *Entrepreneur* magazine in 2011 and the Great Place to Work institute in 2012.

During its dramatic surge in demand, OtterBox quickly identified FedEx as a key ally to help create and expand its production network. With more than 300,000 team members and a vanguard reputation, FedEx provides businesses around the world with a broad portfolio of transportation, e-commerce and business services. FedEx ships an average of 9 million packages a day to more than 220 countries and territories via its 660 aircraft and more than 90,000 motorized vehicles; in 2012, it generated \$42.7 billion in revenue.

Since 2010, the demand for OtterBox has accelerated abroad. FedEx has helped OtterBox meet this global growth thanks to its deep global expertise on the regulatory, customs and overall business environment in many world markets that were new to OtterBox. Today this relationship spans three continents and nearly every operating company in the FedEx portfolio — all to better enable OtterBox to secure its materials to manufacture, complete its quality-assurance checks and deliver the right product to the right customer at the right time.

The success from this strategic alliance supports many jobs at both companies. FedEx employees worldwide touch or support the OtterBox account in many ways, and in its hometown of Fort Collins OtterBox has created more than 600 jobs since 1998. Yet OtterBox Founder and Chairman Curt Richardson strives for success to signify something even greater: “For OtterBox, I want us to stand for so much more than just a case. It’s how do we give back, how do we treat each other, and not only how do we treat our customers, but how do we treat our communities.” That commitment to community runs deep at FedEx as well.

- For some given level of firmwide output, when firms employ many kinds of workers and many nonlabor factors of production, affiliate and parent labor can often be complements in which more hiring abroad also means more hiring in the United States. Complementarity is quite common in global production networks, in which U.S. workers operate not in isolation but rather in close coordination with colleagues around the world.
- When affiliates are expanding abroad to boost their revenues, the resulting reduction in costs and boost in profits (thanks to greater scale and richer networks) often spurs higher output in the company around the world, which can mean more U.S. hiring.
- Affiliate expansion often not only boosts firm scale but also, as discussed previously, refines the mix of activities performed across parents and affiliates. U.S. parents' employment can rise as they shift their scope into higher value-added tasks such as R&D, finance, and general management.

How Globally Engaged U.S. Companies Create American Jobs When They Expand Abroad: Academic Evidence

The concern that global expansion tends to hollow out U.S. operations is not supported by the facts. Rather, the scale and scope of U.S. parent activities increasingly depends on their successful presence abroad. Aggregate, industry and company-level research to date shows that foreign-affiliate expansion tends to complement U.S. parent employment, investment and sales.

One such recent study examined industry-level data for 58 U.S. manufacturing industries from 2000 through 2007. It found that the productivity gains and cost savings from expanding global production networks tended to boost overall U.S. employment in these industries — albeit with changes in the scope of U.S. activities being performed. It also found that more immigrants working in the United States in those industries boosted their overall U.S. employment.²¹

Another study examined industry-level data for dozens of U.S.-based multinational companies in services over recent decades. It found that greater foreign-affiliate employment and sales correlated with greater U.S. parent employment as well, consistent with the idea that affiliate and parent activity tend to, on net, complement each other.²²

A third important study, conducted at the level of individual companies, carefully analyzed all U.S. multinationals in manufacturing from 1982 to 2004. It found that a 10 percent increase in foreign-affiliate capital investment causes a 2.6 percent increase, on average, in that affiliate's U.S. parent capital investment. It similarly found that a 10 percent increase in foreign-affiliate employee compensation causes a 3.7 percent increase, on average, in that affiliate's U.S. parent employee compensation. These links were clearest when analyzing the changes in affiliate jobs and investment driven by changes in affiliate sales — the surge in which was documented previously.

How do these percentages translate into actual dollars? Strikingly, each additional dollar in an affiliate's employee compensation generates an average increase in its parent employee compensation of about \$1.11. And each additional dollar in an affiliate's capital investment causes

an average increase in its parent's capital investment of about \$0.67. Accordingly, more affiliate activity tends to cause more, not less, parent activity. The authors of this study concluded, "These results do not support the popular notion that expansions abroad reduce a [multinational] firm's domestic activity, instead suggesting the opposite."²³

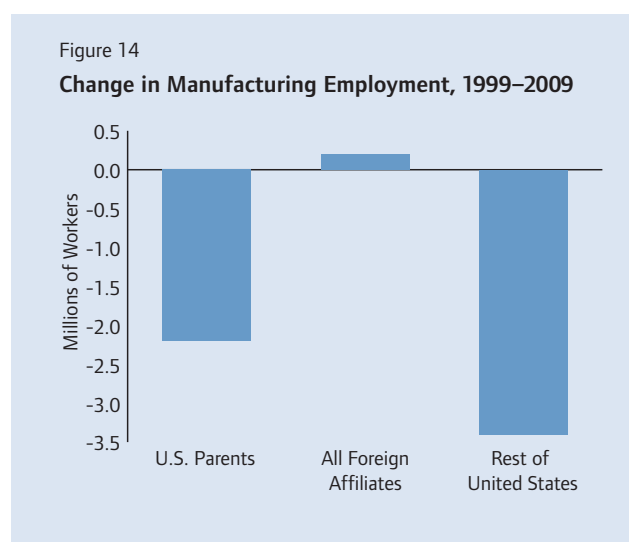
The perspective of a fixed number of jobs being reallocated between America and the rest of the world is not accurate. Rather, the correct perspective is one of parallel changes over time in both affiliates and parents — driven by the dynamism of complementarity, scale and scope.

This is not to say that global expansion has never substituted foreign workers for American workers. This substitution has surely happened and surely will continue to happen. But situations in which foreign and domestic labor substitute for each other often evolve into relationships of complementarity. Within global production networks, once different tasks and stages have located in different parts of the world, coordinating these stages to make final products means they tend to expand (or contract) together. And even if an American company relocates abroad some labor-intensive assembly tasks, the resulting cost savings may boost that company's order book so much that its net U.S. employment still rises as the reduced assembly jobs are more than offset by jobs in design, testing, logistics and customer support — new jobs in that company and, as will be discussed in the following section, in other companies as well.

How Globally Engaged U.S. Companies Create American Jobs When They Expand Abroad: Recent Evidence

How multinationals expanding abroad helps create American jobs can also be seen in the most recent publicly available data.

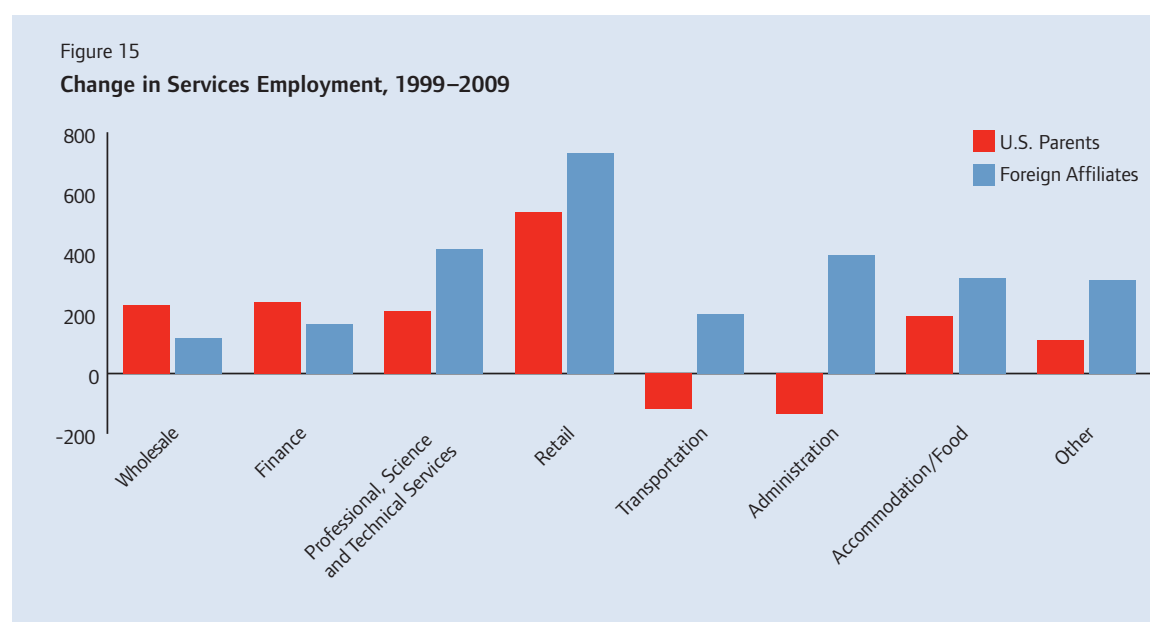
Start with manufacturing: Figure 14 reports the 1999–2009 changes in employment for U.S. parents of U.S.-based multinational companies in manufacturing, the foreign affiliates of these companies in manufacturing and the rest of the U.S. manufacturing sector outside of the U.S. parents.²⁴



Between 1999 and 2009, U.S. parent employment in manufacturing fell by 2.16 million, or 23.9 percent. Is this evidence of jobs being outsourced to foreign affiliates? No. Manufacturing employment in foreign affiliates increased over that same period by only 181,600, just 4.2 percent — far too small to explain the much larger parent decline. Moreover, U.S. manufacturing employment excluding U.S. parents of U.S. multinationals — i.e., employment in the U.S. manufacturing companies that are not part of multinational companies — fell by 3.4 million, a remarkable 40.7 percent.

It is critical to stress that the percentage decline in U.S. manufacturing jobs was larger among those companies that were not part of a U.S.-based multinational company — 40.7 percent — than among the U.S. parents in U.S. manufacturing — 23.9 percent. A smaller employment decline in the U.S. parents is entirely consistent with their U.S. jobs being supported (not harmed) by the global engagement of their overall companies. Domestically focused manufacturers might not have had the opportunity to create or maintain U.S. jobs that are connected to expanding global markets or supply networks.

What explains the large overall U.S. employment declines in manufacturing in Figure 14, if the answer is not jobs being somehow shifted to the foreign operations of U.S.-based multinationals? Surely one important factor behind the decline in U.S. manufacturing employment was strong productivity growth driven by technological change — e.g., by becoming more specialized on core strengths and innovations. For generations across all industries, rapid innovation has often reduced employment in the innovating companies — even as it creates employment elsewhere in the economy among suppliers and customers alike. For the U.S. manufacturing sector overall, productivity growth has long exceeded that of the rest of the U.S. economy. From 1999 through 2009, the average annual growth rate in U.S. manufacturing was 3.3 percent versus just 2.5 percent for the overall nonfarm U.S. business sector. During that time the value-added output of the parent operations of U.S. multinationals in manufacturing grew by nearly 200 percent despite the 23.5 percent drop in their employment, consistent with strong productivity growth.



The employment data for services show strong evidence of complementarity between U.S. parents and foreign affiliates. Between 1999 and 2009 parent employment in services rose by 1.26 million. During the same period, affiliate employment in services also increased strongly, by 2.64 million. Figure 15 disaggregates these increases by reporting the 1999–2009 changes in employment for U.S. parents and their foreign affiliates in eight major sectors within services.²⁵

Figure 15 shows that for six of the eight sectors within services, employment rose both in foreign affiliates and U.S. parents. As discussed previously in this section and in Section II, this complementarity is not surprising for many services that require a company's employees to be located near its customers. Employment in services affiliates grew so dramatically in large part to meet surging demand in fast-growth foreign markets. Consistent with this finding, it is notable that the four BRIC countries of Brazil, Russia, India and China accounted for 47.1 percent of total affiliate employment growth even though they accounted for only 8.9 percent of total affiliate employment in 1999.

For any given company within the industries shown in Figures 14 and 15, how exactly its worldwide employment has evolved depends on a myriad set of opportunities and challenges. Indeed, critical features of the dynamic evolution of global business lie within these aggregates. Between 1999 and 2009 the number of U.S.-based multinational companies actually declined by 9.9 percent, from 2,605 enterprises to 2,347. This decline was predominantly in manufacturing: The number of U.S.-based multinationals rose for companies whose main line of business is information; finance and insurance; or professional, scientific and technical services. Companies stop being U.S.-based multinationals for several reasons. Some are acquired by foreign-based multinationals, some remain globally engaged but switch to other channels such as exporting or arm's-length partners, some choose to refocus on only the U.S. market, and some struggling companies shut down altogether.

At the same time that some companies cease being multinational, dynamic fast-growth companies are being “born” into the group of U.S.-based multinationals as they choose to establish their first foreign affiliate. For example, in 2009 613 U.S.-based multinationals employed fewer than 500 people in America — and thus, as discussed in Section II, fit the U.S. government definition of being an SME. And from 1999 to 2009, the affiliates of these SME multinationals had the fastest growth in affiliate employment — an annual average of 9.2 percent, in contrast to an annual average of 3.1 percent for all affiliates. The fact that 26.1 percent of U.S. multinationals are SMEs speaks to how dynamic these companies are.

These many transitions across company size and status have long been integral to how companies succeed by continually innovating. On net, all this dynamism and global engagement tends to create U.S. jobs connected to growth abroad. Indeed, from 1999 to 2009 U.S. parents' per-company average employment increased by 7.6 percent — from 9,200 to 9,900.

How Globally Engaged U.S. Companies Create American Jobs in Their Supplier Companies

As just described, globally engaged U.S. companies do create the jobs that America needs: They create jobs in America connected to their global demand growth and jobs in America connected to their global supply networks. But globally engaged U.S. companies create jobs in America in another equally important way: not just in themselves but also in the companies that supply their intermediate inputs.

To make globally competitive goods and services, successful American companies rely on a wide range of intermediate inputs — i.e., goods and services made by and purchased from other companies to help produce their own goods and services. Indeed Section IV documents that for the U.S. parents of U.S.-based multinationals, a high and rising share of their total sales are accounted for by intermediate inputs rather than by their own value added — consistent with the growing role of global supply networks. And Section II documents that in America, all multinational companies together purchase a remarkable \$9.3 trillion in intermediate inputs — of which more than \$8 trillion are bought from other companies in America.

Integral to the success of globally engaged U.S. companies is purchasing trillions of dollars in goods and services every year from other businesses in America. The essential point for job creation is that when globally engaged companies grow, they create jobs in other companies, not just their own. When their expanding sales require them to buy more intermediate inputs, these supplier companies may hire new workers to meet the new orders. Even when the global companies that tend to coordinate these networks drive growth — for example, through a new marketing campaign — the employment gains do not accrue just to them. Looking for job creation only in global companies themselves misses the reality that their dynamism often catalyzes job creation in many of their supply-network partners.

Beyond jobs, suppliers to globally engaged companies often gain a wealth of knowledge about technology, management and many other productivity-leading practices that successful large companies tend to excel at and share with suppliers through formal and informal channels. Indeed, in some situations these other exchanges of ideas and best practices can be critical for suppliers' long-term success — and for that of the globally engaged companies as well.

The synergies in these partnerships often mean that innovation and productivity gains in the globally engaged companies result in employment gains largely, if not entirely, in their suppliers. New products discovered and designed by global firms may be produced entirely by suppliers. New processes that boost efficiency in global firms may result in their supplier firms assuming tasks they previously performed. Indeed, in dynamic cases like these net job creation in America may entail job reductions in globally engaged firms accompanied by even larger job expansions in their supply-network partners.

One especially notable supply-network partnership is between larger globally engaged companies and their SME suppliers. SMEs do not operate in a vacuum. Rather, they are connected to global companies in several ways — and their health often depends on their connections to large companies. One important link between small business and big business is time: The small businesses of today can grow to become the big businesses of tomorrow. Many of America's largest and most successful companies started small. This dynamic perspective is very important. The distinction at any point in time between small and large businesses is *not* permanent. Many small businesses aspire to grow large, and many innovative firms manage to do just that — often quite quickly.

Another important link between small business and big business is their supply-network partnership. Of the more than \$8 trillion in intermediate inputs that larger multinational companies buy from other companies in America, how much is bought from SMEs? Unfortunately, this question cannot be answered by any data collected by the U.S. government. To overcome this gap, a recent study surveyed Business Roundtable members to find the following important connections.²⁶

- ▶ The U.S.-parent enterprise of the typical U.S. multinational buys goods and services from more than 6,000 American small businesses.
- ▶ That typical U.S. multinational buys a total of more than \$3 billion in inputs from these small-business suppliers.
- ▶ That typical U.S. multinational relies on these small-business suppliers for more than 24 percent of its total input purchases.
- ▶ Collectively, U.S. parents of U.S. multinationals purchase an estimated \$1.52 trillion in intermediate inputs from U.S. small businesses, which is about 12.3 percent of their total sales.

This extensive supply-network partnership means that the direct global engagement of American worldwide companies fosters indirect global engagement for American SMEs. Even if these SMEs do not directly sell to foreign customers, they do so indirectly by serving globally engaged U.S. companies. This dynamic connection means that many SME jobs are linked to the world thanks to their customers: Global growth in customers creates jobs in these SMEs.

The case study on page 49 highlights how globally engaged U.S. companies partner with American SMEs to become more competitive by inventing new production processes.

CENTRAL MESSAGE OF SECTION V: *Expansion abroad by globally engaged U.S. companies tends to complement their U.S. operations. More hiring and investment abroad tends to boost hiring, investment, and R&D in their U.S. operations. Globally engaged U.S. companies also create jobs in America in other companies. In particular, they create jobs in SMEs within their global supply networks.*

CASE STUDY: Coca-Cola

The Coca-Cola Company touches the world's consumers like almost no other business. Underlying its 2011 worldwide revenues of \$46.5 billion was an average of more than 1.7 billion servings every day in 206 countries. Fundamental to Coca-Cola's success in the United States and around the world has been innovation that achieves both environmental benefits and financial goals. In 1969, it commissioned the first-ever environmental life-cycle assessment of packaging. In 1991, it introduced the first plastic beverage bottle with recycled material. And in 2009, it introduced PlantBottle packaging: the world's first recyclable beverage bottle made partially from plants. Coca-Cola's PlantBottle packaging initiative demonstrates how research and innovation in global companies often fosters innovation and supports jobs in younger small businesses that are part of Coca-Cola's international supply chain.

PET (which stands for polyethylene terephthalate) is one of the world's most widely used plastics, but historically it has required petroleum and other fossil fuels as a key ingredient. In their ongoing efforts to improve the company's packaging, Coca-Cola researchers discovered how to produce PET from plant material rather than fossil fuels — without sacrificing performance characteristics such as recyclability. This bio-based plastic could be made in laboratories, but the challenge became making this scientific breakthrough commercially scalable. A first success was building a viable global supply chain that used plant materials for one of the two key ingredients used in PET plastic. After careful study, Coca-Cola chose to use locally sourced sugarcane and sugarcane waste from Brazil, a source of biomass widely recognized for its favorable environmental footprint and its sustainability outside of the food stream.

Since the package launched in 2009, PlantBottle packaging has eliminated the equivalent of almost 100,000 metric tons of carbon dioxide emissions — the equivalent of 200,000 barrels of oil. Coca-Cola is moving the global PET market with PlantBottle packaging by setting a goal of expanding from 30 percent plant-based plastic to 100 percent plant-based plastic by the year 2020.

To achieve this goal, Coca-Cola turned to highly specialized research partners that are each young small businesses. In December 2011, Coca-Cola's R&D team announced multimillion-dollar partnership agreements with three leading biotechnology companies to accelerate development of 100 percent PlantBottle. Virent, located in Madison, WI, was founded in 2002 and employs about 120 colleagues; Gevo, located near Denver, CO, was founded in 2005 and also employs 120 people; and Europe-based Avantium was founded in 2000. Each company is pursuing different technologies, but the research efforts of all three have been boosted by Coca-Cola's investments.

These breakthroughs demonstrate the symbiotic collaboration between large and small businesses. Coca-Cola is relying upon the ingenuity and breakthrough technical skill of these entrepreneurial businesses, and these businesses are enabled through the resources of their larger partner. Said Gevo CEO Patrick Gruber, "New technologies need champions. The Coca-Cola Company is in a unique position to drive and influence change in the global packaging supply chain with this development. You cannot ask for a better champion."

VI. Conclusions

Successful companies in America today hire and invest from a dynamic, global perspective. Each company has a unique history that informs its current structure and strategies. As such, each company needs the freedom to best respond to the evolving opportunities and pressures of the global marketplace. Indeed, this dynamic process of discovery — where and how to hire, invest, research and sell — is critical for U.S. companies sustaining worldwide success. Companies that are not globally competitive over the long run will not employ any workers — in the United States or abroad.

Success in venturing abroad does not come easily to globally engaged U.S. companies. Even for the most successful companies, profitably building customers and supply networks abroad requires concerted effort with much trial and error to create and maintain sound strategies. This dynamic effort typically entails three important dimensions.

First is mindset. The basic business environment — legal and regulatory regimes, cultural norms, consumer tastes — in so many countries differs dramatically from the U.S. environment with which many companies have a long history. Methods for creating products and building businesses that succeed in America often do not readily translate in fast-growing markets. Companies aspiring to grow beyond America often need new colleagues and new approaches to identify, understand and create successful products and methods in new markets.

The second key dimension of dynamic effort is competition. Successful American companies face intense competition in venturing into the world's fast-growing economies. The 2012 *Fortune* 500 list of the world's 500 largest companies contains 107 from emerging economies — more than triple the 31 of a decade ago. Outward cross-border merger and acquisition transactions by these emerging companies are surging. Sharp competition in fast-growth markets compels companies in America to be innovative in finding customers and suppliers there. It is well documented that global competition ultimately strengthens companies — and thus their long-term ability to create and sustain jobs. Across many countries and industries, companies facing high competitive intensity — not just in output markets but also in the markets for labor and capital — tend to be more productive. This is because globally engaged companies themselves tend to create and use the world's most innovative methods and organizations.

The third key dimension of dynamic effort is persistence. Companies understand that even if they successfully venture into world markets today, tomorrow brings new challenges. The pace of business change is so much faster in high-growth markets that successful strategies rarely last long. Quickly expanding economies have rapidly shifting customer tastes thanks to their fast growth in income; they have rapidly rising costs for labor, land and other inputs as part of that income growth; and they have dynamic competitors emerging far faster than in advanced countries. This accelerated pace of business change means that to retain world strengths, companies in America must persist in innovating. Globally successful companies are much more likely to create whole new products and divisions and to overhaul existing products and divisions — all of which results in strategies that must continually change to continually grow sales, profits and jobs.

America can meet the goal of helping globally engaged U.S. companies compete around the world to create and support millions of jobs in America that are connected to the world. Doing so, however, will require U.S. policies that help all companies — big and little, U.S. and foreign, young and old — compete globally.

There is a future in which America can enjoy strong growth, more jobs and rising wages. This optimistic future is not guaranteed. But it is no doubt attainable if policies are built on the foundation of a clear understanding of what companies in America must do to succeed in today's dynamic global economy.

Appendix: Data Definitions

This report makes extensive use of data on multinational companies — both U.S. and foreign based — collected and disseminated by the Bureau of Economic Analysis (BEA) of the U.S. Department of Commerce.

Every year since 1977, the BEA has tracked U.S.-headquartered multinationals through legally mandated surveys (with penalties for noncompliance) that collect and publicly disseminate operational and financial data. By design, BEA statistics track all multinational companies headquartered in the United States. There is no other U.S. government or private-sector data source on multinational companies that matches the BEA's breadth, depth or rigor.

In accord with the practice of many countries, the BEA defines a U.S.-headquartered multinational company as any U.S. enterprise that holds at least a 10 percent direct ownership stake in at least one foreign business enterprise. The U.S. enterprise is the U.S. "parent." It is a person, resident in the United States, that owns or controls 10 percent or more of the voting securities, or the equivalent, in a foreign business enterprise. Person is broadly defined to include any individual, branch, partnership, associated group, association, estate, trust, corporation or other organization (e.g., a government entity). The foreign business enterprise is the foreign "affiliate," over which the U.S. parent is presumed to hold and exert some degree of managerial control. The 10 percent stake is defined broadly: It is the ownership or control, directly or indirectly, by one U.S. person of 10 percent or more of the voting securities of an incorporated foreign business enterprise or the equivalent interest in an unincorporated business enterprise. The BEA analogously defines a U.S. affiliate of a foreign-headquartered multinational company as any U.S. enterprise in which at least a 10 percent direct ownership stake is held by at least one foreign business enterprise. Very little information is collected about these foreign business enterprises.

Data in this report cover majority-owned affiliates — i.e., those foreign affiliates owned 50 percent or more by the U.S. parent(s) and those U.S. affiliates owned 50 percent or more by the foreign parent(s). This is because the BEA collects and disseminates far less information about minority-owned affiliates, over which there is a more ambiguous degree of control. That said, majority-owned affiliates constitute the large majority of total affiliate activity: in 2010, for example, 83.5 percent of total employment of all foreign affiliates of U.S.-based multinationals. In 2010, there were 2,215 U.S. multinational parents that controlled 25,189 majority-owned foreign affiliates, and in 2009 there were 4,662 U.S. majority-owned affiliates of foreign-headquartered multinationals.

To avoid identifying individual companies, all publicly available BEA data on multinationals are aggregated by primary industry of operation, affiliate country or various combinations of these criteria. Finally, note that at the time of writing, 2010 or 2009 is the most recent year for which BEA data (depending on the particular item) are publicly available (where data items are reported by companies for either year end or year average, where year is fiscal year ending in that calendar year).

BEA data used in this report can be accessed both in print and online. Online data (plus the actual survey forms) and publication information are available at www.bea.gov.

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Endnotes

1. In Figure 1 and the supporting text, BEA data on U.S. multinational companies have been matched as needed with private-sector economywide data from appropriate government sources. The BEA data are available online. Details on the source and definition of these non-multinationals data are as follows, where all data — in Figure 1 and all subsequent figures — were obtained online in August 2012 or from Barefoot (2012). Employment: Bureau of Labor Statistics, U.S. Department of Labor — U.S. private-sector nonfarm payroll employment. Output: BEA — Private-sector value-added output adjusted to exclude value added in depository institutions and private households, imputed rental income from owner-occupied housing, and business transfer payments. Investment: BEA National Income and Product Accounts — Table 5.2.5 (Gross and Net Domestic Investment by Major Type) Line 10 (Nonresidential gross private fixed investment). Research and Development: National Science Foundation — Total R&D performed by the industrial sector, current dollars. Exports and Imports of Goods — BEA National Income and Product Accounts, as reported in Barefoot and Mataloni (2011). Compensation Premium for U.S. Multinational Companies: The national measure of private-sector labor compensation comes from the BEA National Income and Product Accounts Table 6.2 (Compensation of Employees by Industry) Line 3 (Private Industries). Employee compensation as measured in the BEA data includes wages, salaries and benefits — mandated, contracted and voluntary. Finally, note that at the time of writing National Science Foundation R&D data for 2010 were not yet publicly available; accordingly, in Figure 1 and Figure 2 shares of U.S. private-sector R&D for 2009 are reported.
2. In Figure 2 and the supporting text, BEA data on U.S.-affiliate companies have been matched as needed with private-sector economywide data from appropriate government sources. The BEA data are available online or in Anderson (2012). Details on the source and definition of these data for non-multinationals are the same as those used for Figure 1; see note 1.
3. In Figure 3, total purchases of intermediate inputs by parent companies were calculated as total sales less value-added output. Imported intermediate inputs were measured as total parent imports of goods. This implicitly assumes that all imported goods by parent companies are intermediates rather than final goods. Because some of these imports are final goods and services rather than intermediates, the calculated share of inputs bought from domestic suppliers that is reported above lies below the true but unobservable domestic-supplier share. Data for these calculations were obtained from BEA data online.
4. In Figure 4, data for the shares were obtained from the BEA multinationals data online.
5. In Figure 5, data were obtained from the BEA multinationals data online.
6. In Figure 6, data were obtained from the BEA multinationals data online. BEA classifies the main line of activity for each parent (and affiliate) in terms of the industry composition of sales.
7. In Figure 7, data on U.S. GDP growth come from the BEA; the reported 1991–2011 average rate of growth incorporates the major BEA data revisions released on July 27, 2012. Data on GDP growth for other countries come from the International Monetary Fund (2012).

8. In Figure 8, data on U.S. GDP come from the BEA; they incorporate the major BEA data revisions released on July 27, 2012. Data on world GDP is at market exchange rates and comes from the International Monetary Fund (2012).
9. McKinsey & Company (2012), pp. 20–22.
10. In Figure 9, data on growth in U.S. GDP and in U.S. exports come from the BEA; they incorporate the major BEA data revisions released on July 27, 2012.
11. In Figure 10, data were obtained from the BEA multinationals data online.
12. Barefoot and Mataloni (2011), p. 35.
13. In Figure 11, data were obtained from the BEA multinationals data online. The BEA does not track exports of services by U.S. parents, so Figure 11 reports only exports and sales of goods.
14. In addition to what is referenced in subsequent endnotes, useful studies that have examined global supply networks include Baldwin (2011), Beltramello (2012), Feenstra and Jensen (2012), Gereffi and Fernandez-Stark (2011), Ikenson (2009), Jensen (2012), Jensen and Barfield (2012), Nanto (2010), Organisation for Economic Co-operation and Development (2012), and United States International Trade Commission (2011, 2012). Each of these studies contains a number of references to other studies — e.g., of other countries and industries.
15. The study discussed here, and from which Figure 12 is taken, is Johnson and Noguera (2012).
16. The trade data cited in this paragraph come from the U.S. Census Bureau and the BEA.
17. In Figure 13, shares data were obtained from the BEA multinationals data online. See note 3.
18. Barefoot and Mataloni (2011), p. 34.
19. Barefoot and Koncz-Bruner (2012).
20. Wadhwa, Saxenian, Rissing and Gereffi (2007).
21. Ottaviano, Peri and Wright (2012).
22. United States International Trade Commission (2011).
23. Desai, Foley and Hines (2009).
24. In Figure 14, employment for U.S. parents and foreign affiliates were obtained from the BEA multinationals data online. Employment data for the rest of the U.S. manufacturing sector were obtained from the Bureau of Labor Statistics (BLS), U.S. Department of Labor. The BLS was also the source for the productivity-growth data discussed after Figure 14.
25. In Figure 15, data were obtained from the BEA multinationals data online. The BEA was also the source for the various data and statistics discussed after Figure 15.
26. Slaughter (2010).

About the Author

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