

GLOBAL INVESTMENTS , AMERICAN RETURNS



*Mainstay III:
A Report on the Domestic Contributions of
American Companies with Global Operations*

EMERGENCY COMMITTEE FOR AMERICAN TRADE (ECAT)

In October 1967, a number of U.S. business leaders joined together because of a shared concern that a new worldwide trade war was in the making. Proposals to severely restrict imports into the United States were moving through the Congress. Threats of retaliation by foreign nations were being openly voiced.

These business representatives felt that a combination of restrictions and retaliations could destroy two decades of progress in the expansion of trade and investment. To help prevent such an outcome, these individuals formed the Emergency Committee for American Trade (ECAT).

ECAT's efforts helped to ensure that protectionist measures were not enacted. However, the threat to open trade and investment continued and ECAT's founders were joined by others until the Committee reached its present size.

Today, ECAT's members account for major segments of the manufacturing, financial, processing, merchandising, and publishing sectors of the American economy. Their combined annual exports are in the tens of billions of dollars. ECAT members' annual worldwide sales exceed \$1 trillion and these companies employ approximately 4 million people. The jobs they provide for Americans, including those of their suppliers, dealers, and sub-contractors, are located in every state of the nation and cover skills of all levels.

The members of ECAT are active supporters of legislation, policies, and other measures in the areas of trade, investment, and international tax that facilitate U.S. exports and expand international trade and investment. ECAT expresses its members' views in testimony before congressional committees, through consultations with Congress and Administration officials, in collaboration with other organizations, and by participating in public information programs.

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PREFACE

Over 20 years ago, the Emergency Committee for American Trade (ECAT) recognized the need to encourage greater awareness of the importance of U.S. foreign direct investment to the U.S. economy. At the time, American companies with global operations were under attack. Critics charged that U.S. foreign direct investment exported American jobs and promoted increased imports from foreign affiliates. Some political leaders advocated changing U.S. trade and tax laws to keep capital and production in the United States.

In 1972, ECAT commissioned its first major study on the role of U.S. foreign direct investment in the domestic economy, entitled *The Multinational Corporation: American Mainstay in the World Economy*. The report demonstrated that overseas investments by American companies contributed to increased U.S. exports and increased investments at home. Based on data collected from 74 U.S. manufacturers operating in world markets, the study was used in the effort to prevent enactment of draconian restrictions on American activities in foreign markets.

In subsequent years, the business community and government agencies helped educate opinion leaders and the public about the benefits of U.S. overseas investment to the domestic and world economies. For example, a 1991 study by the United Nations Conference on Trade and Development concluded that “foreign direct investment is increasingly becoming an engine of growth in the world economy.” To boost growth worldwide, the study urged governments to facilitate a greater flow of foreign investment to developing countries. In addition, a 1997 study by the International Labor Organization stated that slow economic growth, not free trade and foreign direct investment, is the primary cause of slow job growth and stagnant wages.

ECAT continued its contribution to this education effort in 1993 by publishing *Mainstay II: A New Account of the Critical Role of U.S. Multinational Companies in the U.S. Economy*. By using more extensive data covering the entire U.S. manufacturing sector during the decade of the 1980s, *Mainstay II* again explored the effect of American companies operating overseas on the U.S. economy. The report concluded that to remain competitive and to participate successfully in global trade and investment, American companies must have a “global reach.”

Notwithstanding these efforts, widespread distrust and misconceptions persist about foreign investment by U.S. companies. There also continues to be a lack of understanding of the relationship between trade, investment, and tax policies and the degree to which these policies should be complementary. With the publication of its latest study, *Mainstay III: Global Investments, American Returns*, ECAT continues to contribute to this important public policy debate.

There are two key points in *Mainstay III*. First, by raising U.S. worker productivity, American companies with global operations help raise the U.S. standard of living. Second, because U.S. and foreign activities of these companies tend to complement each other, the ability of these companies to help raise the U.S. standard of living depends crucially on their ability to undertake foreign direct investment. These points are based upon analysis of these companies’ investments, research and development, exports, imports, purchases from suppliers, and many other data.

Mainstay III builds on its predecessors in two major ways. One is its theme linking American companies with global operations to the U.S. standard of living. This emphasis on the standard

of living is chosen because there is wide agreement among economists that standard of living is the most important measure of a country's economic well-being. Moreover, it is particularly timely in light of both the slowdown in U.S. productivity growth that started during the early 1970s and current academic research and political discussions about solutions to this problem. Second, *Mainstay III* broadens the focus of analysis to include all three major sectors of the economy: manufacturing, agriculture, and services. This wider focus is particularly timely as manufacturing continues to account for an increasingly smaller share of total economic activity in the United States. It is also important because many services companies can access foreign markets only through foreign direct investment as their products are inherently non-tradable.

Mainstay III also analyzes some of the myths that persist in current discussions about the role of American companies with global operations in the U.S. economy. This report corrects these myths and moves the discussion toward a broader understanding of the contributions that American companies with global operations make to the U.S. standard of living.

Mainstay III does not address the often heard claims that foreign direct investment and/or international trade “create” or “destroy” U.S. jobs. This is because economists generally agree that neither foreign direct investment nor trade creates or destroys jobs on net for the U.S. economy. The issue should not be the number of jobs, but rather the kinds of jobs. Both foreign direct investment and trade allow U.S. firms to focus on the kinds of jobs the United States is relatively good at doing compared to the rest of the world. These tend to be jobs that are more productive. Therefore, these jobs tend to raise the U.S. standard of living for the reasons analyzed in this report. Along the way, this report discredits many other myths about pernicious effects of American companies with global operations and their foreign direct

investment. For example, it is simply not true that these companies purchase inputs only from foreign affiliates to generate a flood of inexpensive imports from offshore factories into the United States. In fact, the American operations of these companies purchase over 90 percent of their intermediate inputs from domestic suppliers.

With its new findings, *Mainstay III* provides fresh insights and policy recommendations. In so doing, ECAT hopes that this latest contribution will help inform public debate over U.S. trade and investment policies based upon hard data and a common understanding of the facts about American companies with global operations.

Because this report aims to provide a comprehensive analysis of American companies with global operations, it is based on both anecdotal data in the form of case studies from 10 American companies, as well as U.S. government data that tracks all American companies with global operations across all sectors.

The primary U.S. government data source for this report is the Bureau of Economic Analysis (BEA) within the U.S. Department of Commerce. The BEA generates the only comprehensive annual data on the activities of American companies with global operations both in the United States and abroad. As a result, this report relies on the BEA data throughout. Where necessary, it also makes use of data from other U.S. government agencies, as well as data from the International Monetary Fund, the Organization for Economic Cooperation and Development, and The World Bank.

To assist the reader, a few key definitions of terminology are appropriate. The BEA refers to American companies with global operations by the alternative phrase “U.S. multinational corporations.” This report treats the two terms equivalently but uses only the former. The BEA defines American companies with global operations as business enter-

prises consisting of one American “parent” and one or more foreign “affiliates.” A parent is an individual or a group, such as a trust, corporation, or partnership, which controls a business enterprise that is incorporated in the United States. A foreign affiliate is a business enterprise located abroad in which there exists “outward foreign direct investment (FDI).” In turn, outward FDI is defined as direct or indirect ownership or control by a single U.S. parent of at least 10 percent of either the voting securities of an incorporated foreign business enterprise or an equivalent interest in an unincorporated foreign business enterprise. Majority-owned affiliates are those in which the parent has more than a 50-percent ownership stake. Minority-owned affiliates are those in which the parent has between a 10-percent and 50-percent ownership stake.

The Appendix details important aspects of these data, including other definitions and data-collection procedures.

EXECUTIVE SUMMARY

In public and private-sector debates over U.S. trade and investment policies, the role in the U.S. economy of American companies with global operations¹ has often been misunderstood. Although there is no doubt that the United States plays an important role in the world economy, most Americans are unaware of the critical contributions that trade and foreign direct investment (FDI) of American companies with global operations make to the U.S. economy.

To broaden public understanding of the positive role of these companies, this study expands upon the research in ECAT's previous *Mainstay* studies in two important ways. First, it focuses on the key issue of the U.S. standard of living. Second, it broadens the scope of the study to include all three major sectors of the economy: manufacturing, agriculture, and services.

There are two key points in *Mainstay III*. First, by raising U.S. worker productivity, American companies with global operations help raise the U.S. standard of living. Second, because the U.S. and foreign activities of these companies tend to complement each other, the ability of these companies to help raise the U.S. standard of living depends crucially on their ability to undertake foreign direct investment abroad.

Mainstay III is based upon analysis of the investments, research and development, exports, imports, and purchases from suppliers of American companies with global operations and many other data from 1977 through 1994. The primary data source is surveys of such companies conducted by the Bureau of Economic Analysis (BEA) within the U.S. Department of Commerce.

The following sections summarize the major findings and conclusions of the study:

I. Setting the Stage: The World Economy in which American Companies with Global Operations Compete

American companies today operate in a world economy that is increasingly concentrated outside the United States and that is rapidly expanding its international linkages through FDI and international trade.

- **The U.S. share of the global economy is shrinking.** For decades, the U.S. economy has been growing more slowly than the rest of the world, such that the U.S. share of total world output has been declining. This share was approximately 50 percent in 1945, but is down to only 20 percent today.
- **FDI and trade help U.S. integration into the global economy.** American companies with global operations have helped integrate the United States more closely into the growing world economy. Average annual outflows of FDI from the United States quadrupled from the 1960s through the 1980s, and total trade as a share of U.S. output rose from 5.6 percent in 1945 to 24.7 percent in 1995.

By participating in the world economy, American companies with global operations maintain a significant presence in the United States.

- **Most employment is in the United States, not abroad.** In 1977, U.S. parent companies accounted for 72.8 percent of total worldwide employment of American companies with global operations and by 1994, they accounted for 74.3 percent of the total.

- **Profits earned by foreign affiliates are mostly repatriated.** In 1989 (the most recent year for which these data are available), U.S. parents repatriated 72.8 percent of their foreign affiliates' net income.
- **Most intermediate inputs are purchased from domestic suppliers, not foreign suppliers.** From 1977 through 1994, more than 90 percent of all intermediate inputs purchased by U.S. parents came from American suppliers, not foreign suppliers.

Overseas, American companies with global operations are located primarily in developed countries, and the sales from these operations are overwhelmingly in local markets.

- **Most affiliate activity abroad is in developed — not developing — countries.** In 1994, developed countries hosted nearly two-thirds of U.S. foreign affiliate employment and accounted for more than three-quarters of foreign affiliate assets and sales.
- **Foreign affiliate sales are mostly abroad, not back to the United States.** In 1994, only 10 percent of total U.S. affiliate sales went to the United States. The other 90 percent stayed abroad, and fully 67 percent of all sales were within the host countries of the foreign affiliates.

II. The Importance of American Companies with Global Operations to the U.S. Standard of Living: Generating High Productivity

American companies with global operations contribute in several important ways to the U.S. standard of living, and this contribution is larger than that of purely domestic firms.

- **Investment in Physical Capital.** American companies with global operations undertake the majority — 57 percent in most years — of total U.S. investment in physical capital in the manufacturing sector.
- **Research and Development.** American companies with global operations perform the majority — between 50 percent and 60 percent — of total U.S. research and development.
- **Exports.** American companies with global operations ship the large majority — between 60 percent and 75 percent — of total U.S. exports. Their foreign affiliates are important recipients of these exports; their share has increased to over 40 percent today.
- **Imports.** American companies with global operations also receive a sizable share of U.S. imports — roughly 30 percent. These imports benefit the U.S. economy in many ways, including giving U.S. companies access to foreign-produced capital goods and technologies.

All these activities help increase U.S. productivity and thereby enhance the U.S. standard of living.

III. The Importance of American Companies with Global Operations to the U.S. Standard of Living: Paying Higher Wages

American companies with global operations pay their workers higher wages than those paid by comparable American companies without global operations.

- A study of 115,000 U.S. manufacturing plants indicated that U.S. parent plants pay comparable workers higher wages than purely domestic plants. Production workers receive an average of 6.9 percent less at comparable domestic plants employing more than 500 employees and 15.2 percent less at comparable domestic plants employing fewer than 500 employees.

Non-production workers receive an average of 5.0 percent less at comparable domestic plants employing more than 500 employees and 9.5 percent less at comparable domestic plants employing fewer than 500 employees. These results control for possible wage differences attributable to variations across plants in age, industry, location, and size. In light of all these controls, it seems likely that these wage differences are attributable to workers at U.S. parents being more productive than workers at comparable domestic plants.

IV. The Importance of American Companies with Global Operations to the U.S. Standard of Living: Linkages to American Suppliers

In addition to directly raising the U.S. standard of living themselves, American companies with global operations may also raise the U.S. standard of living through their interactions with domestic U.S. suppliers.

- Evidence exists that companies benefit from being exposed to other dynamic, successful firms. Exposure to “worldwide best practices” — whether those best practices are in the same country or abroad — tends to foster innovation, cost control, and other improvements that boost firm productivity.
- The very large amount of purchases of intermediate inputs from domestic suppliers by U.S. parents of American companies with global operations suggests the possibility that U.S. domestic suppliers have sufficient exposure to these high-productivity parents to realize some productivity gains. For the past 20 years, U.S. parents have purchased over 90 percent of their intermediate inputs — \$2.4 trillion in 1994 — from domestic, not foreign, suppliers.

V. How Foreign Direct Investment Abroad Complements U.S. Parent Activity and Contributes to a High Standard of Living in the United States

Because the U.S. and foreign activities of American companies with global operations tend to complement each other, the ability of these companies to raise the U.S. standard of living depends crucially upon their ability to undertake FDI abroad.

- Analysis of BEA data, academic research, and case studies of 10 major American companies demonstrates that U.S. FDI generally complements rather than substitutes for U.S. parent activity. Within American companies with global operations, affiliate expansion generally triggers in U.S. parents additional investment, research and development, trade, and input purchases from domestic suppliers. As stated earlier, these activities are key determinants of the U.S. standard of living.
- Restrictions on FDI that prevent U.S. companies from expanding abroad generally will reduce U.S. parent activity and thus, lower the U.S. standard of living.

VI. Conclusions and Policy Recommendations

The United States must continue to strengthen the open system of global trade and investment in order to maximize the contributions of American companies with global operations to an improved standard of living for all Americans. To that end, U.S. trade and investment policies should take into account the following recommendations based on the research and findings in this study:

- The U.S. government should maintain its open trade and investment policies. Moreover, these policies should recognize the ways in which trade and foreign direct investment benefit the U.S. economy.
- The U.S. government should continue to negotiate aggressively for more open foreign markets and should persuade foreign governments to end restrictions on trade and investment. Removing these restrictions will create a “win-win” situation that benefits both foreign countries and the United States.
- The U.S. government should strive to continue to harmonize its international trade, investment, and tax policies. In the case of American companies with global operations, this harmonization should take into account the many ways that their foreign operations tend to complement their U.S. activities.
- Given that most services are inherently non-tradable, firms in these industries must invest abroad to serve global markets. Accordingly, efforts to liberalize trade and investment should focus special attention on the unique needs of U.S. services industries.

CHAPTER I

Setting the Stage: The World Economy in which American Companies with Global Operations Compete

Chapter Overview

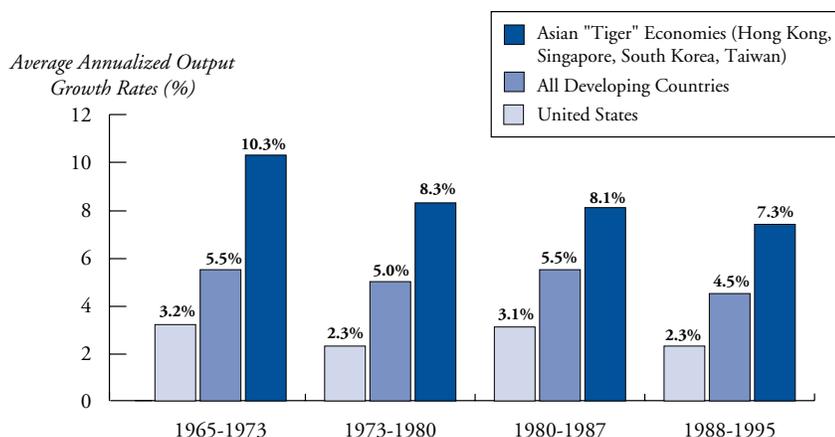
This chapter provides some context — both historical and current — about the world economy in which American companies with global operations compete. This context helps frame the report’s main analysis.

The chapter presents two important points about the world economy. First, for decades the U.S. economy has been growing, but the rest of the world has been growing much faster. As a result, the U.S. share of total world output has been declining. Second, since World War II, the world

has been rapidly expanding its international linkages through foreign direct investment (FDI) and trade. American companies with global operations have played an important role in this integration.

The chapter also provides two sets of significant facts about American companies with global operations. First, by participating in the world economy, these companies maintain a significant presence in the United States. Second, overseas, these companies are located primarily in developed countries, and the sales from their overseas operations are overwhelmingly in local markets.

Chart A
Economic Growth Rates



Output growth rates around the world, particularly in Asian "Tiger" economies, have outpaced U.S. growth rates.

Source: IMF and World Bank

A. The World Economy in Recent Decades

1. The Shrinking U.S. Share of World Output

Chart A reports output growth rates for various periods during the past three decades for the United States, all developing countries, and the developing economies commonly known as the “Four Tigers” (Hong Kong, Singapore, South Korea, and Taiwan). Although U.S. total output has been growing over time, the output of the rest of the world has been growing even faster. All developing countries have been growing approximate-

ly two percentage points faster per year, and the Asian “Tigers” have been growing about five percentage points faster per year.

One might not think these differences in growth rates matter very much. Cumulated over decades, however, even seemingly small differences in growth

well). Although U.S. markets have been expanding business opportunities for these firms, world markets have been expanding opportunities even more. Firms intent on increasing revenue almost certainly have not been able to ignore world markets. In 1945, a hypothetical U.S. firm that chose to ignore the rest of the world was losing only half of the world market, but by 1995, this same firm was losing fully 80 percent of the world market.

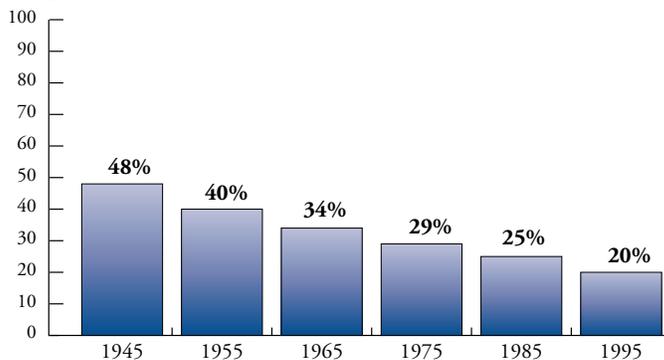
Not only are foreign markets growing more in absolute terms, but they are also growing toward products that countries such as the United States are relatively good at making. As countries develop, their consumers tend to shift demand from primary products (such as home-produced foods) to capital equipment, branded consumer goods, and services (such as earth movers and power plants; laundry detergent and processed foods; and life insurance and management consulting). In light of the fact that countries

such as the United States tend to be relatively good at producing these goods and services, they are likely to benefit most from these shifting demands.

Looking forward, forecasts suggest that these benefits could be extremely large. For example, the Organization for Economic Cooperation and Development (OECD) has forecast that by 2010, if the economies of China, India, and Indonesia grow 6 percent per year — a reasonable number given their recent performances — approximately 700 million people in these three countries will have an average annual income equal to that in Spain today. That number of people equals the current population of the United States, the European Union, and Japan combined. Forecasts such as these are never certain, particularly in light of the economic turmoil in

Chart B U.S. Share of World Economy

U.S. Share of
World Output (%)



Over the past 50 years, because the rest of the world has been growing more rapidly than the United States, the share of total world output accounted for by the United States has been declining.

Source: IMF and World Bank

rates can make large differences in output levels. The implication of these different growth rates on output levels is spelled out in Chart B. As the rest of the world has grown more quickly than the United States, the U.S. share of total world output has declined. In 1945, the United States accounted for nearly 50 percent of total world output. Since then, this share has been continually declining. For example, the U.S. share of total world output was 34 percent in 1965 and decreased to 20 percent by 1995. In 50 years, the United States has gone from accounting for one-half of the world’s economic activity to only one-fifth of the total.

The overall expansion of world output has presented enormous business opportunities to American companies with global operations (and other firms as

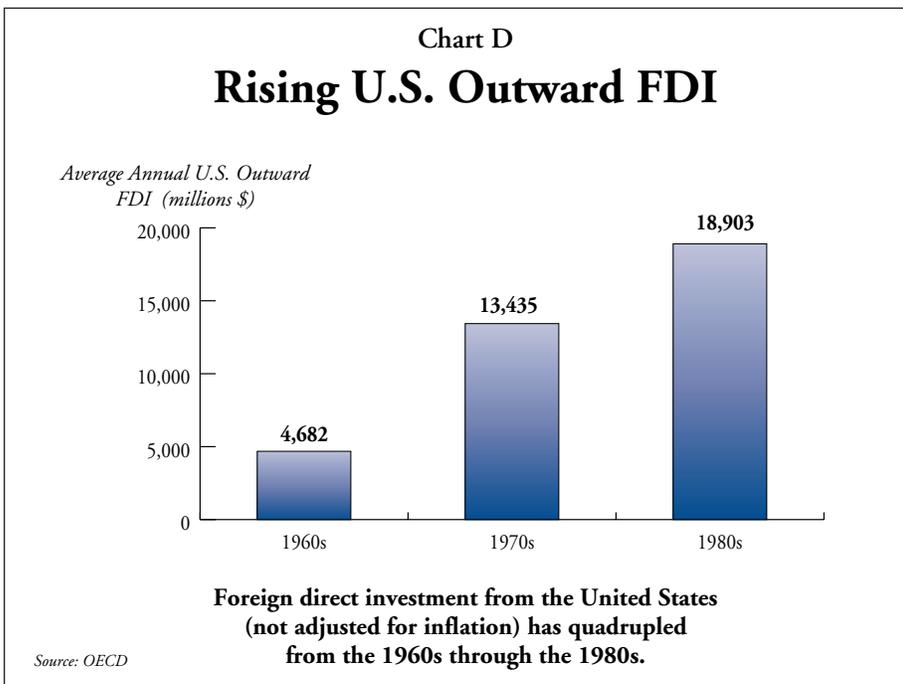
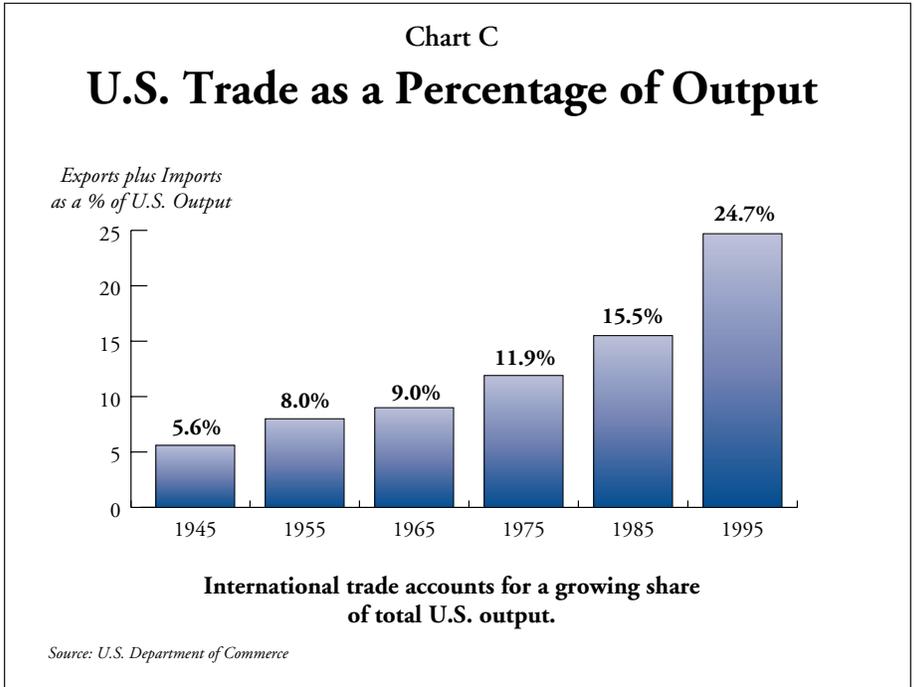
Southeast Asia during 1997. Nevertheless, such forecasts are reasonable compared with the growth performance of these countries in recent decades.

2. Growth in U.S. FDI and Trade

Not surprisingly, American companies with global operations have taken advantage of these opportunities through increased FDI and international trade. As a result, as the rest of the world has been growing more quickly than the United States, the U.S. economy has become more integrated into the rest of the world.

In terms of international trade, exports and imports as a share of U.S. GDP have been rising steadily for decades (Chart C). Between 1945 and 1995, this share has more than quadrupled, suggesting that the U.S. economy has become much more open to international trade. Similarly, the flows of FDI from the

United States have been increasing over time (Chart D). The (nominal) annual average value of all FDI flowing out of the United States more than quadrupled from the 1960s to the 1980s.² This indicates that American companies with global operations have been continually expanding their investments in foreign markets. However, even



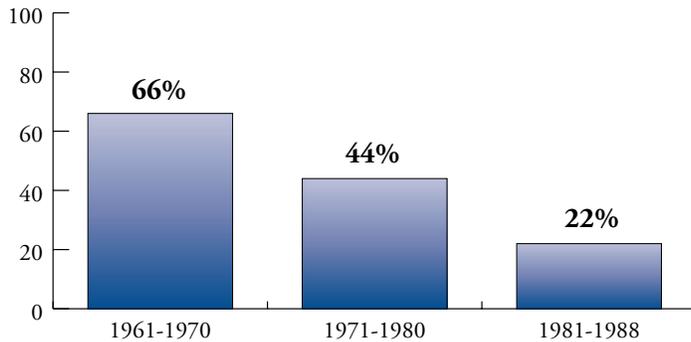
though U.S. trade and outward FDI flows have been rising in absolute terms, relative to the rest of the world these flows account for a decreasing share of the world total because the rest of the world, overall, is growing faster than the United States. For example, the U.S. share of worldwide outward FDI has been shrinking over time (Chart E). American companies with global operations have played an important role in world integration, but foreign companies have played at least as important a role.

What has caused this rapid expansion of FDI and trade? As just suggested,

Chart E

U.S. Share of Worldwide Outward FDI

U.S. Share of Worldwide
Outward FDI (%)



The U.S. share of worldwide outward FDI has been declining steadily.

Source: Data is from OECD countries. OECD countries account for nearly all world outward FDI flows.

one driving force has been the new foreign business opportunities generated by world growth. A second driving force has been declining barriers to international flows. In recent decades, the trend has been to lower tariff and non-tariff barriers, and transportation and communication costs. This has happened thanks to political initiatives, such as the General Agreement on Tariffs and Trade, and technological advances, such as wide-body jets and computers. In fact, the new worldwide opportunities probably helped spur the decline in these trade barriers. A third driving force for both FDI and trade may have been the interaction between the two. For example, as *Mainstay II* argues, FDI very often pulls U.S. exports abroad. This report will present further evidence on this point by demonstrating that a rising share of exports by U.S. parents goes to foreign affiliates.

Overall, it is clear that as the rest of the world has been growing, U.S. firms have responded by linking the United States more closely to the rest of the world through trade and FDI.

It is worth noting that although the U.S.

economy has become much more integrated into the world economy in recent decades, this is not the first time the world has achieved such a high degree of economic integration. The late 1800s through 1913 was a similar period of extensive global integration. This period was followed by decades of global fragmentation that lasted until 1945. This fragmentation was caused partly by the political turmoil of two world wars and partly by countries enacting more protectionist trade and investment policies. An example in the United States is the infamous Smoot-Hawley Tariff Act of 1930. Only after 1945 did the world resume its integration process.

Given that many linkages were actually reversed between 1914 and 1945, it took the world a long time after 1945 to get back to where it was in 1913. Economists have determined that in terms of many integration measures, such as FDI and trade flows, it has been only since about 1980 that the world has moved beyond the 1913 level of integration. For example, economists have estimated that world merchandise exports as a percentage of world output rose from 5.1 percent in 1850 to 11.9 percent in 1913. This share fell back to 7.1 percent by 1950, and it took until the late 1970s for the world to return to the 1913 level of export penetration. (By 1993, this measure had reached 17.1 percent.)

B. Some Basic Facts About American Companies with Global Operations

Having provided an overview of trends in the world economy in recent decades, it is also important to describe some basic characteristics of the activities of American companies with global operations. This section discusses various aspects of these firms' employment, location, sales, and profits. These facts

reveal that, contrary to popular belief, the foreign expansion of these companies has not led to a “hollowing out” of the U.S. economy.

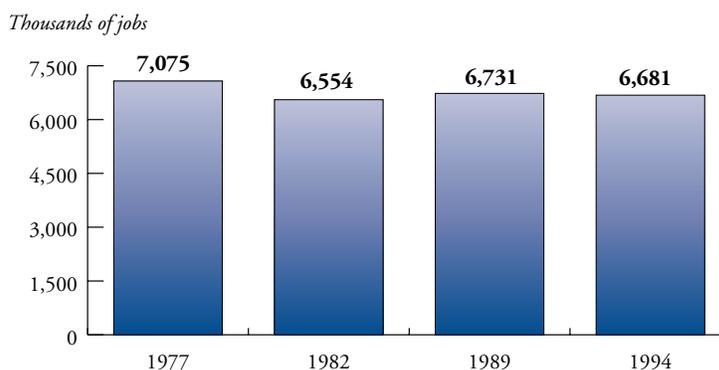
1. By participating in the world economy, American companies with global operations maintain a significant presence in the United States itself.

a. Most employment is in the United States, not abroad.

It is commonly believed that American companies with global operations have been rapidly expanding employment abroad while reducing employment in the United States. This view is incorrect.

In fact, total foreign affiliate employment has declined slightly over time, from just over 7 million in 1977 to just under 7 million in 1994 (Chart F). At the same time, total U.S. parent employment has increased slightly, from just under 19 million in 1977 to just over 19 million in 1994 (Table 1).

Chart F
Employment of Foreign Affiliates of American Companies



Employment levels at foreign affiliates of U.S. companies have remained relatively constant over time.

Source: U.S. Department of Commerce, Bureau of Economic Analysis

Combining these facts reveals that U.S. parents account for a large — and growing — majority of employment in these companies. In 1977, parents accounted for 72.8 percent of the total, and by 1994, they accounted for 74.3 percent of the total. Within American companies with global operations, U.S. employment has been rising and foreign employment has been falling worldwide.

Table 1
Employment of U.S. Parents

Year	Mfg.	Services	Agriculture	MNC Total
1977	11,775	6,129	1,041	18,945
1982	10,533	6,915	1,028	18,476
1989	10,127	8,021	1,143	19,291
1994	9,111	8,926	1,310	19,347

Each cell reports number of jobs in thousands.

Source: U.S. Department of Commerce, Bureau of Economic Analysis

The different sectors in Table 1 reveal that the trends over time in parent employment mirror the overall U.S. trends in these sectors. Agricultural employment has been holding roughly constant, manufacturing employment has been declining, and services employment has been rising. Indeed, U.S. parent employment in services increased by nearly 2.7 million — 44 percent — to more than offset the 2.6 million decline in manufacturing. This rising importance of services underscores *Mainstay III*’s focus on all industries.

b. Profits earned by foreign affiliates are mostly repatriated.

It has been frequently argued that profits earned by the foreign affiliates of American companies with global operations almost never return to the United States. This is incorrect.

In 1989 (the most recent year for which full data are available), U.S. parents' share of foreign affiliate net income (a rough measure of foreign affiliate profits from their business operations) was \$57.02 billion. Of this amount, U.S. parents repatriated \$41.52 billion (72.8 percent of the total) from their foreign affiliates. The remaining \$15.50 billion (27.2 percent) was reinvested in the foreign affiliates. The facts show that the large majority of foreign affiliate profits is distributed back to U.S. parents.

c. Most intermediate inputs are purchased from domestic suppliers, not foreign suppliers.

A common misconception holds that U.S. parents of American companies with global operations purchase intermediate inputs only from abroad, and that this results in a flood of imports into the United States from low-wage countries. This view is incorrect.

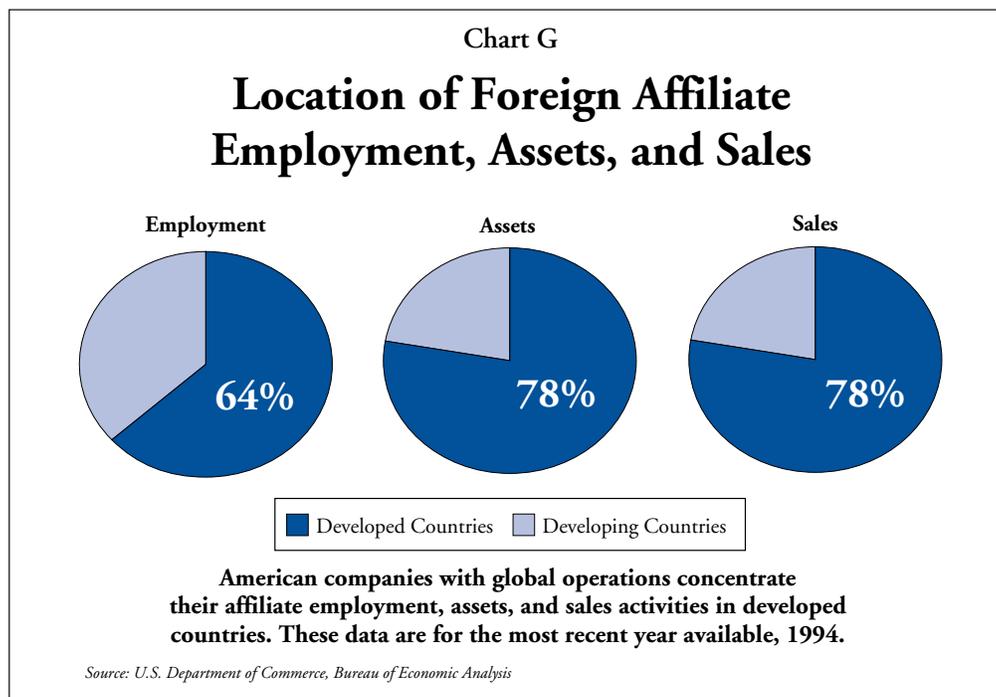
From 1977 through 1994, U.S. parents purchased the overwhelming majority — more than 91 percent — of their intermediate inputs from U.S. sources, not foreign sources. In dollar terms, this means that in 1994, U.S. parents purchased \$2.4 trillion in inputs from U.S. suppliers. As Chapter IV of this report will argue, U.S. parent input purchases may impart important benefits to these domestic suppliers.

2. Overseas, American companies with global operations are located primarily in developed countries, and the sales from these operations are overwhelmingly in local markets.

a. Most activity abroad is in developed — not developing — countries.

It is commonly believed that American companies with global operations locate foreign affiliates almost entirely in low-wage developing countries to realize low labor costs. This view is incorrect.

As American companies expand their global operations, the large majority of their foreign affiliate activity is located in developed countries, not developing countries (Chart G).³ Across all sectors



together, developed countries account for over 60 percent of worldwide affiliate employment and over 75 percent of worldwide affiliate assets and sales. This concentration of activity in developed countries is probably due in part to the fact that these countries (along with the United States) still account for the majority of total world output.

b. Foreign affiliate sales are mostly abroad, not back to the United States.

It has been frequently argued that the large majority of sales of foreign affiliates of U.S. companies is back to the United States because these affiliates merely substitute for production originally done in the United States. This view is incorrect.

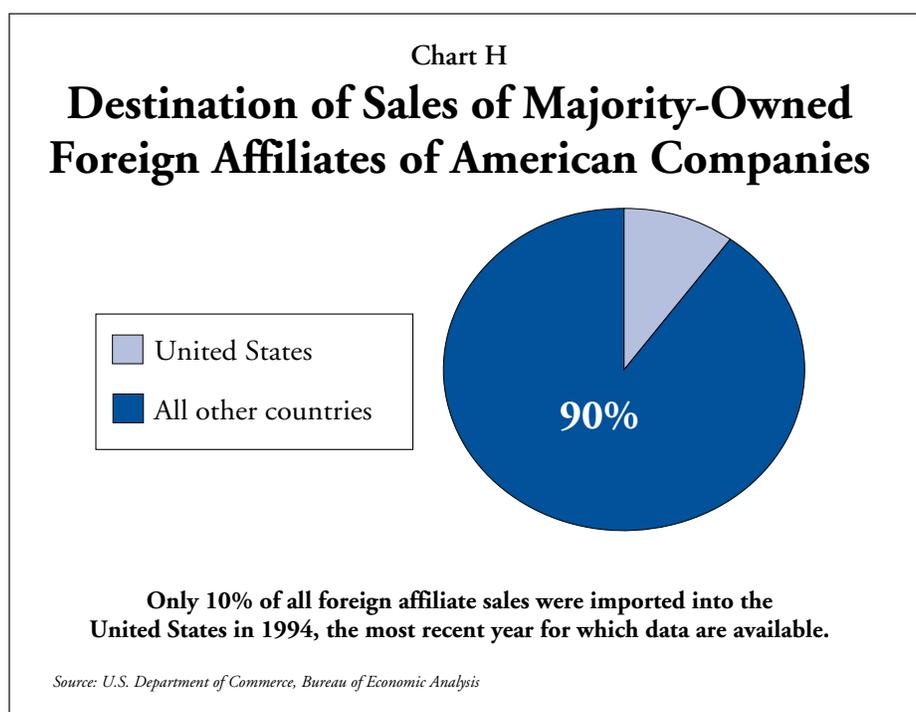
Most production by foreign affiliates of American companies with global operations is sold abroad and does not return to the United States (Chart H). Taking all sectors together, only 10 percent of all sales of foreign affiliates goes to the United States. The remaining 90 percent is sold abroad, with fully two-thirds of total sales occurring within

the host-country market. Even for manufacturing, which is arguably the most internationally tradable sector of the three, only 14 percent of all affiliate sales returns to the United States.

These magnitudes suggest that foreign affiliates do not just substitute for production originally done in the United States and then ship their output back home. Chapter V of this report analyzes this issue in much greater detail.

* * * * *

In conclusion, this section has clarified how, contrary to popular belief, the foreign expansion of American companies with global operations has not led to a “hollowing out” of the U.S. economy. Having established some context both about these firms and the world economy in which they compete, subsequent chapters show why the performance of these companies affects the overall performance of the U.S. economy.



CHAPTER II

The Importance of American Companies with Global Operations to the U.S. Standard of Living: Generating High Productivity

Chapter Overview

The best single measure of a country's standard of living is its productivity: the average value of output it produces per worker. The higher productivity is, the more goods and services people are able to consume to improve their material well-being.

This chapter demonstrates that in several important ways, American companies with global operations help raise the U.S. standard of living by raising U.S. productivity. Moreover, this contribution is larger than that of purely domestic firms.

- American companies with global operations undertake the majority of U.S. investment in physical capital in the manufacturing sector.
- American companies with global operations perform the majority of U.S. research and development.
- American companies with global operations ship the majority of U.S. exports and receive a sizable share of U.S. imports.

The performance of American companies with global operations affects the U.S. standard of living through the companies' investments in physical capital and research and development in the United States, as well as their international trade. Their continued contribution to these key determinants of U.S. productivity is vital to the health of the U.S. economy.

A. Productivity as a Measure of the U.S. Standard of Living: Theory

The best single measure of a country's standard of living is its productivity: the average value of output it produces per worker.⁴ Why care about productivity? Because a country's productivity is the primary determinant of its material standard of living. The following quote from noted economist Paul Krugman (1990) concisely summarizes this point:

Productivity isn't everything, but in the long run it is almost everything. A country's ability to improve its standard of living over time depends almost entirely on its ability to raise its output per worker...the essential arithmetic says that long-term growth in living standards — like the doubling of our standard of living in the generation following World War II, or the tenfold increase in living standards that Japan has experienced since 1950 — depends almost entirely on productivity growth...Compared with the problem of slow productivity growth, all our other long-term economic concerns — foreign competition, the industrial base, lagging technology, deteriorating infrastructure, and so on — are minor issues. Or more accurately, they matter only to the extent that they may have an impact on our productivity growth.⁵

The economics of this “essential arithmetic” for why productivity matters is very simple. Broadly defined, the standard of living rises with the quantity (and quality) of goods and services a country's citizens can consume. People achieve economic well-being by consuming goods and services, such as food, clothing, and medical care.

Consuming these items requires some means to pay for them. For almost all people, their income is the primary — if not the only — means they have to pay for consumption. Other options include selling assets and borrowing, but these are not indefinitely sustainable. In turn, people's income comes from producing goods and services, usually by working with others in firms.

Thus, the more people produce — that is, the more productive they are — the more income they receive and the more they can consume. Higher productivity means a higher standard of living.

A broad average measure of a country's productivity is the value of its total annual output of goods and services divided by the number of people working that year. Average productivity is the single most important measure of a country's living standard. There are obviously other issues to consider as well, such as average output and its distribution among people. There is, however, a strong consensus that the ultimate concern is average productivity. This point has been made in several studies in recent years, including those by noted authors and international institutions, such as Paul Krugman and the International Labor Organization (1997).

The obvious question is how to increase a country's productivity. Given the population of a country, there are two basic ways to raise productivity. One way is to increase the other inputs people work with to produce things. The most important other input people need is capital, broadly defined as goods that help people make other goods — that is, buildings, machinery, and tools. The second way to raise productivity is to improve the technological know-how for transforming inputs into outputs. In other words, for a given workforce, more inputs and/or better technology mean more output and thus, higher productivity.

The next section of this chapter demonstrates how American companies with global operations raise U.S. productivity both by generating more inputs and by increasing technological know-how.

B. How American Companies with Global Operations Raise Productivity

In several important ways, American companies with global operations help raise the U.S. standard of living by raising U.S. productivity through investments in physical capital and research and development in the United States, and international trade. Their continued contribution to these key determinants of U.S. productivity is vital to the health of the U.S. economy.

1. Investment in Physical Capital

All standard theories of economic growth agree that one way countries can boost productivity is by devoting a larger share of their incomes to investment in physical capital, rather than to consumption. Krugman (1990) summarizes the theory in the following way:

What can we do to speed [productivity growth] up? There is a standard economist's answer...If you want more output, say the economists, provide more inputs. Give your workers more capital to work with, and better education, and they will be more productive.⁶

The intuition is straightforward. The more machines workers have at their disposal (including machine tools, computers, transportation equipment, etc.), the more output each worker can produce. One of the earliest formalizations of how capital accumulation raises output per worker was by the Nobel laureate Robert Solow (1956). He rigorously demonstrated that over time, investment in physical capital tends to increase output per worker. He also showed that an increase in the rate of investment tends to increase the ultimate output per worker that an economy can attain. Thus, investment in physical capital tends to increase output per worker.⁷

What do the data indicate about capital accumulation by American companies with global operations?

First, in absolute terms, the capital stocks of American companies with global operations are large — well over \$1 trillion in 1994 — and growing rapidly (Table 2). Between 1977 and 1994, manufacturing parents nearly tripled their capital stock, while parents in services and agriculture accumulated capital even faster, more than tripling and more than quadrupling their capital stocks, respectively.

Second, as Chart I shows, **U.S. parents account for the majority of the U.S. capital stock in the manufacturing sector: a nearly steady 57 percent in the past 20 years** (except for a slight dip in 1982). Unfortunately, comparable national data for the other two sectors are not available. To the extent that the data for manufacturing are representative of these other sectors, the data demonstrate that American companies with global operations undertake the majority of total national investment in physical capital.

Table 2
Capital Stock of U.S. Parents and Overall U.S. Manufacturing

Year	Mfg	Services	Agriculture	Total U.S. Mfg	MNC Share of Total U.S. Mfg
1977	194,621	184,457	15,901	339,809	0.57
1982	334,951	353,281	29,411	643,348	0.52
1989	470,984	467,314	60,405	831,003	0.57
1994	557,285	650,988	65,514	977,252	0.57

*Cells report capital stock book value in millions of dollars.
Source: U.S. Census Bureau and U.S. Department of Commerce, Bureau of Economic Analysis*

2. Investment in Technology: Research and Development

The second important way that countries can boost productivity is by obtaining and using smarter, more advanced technologies. In general, economists believe that output is obtained from inputs (i.e., labor and capital) via some production technology. As discussed earlier, one way for a nation to gain more output per worker is to accumulate more capital. For some fixed amount of labor and capital, however, the only way more output can be generated is by improving production technology.

Numerous empirical studies have demonstrated that technological advances have been an important determinant of overall U.S. output growth.⁸ For example, Solow (1957) finds that about 75 percent of U.S. growth during the first half of the 20th century was driven by technological change. Similarly, Mankiw (1997) calculates that from 1950 through 1994, technological change accounted for just under half the total output growth.

Chart I
Share of U.S. Manufacturing Capital Stock Accounted for by American Companies with Global Operations



The U.S. parents of American manufacturing companies with global operations account for a steady majority of the total capital stock in the U.S. manufacturing sector.

Source: U.S. Census Bureau and U.S. Department of Commerce, Bureau of Economic Analysis

Historically, the steam engine drove the first industrial revolution and facilitated dramatic growth in productivity and the standard of living. This technological advance was followed by the development of mass production methods and modern factories in the 1900s. Today, computers, telecommunications, and robotics are helping countries increase productivity.

An obvious question becomes how to improve production technology. While there is no simple answer to this question, one activity clearly related to technological improvements is research and development. Broadly defined, research and development attempts to discover new products and/or improved processes for producing existing products. Research and development leads to discoveries of how labor and capital can combine in more productive ways.

American companies with global operations are extremely important in the research and development process in the United States. As Chart J shows, U.S. parents perform the majority of total U.S. research and development.⁹ **In the past 15 years, U.S. parents performed between 51 percent and 62 percent of all U.S. research and development.** In absolute terms, parent research and development expenditures have risen from over \$49 billion in 1982 to nearly \$87 billion in 1994 (Table 3).

American companies with global operations contribute directly to U.S. productivity by performing over half of all U.S. research and development. In addition to

research and development, some economists argue that another key measure of technological progress is the introduction of new capital goods. Many new technologies are embodied in new products, such as personal computers. When U.S. parents invest in new capital goods — and Chart I suggests they do a lot of this — they also help improve U.S. technology.

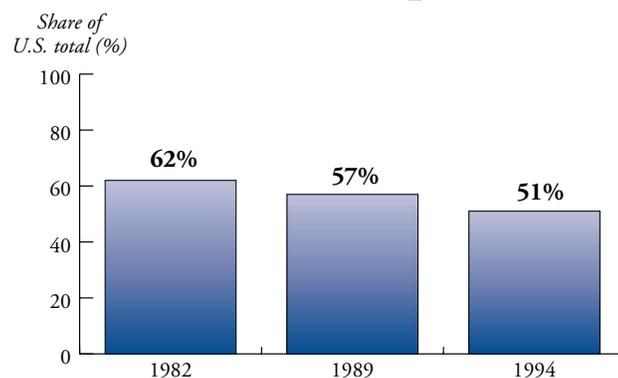
Table 3
Research and Development Performed by U.S. Parents

Year	Mfg	Services	Agriculture	MNC Total	U.S. Total	MNC Share of U.S. Total
1977	17,039	913	409	18,361	42,783	0.43
1982	48,148	979	757	49,884	80,018	0.62
1989	73,218	5,581	937	79,736	140,981	0.57
1994	80,440	5,159	1,318	86,917	169,100	0.51

Each cell reports millions of dollars in R&D.

Source: National Science Foundation and U.S. Department of Commerce, Bureau of Economic Analysis

Chart J
Share of U.S. Research and Development Performed by American Companies with Global Operations



The U.S. parents of American companies with global operations perform the majority of all U.S. research and development.

Source: U.S. National Science Foundation and U.S. Department of Commerce, Bureau of Economic Analysis

3. International Trade

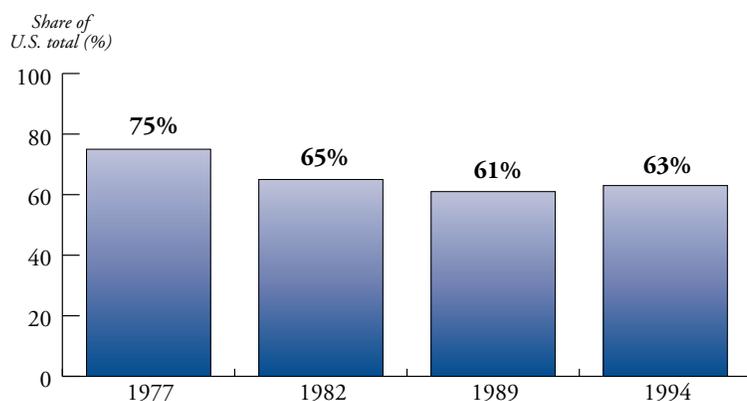
Nearly all economists have concluded that increased levels of international trade raise the standard of living for countries.¹⁰ Indeed, a wide range of empirical evidence demonstrates that trade supports economic growth. For example, recent work by Frankel and Romer (1996) finds that trade contributes quite robustly to countries' income levels. This work is particularly noteworthy because it carefully identifies the causal link from trade to income, while separating this link from other factors (e.g., wealthier countries tend to trade more than poorer nations). After studying nearly 100 countries, Frankel and Romer report that increasing the shares of both exports and imports in total output by one percentage point (e.g., from 10 percent to 11 percent) raises per capita income by at least two percent. In addition to detailed studies like this, economists also generally cite the lack of international trade as a major cause of economic troubles in countries such as the former Soviet Union and Eastern Bloc nations.

The theory of why trade benefits countries is well established. Standard textbooks, such as Caves, Frankel, and Jones (1996), highlight at least seven ways in which a country benefits from trade.

On the production side, a country benefits in at least five ways. All of these entail obtaining either more inputs or improved technology. First, trade allows domestic firms to import foreign capital goods, which in turn expand the domestic capital stock. Second, the pressure of foreign competition can force "lazy" domestic firms to stop misusing inputs in inefficient ways. Third, trade allows a country to shift production to industries in which it has a competitive advantage relative to the rest of the world. This allows a country to concentrate on areas where it has "comparative advantages" and to import more of those goods and services in areas where it does not. Fourth, trade can make domestic firms more productive by facilitating the flow of new and improved technologies from abroad. And fifth, trade enables some firms to produce at more efficient scales because they can now sell to foreign markets as well as to domestic markets.

In addition to these production gains, consumers benefit in two important ways: price and variety. They gain access to products at a greater variety of prices than those produced in their own market, and they have the opportunity to purchase a wider variety of new and different products not produced at home.

Chart K Share of U.S. Exports Shipped by American Companies with Global Operations



The U.S. parents of American companies with global operations ship more than 60% of all U.S. exports.

Source: U.S. Census Bureau and U.S. Department of Commerce, Bureau of Economic Analysis

In short, international trade raises living standards by giving countries access both to additional inputs for production and to better technology for using these inputs. For these reasons, economists argue that free trade benefits a nation by allowing it to focus on items it produces relatively well compared to other countries, and to look to foreign producers for items it produces relatively poorly.

During the past 20 years, more than 60 percent of all U.S. exports were shipped by U.S. parents of American companies with global operations (Chart K). Since 1977, more than 60 cents out of every dollar in value exported from the United States has been

exported by American companies with global operations. In this period, manufacturing and agricultural exports expanded nearly fourfold and sixfold, respectively (Table 4). Services exports expanded at a much lower rate. This reflects the inherently non-tradable nature of services products. It also underscores the importance of FDI to services firms that hope to operate in foreign markets.

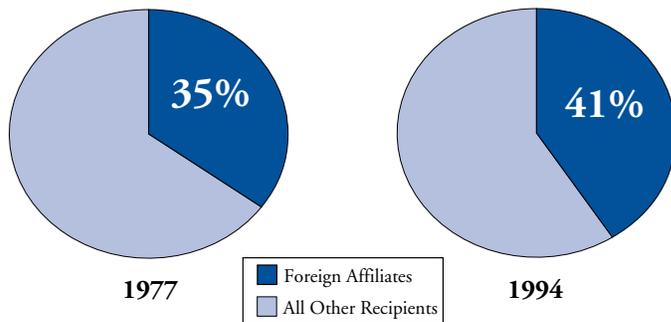
Table 4
Exports by U.S. Parents

Year	Mfg	Services	Agriculture	MNC Total	U.S. Total	MNC Share of U.S. Total
1977	67,454	20,579	2,814	90,847	120,816	0.75
1982	105,202	27,906	4,241	137,349	211,157	0.65
1989	179,885	32,686	10,050	222,621	362,120	0.61
1994	259,801	37,382	17,478	314,661	502,485	0.63

Each cell reports exports in millions of dollars.

Source: U.S. Census Bureau and U.S. Department of Commerce, Bureau of Economic Analysis

Chart L
U.S. Parent Exports to their Foreign Affiliates



A significant share of the U.S. exports of American companies with global operations is sent to their own affiliates -- and that share is rising.

Source: U.S. Department of Commerce, Bureau of Economic Analysis

Table 5
Exports to Foreign Affiliates from U.S. Parents

Year	Mfg	Services	Agriculture	Total	MNC Share of Total U.S. Mfg
1977	28,260	3,238	609	32,107	0.35
1982	40,092	3,777	733	44,602	0.32
1989	82,132	4,239	1,621	87,992	0.40
1994	118,770	7,425	3,898	130,093	0.41

Each cell reports millions of dollars of exports.

Source: U.S. Census Bureau and U.S. Department of Commerce, Bureau of Economic Analysis

A significant share of U.S. parent exports is sent to their own foreign affiliates and that share is rising (Chart L and Table 5). **Between 1977 and 1994, the share of U.S. parent exports sent to overseas affiliates increased from about 35 percent to over 41 percent. Foreign affiliates are increasingly important recipients of U.S. parent exports.** This suggests that FDI, which expands foreign affiliate activity, can simultaneously expand U.S. parent activity as well. (This will be discussed in much greater detail in Chapter V.) In addition to their role as direct recipients of parent exports, foreign affiliates help sell U.S. parent exports to foreign third parties. Thus, the data in Chart L probably understate the total role of foreign affiliates in “pulling” exports from their U.S. parents.

Finally, U.S. parents play an important role in expanding imports (Chart M and Table 6). During the past 20 years, U.S. parents received a large (although still minority) and increasing share of U.S. imports. The share was 28 percent in 1977 and 31 percent in 1994. As with U.S. exports, manufacturing accounts for the majority of total parent imports. As discussed earlier, these imports benefit the U.S. economy in many ways, including giving U.S. companies access to foreign-produced capital goods and technologies.

* * * * *

To summarize this chapter's key point, the performance of American companies with global operations affects the U.S. standard of living through the companies' investments in physical capital and research and development in the United States as well as their international trade. Their continued contribution to these key determinants of U.S. productivity is vital to the health of the U.S. economy.

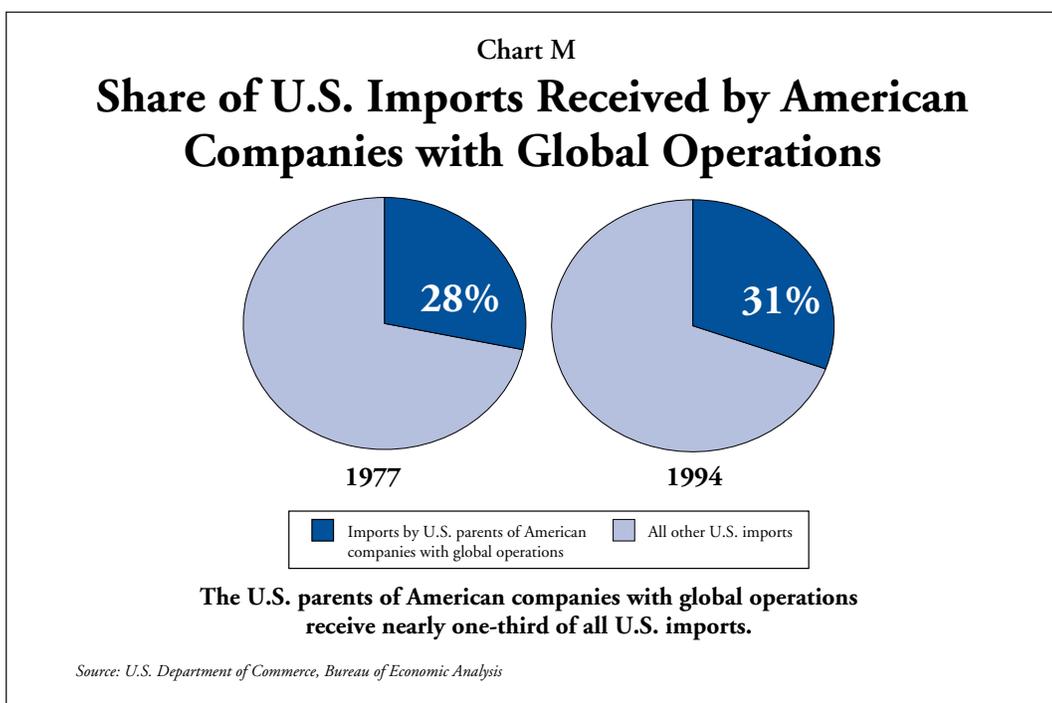


Table 6

Imports By U.S. Parents

Year	Mfg	Services	Agriculture	MNC Total	U.S. Total	MNC Share
1977	30,587	12,466	(N.A.)	43,053	151,907	0.28
1982	42,853	13,869	3,080	59,802	247,642	0.24
1989	110,425	43,264	3,613	157,302	477,365	0.33
1994	150,654	48,450	5,595	204,699	668,584	0.31

Each cell reports millions of dollars of imports.

Source: U.S. Census Bureau and U.S. Department of Commerce, Bureau of Economic Analysis

CHAPTER III

The Importance of American Companies with Global Operations to the U.S. Standard of Living: Paying Higher Wages

Chapter Overview

In theory, high productivity should manifest itself in high wages. According to standard economic theory, each worker is paid according to the value of goods and services he or she contributes to the firm's total production. Therefore, to the extent that workers in U.S. parents of American companies with global operations have higher productivity than workers in purely domestic U.S. firms, one would expect to observe these U.S. parents paying higher wages.

The wage data from 115,000 U.S. manufacturing plants in 1987 suggest quite strongly that American companies with global operations do have higher productivity workers, although there is no firm-level data available to test this directly. American companies with global operations pay their workers — both non-production and production — higher wages than those paid by comparable American companies without global operations. Depending on the particular comparison, the magnitude of the wage gap ranges from 5 percent to more than 15 percent.

The previous chapter presented considerable evidence demonstrating that U.S. parents are responsible for significant amounts of capital investment and research and development in the United States, and international trade, all of which contribute to higher levels of U.S. productivity.

In theory, improvements in productivity should manifest themselves in higher wages. Basic theories of wage determination (which assume all markets are perfectly competitive) generate the result that each worker earns his or her “marginal productivity.” Each worker is paid the value of output he or she specifically contributes to the firm's total output. Higher productivity should result in higher wages.

In reality, wage setting is more complicated in at least three ways. First, different workers possess different ranges of intellectual skills in terms of literacy, numeracy, and problem-solving ability. These intellectual skills are often a function of such factors as education, previous work experience, and training. Wages vary among individuals based on their different levels of what economists call “human capital.”

Second, labor markets are not always perfectly competitive. For example, labor unions can generate more bargaining power for a group of workers than they have individually, and this can allow workers to contract for wages above what is justified by their productivity alone.

Third, product markets are not always perfectly competitive. In particular, firms and industries that earn unusually high profits (because of barriers to entry, for example) can share those profits with workers by paying wages above the amount justified by their productivity alone. Conversely, firms and industries that suffer losses (at least in the short run) can sometimes persuade their workers to reduce wages below the amount commensurate with their productivity.

All this suggests that more productive workers should be expected to earn higher wages, controlling for differences among workers in skills, unionization, industry profitability, and any other factors. If workers in U.S. parents of American companies with global operations have higher productivity than workers in purely domestic U.S. firms, one would expect to observe higher wages among employees in these parents.

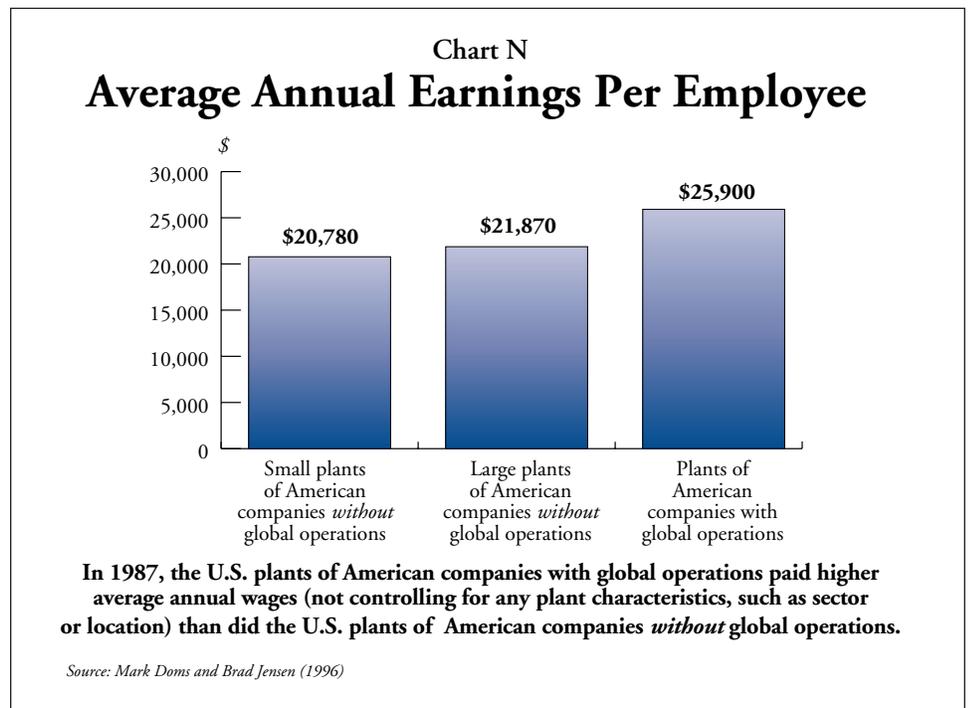
Unfortunately, for two reasons, the Bureau of Economic Analysis (BEA) data used throughout this study cannot test whether this is the case. First, the publicly available BEA data cover only industries aggregated up from individual firms. The firm-level data are not available. Second, the BEA data track American companies with global operations only and do not track U.S. firms with purely domestic operations.

Using different data, however, Mark Doms and Brad Jensen (1996) have recently completed a study that does track both kinds of firms. Doms and Jensen used proprietary data from the 1987 *Census of Manufactures*. This census included a “Large Company Survey” that asked U.S. firms employing 500 or more workers to report ownership of any foreign assets. Doms and Jensen define an

American company with global operations as any U.S. firm whose foreign assets constitute at least 10 percent of total firm assets. Although this definition differs somewhat from that used by the BEA, it is probably compatible enough to use these data to identify wage differences across plants attributable to ownership differences independent of the influence of other factors.

The resulting data set covers more than 115,000 manufacturing plants throughout the United States. Doms and Jensen compare wages across plants by ownership, where wages are narrowly measured as average annual salaries, excluding both Social Security payments and most fringe benefits. Chart N reports this comparison which clearly demonstrates that the average annual earnings at plants of American companies with global operations are higher than the comparable earnings at either large or small plants of American companies without global operations.

This simple comparison, however, does not control for factors other than ownership that might explain these wage differences. For example, perhaps all plants in certain states pay higher wages and



American companies with global operations are located disproportionately in these states. If this were the case, some of the wage differences in Chart N should be attributed to location, not ownership.

In order to identify the effect of ownership only on wages, Doms and Jensen also account for wage differences across plants due to several other factors, including worker skills, sector of operation, output level, age, and state. In particular, skills are controlled for by distinguishing non-production workers from production workers.¹¹

Even with all these controls, Doms and Jensen find that **U.S. parent plants pay higher wages to comparable workers** (Chart O).¹² Production workers receive an average of 6.9 percent less at comparable domestic plants employing more than 500 employees and 15.2 percent less at comparable domestic plants employing fewer than 500 employees. Wage premia for non-production workers at U.S. parent plants are a bit lower but still significant: 5.0 percent less at comparable domestic plants employing more than 500 employees and 9.5 percent less at comparable domestic plants

employing fewer than 500 employees.¹³

The obvious question is: What do these ownership wage premia really mean? Are they caused by workers at U.S. parents being more productive than workers at purely domestic U.S. plants? The analysis of Doms and Jensen controls for as many other causes of these premia as their data will allow. Given this, it seems plausible to interpret the ownership premia as evidence of higher-productivity workers at U.S. parents.¹⁴

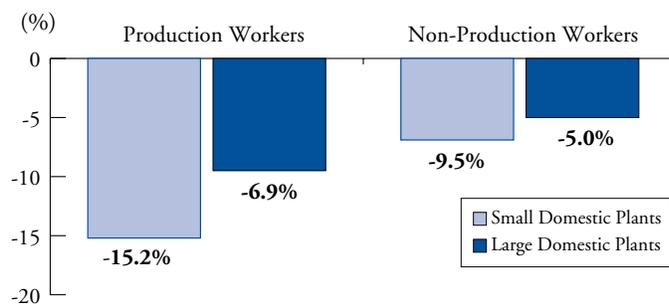
Four additional points are worth noting here:

First, in percentage terms, **the U.S. parent wage premia are much larger for production workers than for non-production workers.** U.S. parents pay higher wages to their entire workforce, but the wage premia they pay are larger in percentage terms for production workers. Economists have shown that the average production worker tends to be somewhat less skilled than — and thus, tends to earn less than — the average non-production worker (where skills are measured in terms of education, for example). Therefore, not only do U.S. parents pay higher wages relative to purely domestic firms, but they also promote a broader distribution of income by paying higher wage premia to traditionally lower paid workers.

Second, these differences only pertain to the salary portion of workers' total compensation. If U.S. parents provide greater fringe benefits — such as worker training and health-care coverage — than domestic firms do, then these results understate the compensation premia paid by U.S. parents.

There is some direct evidence that this is the case for expenditures on employee training and

Chart O
American Companies *without* Global Operations Pay Lower Wages than American Companies with Global Operations



When differences across plants in terms of workers' skills, industry of operation, output level, age, and state of location are accounted for, the U.S. plants of American companies *without* global operations pay significantly lower wages than do U.S. plants of American companies with global operations.

Source: Mark Doms and Brad Jensen (1996)

development. Bassi and Cheney (1996) report that in 1995 the average private sector firm invested 1.8 percent of its payroll on employee training and development. They further report, however, that a sample of 30 large U.S. corporations — the large majority of which are American companies with global operations — invested 2.2 percent of their payroll on employee training and development. Although this differential must be interpreted cautiously because of the small (and non-random) sample of parents, this limited evidence does indicate that the Doms and Jensen results might understate total compensation premia paid by U.S. parents.

Third, the Doms and Jensen study might misclassify as domestic firms some U.S. firms that are classified as American companies with global operations by the BEA definition because Doms and Jensen use a relatively more stringent definition.¹⁵ To the extent that U.S. parents truly do pay more than domestic firms, this study might understate the size of the premia because it classifies some of these higher paying U.S. parents as domestic firms.

Finally, comparable research on exporting has similarly found that **U.S. manufacturing plants that export pay higher wages than similar plants that do not export.** Richardson and Rindal (1996) report some of this evidence. Among other things, they report that exporting plants pay an average of 32.7 percent more in benefits than non-exporting plants. This fact corroborates the suggestion above about benefits premia paid by U.S. parents. Given the tight link between FDI and trade documented in this report, it is not surprising that the data reveal wage premia paid both by plants of American companies with global operations and by exporting plants.

* * * * *

In summary, for the manufacturing sector, there is compelling evidence to support the conclusion that productivity gains generated by American companies with global operations do yield higher wages for their workers.

CHAPTER IV

The Importance of American Companies with Global Operations to the U.S. Standard of Living: Linkages to American Suppliers

Chapter Overview

In addition to directly raising the U.S. living standard, American companies with global operations may also raise the U.S. standard of living through their interactions with other American companies that are their suppliers. U.S. parents of American companies with global operations purchase over 90 percent of their intermediate inputs from American, not foreign, suppliers. These linkages between American companies with global operations and American suppliers can help make these suppliers more productive.

It is clear that in several ways, American companies with global operations directly raise the U.S. standard of living. Do their American supplier companies realize any living-standard benefits from this activity?

The mechanics of how productivity gains of some firms might spill over to other firms is an area of active research for economists. Despite the lack of consensus about how these spillovers actually work, there is some compelling evidence that firms benefit from being exposed to other dynamic, successful firms.

For example, from detailed firm-level research of several manufacturing industries, the McKinsey Global Institute (1993) found that firms tend to succeed when interacting most with other successful

firms. Exposure to “worldwide best practices”—whether those best practices are in the same country or abroad — tends to foster innovation, cost control, and other improvements that boost firm productivity and profitability. Some of the improvements seem to come from knowledge spillovers and some from the discipline of market competition.

This evidence suggests that American suppliers might realize productivity gains from their interactions with American companies with global operations. The BEA data cannot offer any direct evidence on the performance of domestic firms, but the BEA data can show the extent of U.S. parent interaction with American suppliers through parents’ purchases of intermediate inputs.

Table 7 presents the evidence on parent-supplier linkages for the four BEA census years. The second column of Table 7 reports the share of value added in the total sales for all U.S. parents. To understand these numbers, consider the operations of a typical firm. To make its output, the typical firm not only hires labor and capital, but also purchases intermediate inputs from other firms. For example, an automobile firm might purchase engines from one company, steel from another, and tires from a third. These intermediate inputs are then transformed by the capital and labor services hired by the firm to produce new automobiles. When those new cars are sold, the value of the automobile firm’s sales pays for the labor and capital it hired and the intermediate inputs it purchased. Value added measures the payments to labor and capital only; it measures only the labor and capital services hired by the car firm to “add value” to the engines, steel, and tires by trans-

Table 7

Intermediate Input Purchases by U.S. Parents

Year	Value Added/ Total Sales	Total Input Purchases	Share of Inputs From Domestic Suppliers	Total Domestic Purchases
1977	0.35	935,919	0.91	854,494
1982	0.34	1,544,991	0.93	1,436,842
1989	0.33	2,105,427	0.91	1,926,466
1994	0.34	2,631,129	0.91	2,400,287

Columns 3 and 5 report values in millions of dollars.

Source: U.S. Department of Commerce, Bureau of Economic Analysis

forming them into an automobile. Stated another way, the value added by the automobile firm is defined as the value of its cars minus the cost of the intermediate inputs purchased to help make the cars.

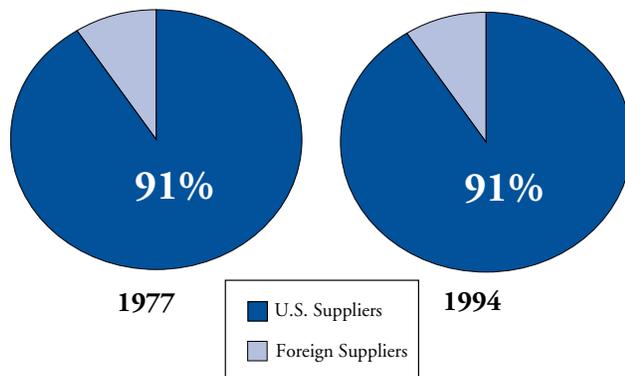
Armed with these definitions, Column 2 of Table 7 shows that across all U.S. parents, value added as a share of total sales tends to be only about 33 percent. That is, for every \$3 in sales by U.S. parents, approximately \$2 covers the cost of intermediate inputs and only \$1 goes to the value-adding services of labor and capital hired by these firms. Column 3 reports the actual dollar value of these intermediate input purchases by U.S. parents. The magnitudes are very large and have been growing over time from \$936 billion in 1977 to \$2.6 trillion in 1994.¹⁶

From the standpoint of American suppliers, the most important question is how much of these U.S. parent intermediate inputs was purchased from domestic firms rather than from foreign firms. Both Chart P and Column 4 of Table 7 report this break-

down between domestic and foreign suppliers. It is important to note that some of these American suppliers are other American companies with global operations. Unfortunately, the BEA has no breakdown of domestic purchases between other U.S. parents and purely “domestic” firms. Nevertheless, the numbers are striking. **From 1977 to 1994, over 90 percent of U.S. parent intermediate**

inputs were purchased from U.S. sources. Moreover, this reliance on American suppliers has remained remarkably constant over time: 91.3 percent in 1977 and 91.2 percent in 1994.¹⁷ In Table 7, Column 5 multiplies the total input purchases in Column 3 by the domestic percentages in Column 4 to report the actual dollar value of U.S. parent input purchases from American suppliers. The value of these purchases grew from \$854 billion in 1977 to \$2.4 trillion in 1994. Although Table 7 reports input

Chart P
U.S. Parent Company Purchases of Intermediate Inputs by Location of Supplier



The U.S. parents of American companies with global operations purchase the large majority -- more than 90% -- of their intermediate inputs from U.S. suppliers.

Source: U.S. Department of Commerce, Bureau of Economic Analysis

purchase patterns for all sectors aggregated together, the pattern looks very similar for manufacturing and services individually. (Comparable data for agriculture are not available.)¹⁸

Thus, the available data indicate a significant amount of interaction between American companies with global operations and domestic U.S. firms through the channel of parent input purchases from American suppliers. Again, the evidence is mainly suggestive. The data do not allow a distinction between inputs supplied by other parents and inputs supplied by purely domestic firms. The fact that over 90 percent of U.S. parent inputs are purchased from domestic sources, however, suggests that domestic U.S. firms do a lot of business with U.S. parents. To the extent that such inputs are purchased from domestic suppliers, U.S. supplier firms might enjoy some productivity gains which, like the productivity gains of U.S. parents, help raise the overall U.S. standard of living.

In addition to directly raising the U.S. standard of living, American companies with global operations may also raise the U.S. living standard through their interactions with other American companies that are their suppliers. U.S. parents of American companies with global operations purchase over 90 percent of their intermediate inputs from American, not foreign, suppliers. These linkages between American companies with global operations and American suppliers can help make these suppliers more productive.

* * * * *

Thus, in addition to directly contributing to a higher U.S. living standard, American companies with global operations may also raise the the U.S. standard of living through their purchases from and interactions with their American supplier companies.

CHAPTER V

How Foreign Direct Investment Abroad Complements U.S. Parent Activity and Contributes to a High Standard of Living in the United States

Chapter Overview

This chapter examines the link between foreign direct investment (FDI) and the U.S. productivity-enhancing activities by American parent companies with global operations. The ability of American companies with global operations to raise the U.S. standard of living depends upon the ability of these firms to undertake FDI abroad.

Within American companies with global operations, affiliate expansion generally triggers in U.S. parents additional investment, research and development, trade, and input purchases from domestic suppliers. As stated earlier, these activities are key determinants of the U.S. standard of living. Restrictions on FDI that prevent U.S. companies from expanding abroad generally will reduce U.S. parent activity and thus, lower the U.S. standard of living.

A. The Link Between FDI and the U.S. Standard of Living: The Theory

The ability to undertake FDI benefits American companies with global operations by increasing their worldwide net income. In the aggregate, foreign affiliates generate positive net income — nearly \$90 billion in 1994 (Table 8). Moreover, foreign affiliates account for an increasing share of total world net income for American companies with global operations — from 17 percent in 1977 to 27 percent in 1994 (Chart Q).

This section addresses the question of how FDI benefits the overall U.S. economy. **The key to making this link between FDI and the U.S. standard of living is the fact that foreign affiliate activity and U.S. parent activity tend to be complementary across locations rather than substitutable.**

Table 8
Net Income of Foreign Affiliates

Year	Mfg	Services	Agriculture	Total	Share
1977	8,797	7,734	893	17,424	0.17
1982	8,914	12,171	1,301	22,386	0.17
1989	40,899	32,498	3,958	77,355	0.30
1994	40,835	42,250	6,639	89,724	0.27

Each cell in columns 2-5 reports millions of dollars. Each cell in the final column reports the total affiliate net income as a share of firm-wide net income that year.

Source: U.S. Department of Commerce, Bureau of Economic Analysis

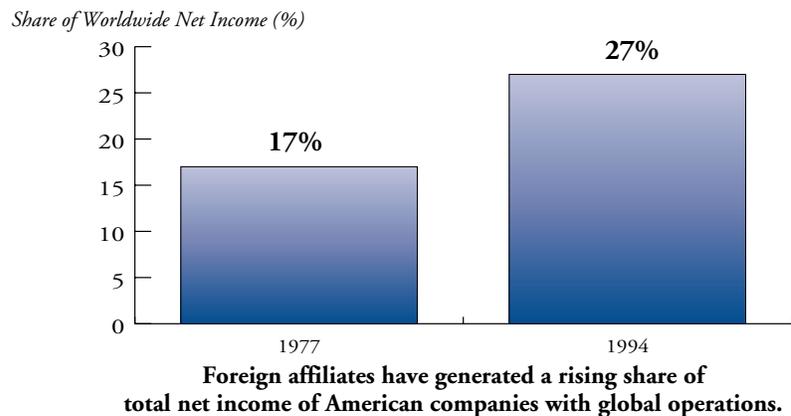
The production structures of American companies with global operations tend to be very complex with many interrelated operations located in many countries. As a result, company-wide activity tends to rise or fall in all locations together. Thus, limitations on outward FDI restrict U.S. parents as well as foreign affiliates, including the level of U.S. parents' investment, research and development, trade, and input purchases in the United States.

The economic linkages between parents and affiliates involve far more than the simple assumption that affiliate and parent activities necessarily substitute for each other. This complexity has been emphasized by many scholars, including former Labor Secretary Robert Reich. In 1991, Reich characterized many global company production arrangements as "global webs" with multiple production stages across multiple countries. He wrote:

In such global webs, products are international composites. What is traded between nations is less often finished products than specialized problem-solving (research, product design, fabrication), problem-identifying (marketing, advertising, customer consulting), and brokerage (financing, searching, contracting) services, as well as certain routine components and services, all of which are combined to create value...Quantities can be produced efficiently in many different locations, to be combined in all sorts of ways to serve customer needs in many places.¹⁹

Chart Q

The Contribution of Foreign Affiliates to Worldwide Net Income of American Companies with Global Operations



Source: U.S. Department of Commerce, Bureau of Economic Analysis

What do these "global webs" look like? Economists have formalized many different models of how they are structured. Each describes a different set of circumstances in which a company with global operations runs complementary activities in many countries. The four most important models are:

- The International Provision of Services
- The Rationalization of International Production: Slicing Up the Value Chain
- The Need for Proximity to Market
- The Headquarter's Role for the U.S. Parent

The following sections briefly describe the characteristics of each of these models.

1. The International Provision of Services

Many services, such as banking and finance, construction, hotels, and restaurants, are inherently non-tradable. It is prohibitively costly to produce these products in locations other than those of the

consumers. For example, it would be prohibitively expensive to build office towers in the United States and then ship them to foreign countries. If American companies with global operations cannot undertake FDI to produce these services in foreign countries, these services simply are not produced. This is the starkest form of complementarity in that there is no possibility of substituting production from affiliates to parents. In this situation services firms simply cannot access foreign markets without the ability to undertake FDI.

This situation is obviously critical for American companies with global operations that have services as their main line of business worldwide. Complementarity is also relevant to American firms that do a lot of manufacturing. Suppose the U.S. parent manufactures and then exports some product. Foreign affiliates can perform a wide range of services abroad to maximize the marketability of the firm's product. These services include wholesaling and retailing to distribute the product, and support and repair to maintain the product. It is very likely that these affiliate services stimulate foreign demand for the product and thereby boost parent production. Given that most of these services either cannot be performed from the United States (e.g., wholesale and retail trade) or can only be performed from the United States at very high costs (e.g., repair services that require shipping the product back to the United States), a reduction in affiliate activity does not boost parent activity. Instead, parent production may very well fall if reduced affiliate support services sharply reduce foreign demand for the product.

2. The Rationalization of International Production: Slicing Up The Value Chain

In many situations, firms can realize lower worldwide costs by spreading production across locations. One important model of this type has American companies with global operations rationalize production by locating different stages in

different countries. In this model, the firm's product requires several steps. These steps need not be located in the same geographical location, but the steps are sequential inputs for other steps, and the output of various stages gets traded across countries. For example, an automobile firm might produce engines in one country, transmissions in a second country, and then ship them to a third country for assembly. The usual presumption is that the profit-maximizing firm locates each step in the lowest cost location(s), where costs differ across locations because of their different factor prices. Thus, the firm slices up its value chain; that is, it locates different stages of value added in different locations.

With this configuration, company-wide activity tends to rise and fall together across all locations. FDI restrictions force the company to reconfigure its operations in a more costly way, which reduces activity everywhere. Conversely, cost reductions in one location can stimulate activity everywhere. For example, if a company discovers that shifting some production stages abroad lowers costs and increases demand, then even U.S. activity can increase because the stages remaining in the United States can expand sufficiently to more than offset the stages lost in the shift. Similarly, forcing an American company with global operations to relocate stages back to the parent can raise overall costs and thereby reduce sales enough to reduce the firm's activity everywhere, including in the United States.

3. The Need for Proximity to Market

In the previous model, a firm locates different production stages in different countries. Alternatively, firms might decide to locate the same production stages in different countries. This can happen whenever there are strong proximity-to-market benefits of local production. These benefits, which can be defined as competitive edges firms realize by literally being close to the consumers of their product, can take a number of forms. One common example is the need and

ability to tailor a product to changing local tastes. In the clothing industry, a firm might decide to locate production facilities in many of its major markets to ensure that quick changes in demand can be met by quick responses in supply. Another example is the desire of consumers in foreign countries to be served by local companies. For many industries in many countries, consumers prefer dealing with companies that have a meaningful local presence, such as involvement in local philanthropic activities.

Whatever their exact nature, proximity-to-market benefits imply that company-wide activity is complementary. The fact that activity in one location increases — because of a surge in that market’s demand, for example — does not imply that activity elsewhere must fall. Indeed, as the next model discusses, activity in the U.S. parent may very well rise.

4. The Headquarter’s Role for the U.S. Parent

Finally, the headquarters model is another production configuration in which U.S. parents and foreign affiliates complement each other. The basic idea here is that the U.S. parent produces some firm-wide inputs that help the firm’s operations worldwide. For example, the firm might manufacture its products in several locations either because the firm has sliced up the value chain or because of proximity-to-market considerations. However, the U.S. parent can provide a wide range of support activities, such as research and development, advertising, accounting, finance, and management.

For these kinds of firms, an increase in foreign activity increases the need for U.S. parents to provide more firm-wide support. More foreign production can mean all kinds of expansion in the U.S. parent, e.g., more research and development to tailor products to the expanding markets, new advertising campaigns to help expand market share in these locations, additional financial activity to

best meet costs there, and increased management to help oversee operations.

In short, production organizations for American companies with global operations can be quite intricate. As has just been discussed, there are a number of “global webs” in which parents and affiliates complement each other.

B. The Link Between FDI and the U.S. Standard of Living: Empirical Evidence

The question of whether FDI substitutes for or complements parent activity is ultimately an empirical matter. How do American companies with global operations operate in the real world? Both ways. In reality, some FDI substitutes for parent activity, while other FDI complements it. The proper empirical question here is not an either/or question. Instead, the proper question is, *on balance*, whether there is evidence that one kind of FDI predominates.

To answer this question, three different sets of evidence are presented:

- A survey of recent academic research using a range of data
- BEA data on affiliate activity
- Corporate case studies

The balance of evidence from all three sources indicates that foreign affiliate activity generally complements U.S. parent activity. As a result, restricting outward U.S. FDI generally will curtail the domestic activities of U.S. parents as well, including levels of U.S. investment in physical capital, research and development, trade, and domestic purchases.²⁰

1. Academic Studies on Parent-Affiliate Complementarity

Most academic research on this topic also indicates that the activity of American companies with global operations tends to be complementary across locations.

a. Slicing Up the Value Chain

James Markusen's (1995) survey of research in this area reports that barriers to international activity, such as tariffs and high transportation costs, seem to discourage both affiliate production and parent exports. Both Markusen and Paul Krugman (1995) highlight the recent increase in production rationalization. Krugman singles out this trend as one of the most important characteristics of world trade in the past 25 years.

[I]t is generally believed...that the trend in manufacturing has been to slice up the value chain — to produce a good in a number of stages in a number of locations, adding a little bit of value in each stage [such that] a good that is produced in one country may be assembled from components produced in other countries, and these in turn may be assembled from subcomponents produced in yet other countries.

Krugman goes on to discuss how declines in the costs of international transportation and communications are likely causes of this trend.

b. Strong Link Between Parent Exports and Affiliate Production

Theodore Moran (1997) also provides a comprehensive survey that cites several findings of a positive correlation between parent exports and affiliate production. This correlation seems to be robust across different levels of data aggregation and different empirical methodologies. For example,

Thomas Horst (1978) analyzes the performance of U.S. firms similar in many ways, except for the degree of their foreign investments. He finds that more foreign investment is strongly correlated with more parent exports. Similarly, in two different studies, Robert Lipsey and Merle Weiss (1981, 1984) examine both industry-level and firm-level data to find a strongly positive correlation between affiliate manufacturing activity and U.S. parent exports — both exports of intermediate inputs and exports of finished products.

c. Parent Wages and Employment

Other researchers test the complementarity between affiliates and parents by looking at inputs rather than outputs. The work by Doms and Jensen presented earlier specifically addresses this point. Their comparison of the wages between U.S. parents and purely domestic plants suggests what might happen to U.S. parents if prohibitively high burdens are imposed on their foreign activities. Parents would likely end up paying lower wages, consistent with their workers being less productive. This projected productivity loss is supported by the additional findings by Doms and Jensen that, on average, American companies without global operations employ less capital per worker and realize slower total-factor-productivity growth than do U.S. parents.

In a second study on the input side, Matt Slaughter (1995) analyzes how demand for labor by U.S. parents responds to changes in demand for labor by U.S. affiliates. His results indicate that company-wide labor demands tend to move together across locations. Lower affiliate wages appear to increase demand not only for affiliate workers, but also for U.S. parent workers.

2. BEA Evidence on Parent-Affiliate Complementarity

Data on foreign affiliates reveal two key pieces of evidence that U.S. parent and foreign affiliate activities are complementary. One is the fact that

within many American companies with global operations, affiliates and parents do different things. A significant share of foreign affiliates operates in primary lines of business different from their U.S. parents. The second is the fact that both affiliates and parents grow similarly over time. Broad trends in affiliate activities, such as research and development and capital investment, closely track the trends in the same activities for the U.S. parents.

a. Within many American companies with global operations, affiliates and parents do different things.

Consider the evidence on the sectoral composition of affiliates presented in Chart R (and Tables 9 and

Table 9
Foreign Affiliates Classified by Industry of U.S. Parent

Year	Mfg	Services	Agriculture	Total
1977	15,324	5,946	1,468	22,738
1982	11,240	3,479	1,195	15,914
1989	12,075	3,932	1,103	17,110
1994	13,686	5,512	1,555	20,753

Each cell reports the number of affiliates.
Source: U.S. Census Bureau and U.S. Department of Commerce, Bureau of Economic Analysis

10). Chart R reports the number of affiliates of U.S. parents in 1994 classified two different ways: by the primary sector of the affiliate's parent and by the primary sector of the affiliate itself.²¹

There is a key difference in the sectoral composition of affiliates between these two different classifications. When affiliates are classified by their parents' sector, the majority of affiliates are in manufacturing. When affiliates are classified by their own sector, the majority of affiliates are in services. The swing is substantial: nearly 5,500 affiliates, more than 25 percent of all U.S. foreign affiliates.

Differences in the activities of parents and affiliates drive this swing. Although the majority of parents — and thus, their affiliates when classified by parents' industry — are in manufacturing, the majority of affiliates are in services. This is strong evidence that a substantial amount of

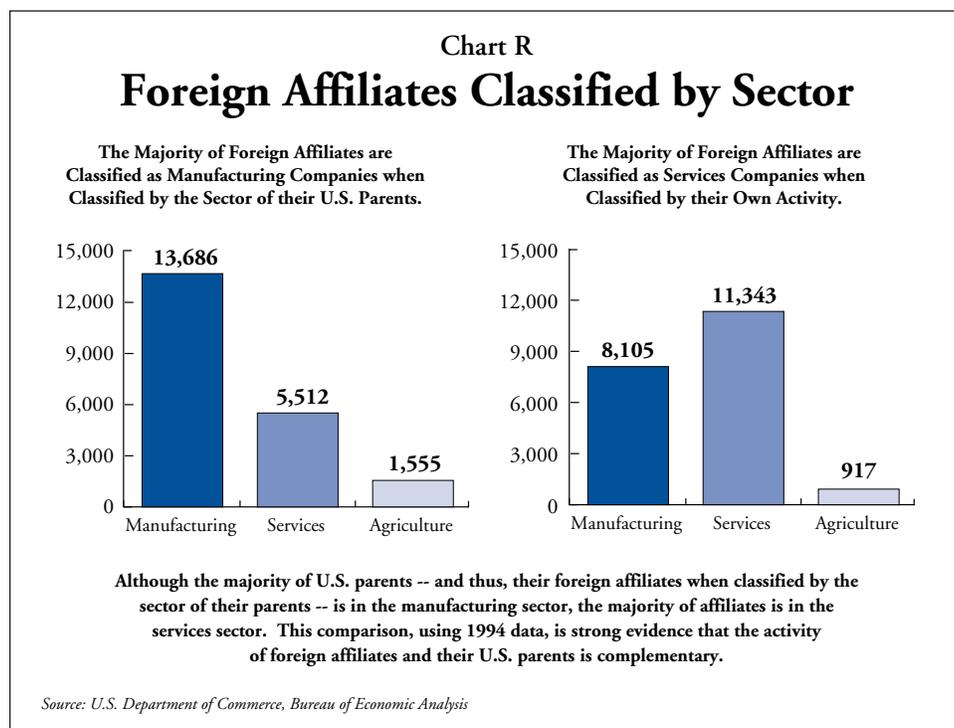


Table 10
Foreign Affiliates Classified
by Industry of Affiliate

Year	Mfg	Services	Agriculture	Total
1977	9,712	11,589	1,101	22,402
1982	7,005	8,368	792	16,165
1989	7,548	8,595	809	16,952
1994	8,105	11,343	917	20,365

Each cell reports the number of affiliates.

Source: U.S. Department of Commerce, Bureau of Economic Analysis

affiliate activity complements parent activity rather than substitutes for it. In many of the models just discussed, what generates complementarity is the fact that American companies with global operations do different things in different locations.

In particular, Chart R indicates that a key reason manufacturing parents establish affiliates is to perform service activities, such as wholesaling and distribution, retailing, and after-sales maintenance. Of these, wholesaling seems to be a very important function of affiliates. In 1994, there were 1,017 wholesaling affiliates when classified by the parents' industry, but 5,035 when classified by the affiliates' industry — an increase of more than 4,000, almost 20 percent of total U.S. foreign affiliates.

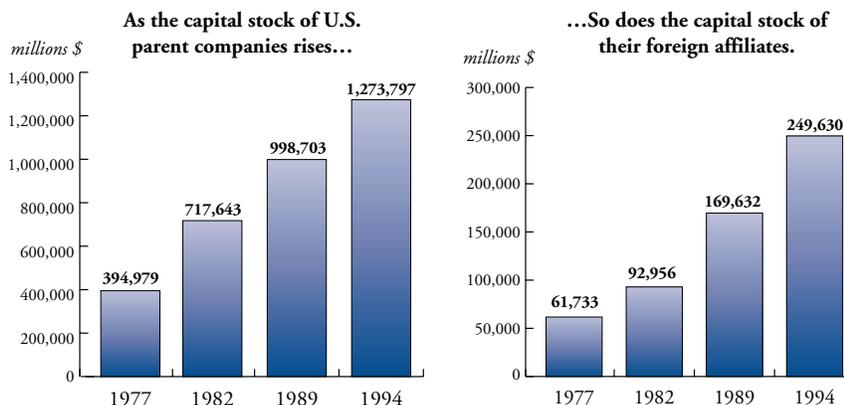
This evidence probably underestimates parent-affiliate complementarity because it captures just complementarity across

the two broad sectors, manufacturing and services. Within each sector, there is probably rationalization complementarity across industries as firms locate different production stages in different countries. Moreover, rationalization can operate even when a parent and affiliate are classified in the same industry. The BEA's finest level of disaggregation is 3-digit Standard Industrial Classification (SIC) industries. Within each industry, there are still more disaggregated activities that can be spread across locations within a firm.

b. Both affiliates and parents grow similarly over time.

In addition to the information provided by affiliate classifications, the levels of affiliate activity also provide additional evidence that company-wide operations are complementary. Charts S and T

Chart S
Capital Stock of U.S. Parent Companies
and their Foreign Affiliates



This similarity in trends is further evidence that the activity of U.S. parents and their foreign affiliates is complementary.

Source: U.S. Department of Commerce, Bureau of Economic Analysis

Table 11
Capital Stock of Foreign Affiliates

Year	Mfg	Services	Agriculture	Total
1977	42,149	15,468	4,116	61,733
1982	66,331	20,534	6,091	92,956
1989	113,983	45,346	10,303	169,632
1994	162,719	65,470	21,441	249,630

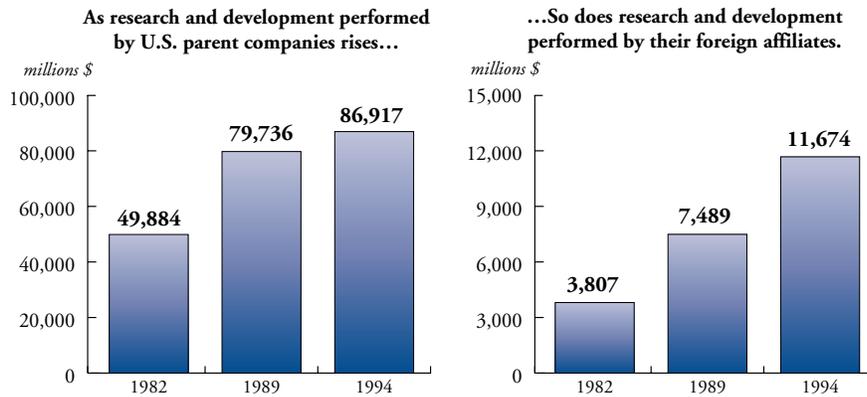
*Each cell reports capital stock book value in millions of dollars.
Source: U.S. Department of Commerce, Bureau of Economic Analysis*

Table 12
Research and Development Performed by Foreign Affiliates

Year	Mfg	Services	Agriculture	Total
1977	1,565	(N.A.)	(N.A.)	1,565
1982	3,247	443	117	3,807
1989	7,098	197	194	7,489
1994	11,025	383	266	11,674

*Each cell reports millions of dollars.
Source: U.S. Department of Commerce, Bureau of Economic Analysis*

Chart T
Research and Development of U.S. Parent Companies and their Foreign Affiliates



This similarity in trends is further evidence that the activity of U.S. parents and their foreign affiliates is complementary.

Source: U.S. Department of Commerce, Bureau of Economic Analysis

report majority-owned affiliate capital stocks and research and development expenditures. (Also, see Tables 11 and 12.) What stands out in these charts and tables is how affiliate trends for capital stocks and research and development expenditures match those for U.S. parents. Over time, both parents and affiliates accumulate capital and increase research and development expenditures at similar rates.

This similarity in trends suggests that activity is complementary. Parent expansion seems to broadly match affiliate expansion. If instead, activity were strongly substitutable, the data might show foreign expansion matched against U.S. contraction. However, these trends should be interpreted with appropriate caution. Given that both parent and affiliate activity are determined together at each point in time, trends alone cannot strictly test complementarity versus substitutability. Nevertheless, they provide additional suggestive evidence that complementarity is the best description of parent and affiliate activity.

3. Corporate Case Studies of Parent-Affiliate Complementarity

Both the academic studies and the BEA data just reviewed have a comprehensive focus encompassing many industries and many sectors. This section narrows the focus to individual firms. On the following pages, individual case studies explore the actual international production structures of 10 American companies with global operations. These cases provide detailed examples of complementarity between foreign affiliates and U.S. parents in a wide range of industries.

The 10 ECAT member companies represented in the following case studies include:

- The Procter & Gamble Company
- American Home Products Corporation
- General Motors Corporation
- Texas Instruments Incorporated
- 3M Company
- Hewlett–Packard Company
- Cargill, Incorporated
- United Technologies Corporation
- Citicorp/Citibank
- Caterpillar Incorporated

Case Study: Procter & Gamble

This case study provides an overview of the various headquarter services that U.S. parents can provide to all parts of the firm.

Procter & Gamble (P&G), a Cincinnati, Ohio-based manufacturer of consumer products,

Procter & Gamble

generates annual net sales of \$35 billion, of which approximately \$19 billion (54 percent) is from outside the United States. Of these international sales, only about \$1 billion is derived from U.S. export sales; \$18 billion is produced in one of the 70 foreign countries in which P&G has on-the-ground operations. P&G is a major investor abroad, with \$18 billion in identifiable assets outside the United States.

The fundamental structure of the household-products business requires production close to the consumer. Although P&G products tend to be low in absolute price, they are frequently purchased and must be perceived as a good value when compared with local brands. Transporting finished products from distant production sites (e.g., United States to Asia) would make most products prohibitively expensive to foreign consumers.

Although P&G's products are made locally, the formulation, product design, packaging, and techniques of manufacture tend to be global. This is the case for products such as shampoos, disposable diapers, feminine hygiene products, detergents, and over-the-counter drugs. These "global" products, regardless of final manufacturing site, help create substantial employment for P&G in the United States. P&G estimates that nearly 20 percent of its U.S. workforce — approximately 8,000 out of 41,000

employees — have global responsibilities. These global functions include the following:

- **Research & Development** — Nearly all P&G products are developed and formulated with a global consumer in mind. Additionally, upstream basic research finds worldwide application.
- **Purchases** — Supplier development and material sourcing are handled on a global basis.
- **Engineering** — Plant and equipment design are implemented globally. U.S.-based engineering and equipment contractors provide machinery to P&G worldwide. Likewise, equipment changes for product upgrades follow the practice of "design once, apply everywhere."
- **Management Systems** — Standard hardware and software developed in the United States underlie the majority of P&G databases and communication systems.
- **Package Design** — Packaging is a key component of both product protection and brand identity. Both art/design and technical packaging are mainly conducted as global activities.
- **Finance, Marketing Services, and Human Resources** — These also have departments with global responsibilities.

Finally, P&G's value to shareholders depends on the success of foreign investment. Some 73 percent of the company's growth over the past 10 years has come from outside the United States. This is particularly important to P&G employees, since 25 percent of the company's stock is in the hands of employees and retirees.

Case Study: American Home Products

The following two case studies detail considerations an American company with global operations must weigh when slicing up the value chain and maximizing the benefits of having proximity to its markets.

American Home Products Corporation (AHPC), a U.S. company with annual sales of \$14 billion, is



AMERICAN HOME PRODUCTS CORPORATION

diversified, deriving 50 percent of sales from pharmaceuticals, with the remaining income generated from over-the-counter and animal health products, agricultural chemicals, and medical devices. Two of its five principal businesses involve animal health and agricultural products. Summarized below are two case studies from these businesses that highlight the complementary nature of AHPC's worldwide operations and the challenges the company faces in organizing these operations to remain competitive.

U.S. Prohibition on Production of Animal Health Care Products

Certain animal diseases, such as foot-and-mouth disease and hog cholera, still exist worldwide but have been eradicated in the United States. The annual worldwide market for vaccines for just these two diseases is over \$300 million.

U.S. regulations effectively prohibit the production of a vaccine in the United States if its associated disease has been eradicated in this country. As a result, U.S. companies wishing to participate in the markets for foot-and-mouth

disease and hog cholera must, by law, produce their products outside of the United States.

In addition, regulations have generated cost-prohibitive restrictions on the ability of companies to perform research in the United States on any of these diseases. For example, research can only be performed on imported virus strains, but importation of many types of strains is effectively prohibited. Although these controls are understandable for health reasons, they are extremely restrictive and costly. As a result, it is in effect legally mandated and much less expensive to perform research and development on these diseases outside the United States.

Tariffs and Transportation Costs for Herbicide Products

Herbicides are applied once weed infestation is present and provide long-lasting control of a broad spectrum of unwanted grasses and weeds. The herbicide market is particularly important for the soybean industry in Latin America. Outside of the United States, some of the largest soybean producers in the world are Brazil, Argentina, and Paraguay. As a result, Latin America is one of AHPC's largest markets for many of its herbicide products.

For almost all AHPC herbicides, the costs of tariff barriers and transportation have played a major role in determining where production facilities are located.

First, import duties are excessively high. Brazil levies an 8-percent *ad valorem* tariff on one of AHPC's herbicide products when imported from the United States, but it levies only a 2-percent *ad*

Case Study: American Home Products (continued)

valorem tariff on the herbicide's active raw material. As Brazil has moved towards establishing a regional trading bloc (i.e., Mercosur) with other nearby countries producing soybeans, producers in these other nations have established similar tariff rates to differentiate between the herbicide and its active ingredient. Faced with these pricing constraints, AHPC has had to produce this herbicide locally to remain viable in the Latin American market. The alternative of producing this product in the United States and then exporting it to Latin America is not an option because the added import duties would price AHPC out of the market.

Second, transportation costs for this herbicide have also influenced the decision to produce in Latin America. AHPC currently spends approximately 0.2 percent of final sales to ship this herbicide's active raw material to Brazil for synthesis and formulation into the final product. In contrast, AHPC would pay more than 10 times this amount — approximately 2.5 percent

of final sales — to ship the herbicide itself to Brazil. The reason for this dramatic rise in costs is weight and physical volume. The herbicide itself takes up nearly 1,200 percent more physical space than that of the active raw material. As with the differential tariffs, these differential transportation costs have compelled AHPC to produce this herbicide in Latin America.

In conclusion, duty and freight cost savings realized by producing this herbicide in Latin America permit AHPC to compete most effectively against other firms. Producing the herbicide in the United States and then exporting it to foreign markets is not an economically viable option because of the added import duties and transportation costs. These costs would increase the price of the product and make AHPC non-competitive in the Latin American market. If AHPC were to restrict its production to the United States, the result would be a decline in AHPC's overall level of U.S. activity in this product line.

Case Study: General Motors

This case study underscores the importance of slicing up the value chain and of proximity to market.



Headquartered in Detroit, Michigan, General Motors (GM) is the world's largest automotive manufacturer, with over 650,000 employees worldwide in 51 countries. GM's recently announced investment in China demonstrates how GM's production is integrated across many countries.

In early 1997, GM and the Shanghai Automotive Industry Corporation agreed to invest \$1.57 billion jointly in two new automotive ventures in Shanghai, China. One venture will manufacture, distribute, and sell GM Buick automobiles in China. The manufacturing will include production of engines and transmissions. The 160,000-square-foot automobile plant is targeted to begin operation in mid-1998 and ultimately, to reach annual production of 100,000 units. The other venture will focus on vehicle design and engineering tailored to the Chinese market.

This new affiliate will greatly improve GM's ability to serve the growing Chinese market.

Currently, China imposes a 120-percent tariff on automobile imports from the United States. In addition, China maintains a licensing system for these imports and various local-content requirements for all cars sold in the country. Taken together, all of these considerations make Chinese production a lower-cost option than U.S. production and subsequent export. Moreover, important aspects of the new investment — the establishment of distribution and sales networks within China — simply cannot be achieved from the United States.

GM's U.S. operations benefit from the joint venture in a number of ways. The automobile to be produced in China has been designed entirely in the United States. Employment in GM's U.S. operations and those of its suppliers will benefit from an anticipated \$1.6 billion in exports from the United States over the next five years. The planned research and development joint venture will generate new insights that will help GM's engineers worldwide. In the longer term, brand-name recognition in China will help stimulate that country's demand for a wide range of GM products. Given the current Chinese population of 1.2 billion people, the potential volume of sales is tremendous.

Case Study: Texas Instruments

This case study demonstrates how an initial investment that slices up the value chain can lead to improved technology at the parent's headquarters.

Texas Instruments (TI) is a global electronics company with 1996 revenues of \$10 billion, of which approximately half comes from sales outside the



United States. Head-quartered in Dallas, Texas, TI has operations in

more than 30 countries and employs more than 40,000 people worldwide. The company's main line of business is semiconductor devices and digital solutions for the computer, communications, industrial, and consumer markets.

The history of TI's affiliates in Singapore provides an interesting example of how the links between affiliates and parents evolve over time. In the early 1970s, TI chose Singapore for one of its first offshore assembly and testing operations. A key consideration in this decision was the need to pursue the long-term opportunities in the Asia-Pacific region afforded a high-technology company like TI. Singapore offered the advantage of a stable, efficient government capable of providing necessary services in an efficient manner. The country also offered a reliable labor force for TI's labor-intensive production stages to help ensure low prices worldwide for TI's finished products.

Over time, TI's assembly and testing operations in Singapore expanded to the point that it made sense to perform some product and process-development activities there. In the late 1980s, TI established programs in Singapore for the

development of both Digital Random Access Memory (DRAM) packaging and quality-control testing. Within a few years, this development activity had expanded to include more basic research as well. Singapore's DRAM engineers became worldwide research and development experts within TI and today, they regularly participate in research and development teams located in the United States and Japan. The number of U.S. patents issued to TI Singapore increased from one in 1991 to 14 in 1996. Firm-wide research and development has benefited substantially from the Singapore input on issues relating to stress and testing.

More recently, TI established TECH Semiconductor, a wafer-fabrication plant that produces state-of-the-art DRAMs for worldwide sale. TECH has already generated a substantial amount of new technology information that has directly benefited TI's other wafer-fabrication plants in the United States and elsewhere. Moreover, TECH has been able to undertake investments that otherwise would not have been possible and that should lay the foundation for future firm-wide advantages.

In addition to these firm-wide research and development gains, TI's Singapore presence enabled TI to gain access to the wider Asian market by helping establish brand-name recognition. As Asian economies have grown very rapidly, recognition of the TI name has helped the firm gain market share in many countries. During the 1990s, TI's net revenue in Asia has grown at an average annual rate of 30 percent for its non-MosMemory businesses. An important part of this growth has been TI's ability to provide quality support and service to customers in personal computers, disk drives, and telecommunications. Revenue growth in this area has averaged 42 percent per year.

Case Study: 3M Company

This case study demonstrates the importance both of host market services to support domestic manufacturing and of proximity to market.

Headquartered in St. Paul, Minnesota, 3M produces a very large and continually evolving range of technologies and products. For example, it currently offers more than 900 varieties of tape alone. **3M** In 1996, 29 percent of its revenue came from products invented within the past four years. 3M also generates an extremely large amount of foreign sales. In 1996, 3M sales in countries outside the United States totaled \$7.6 billion, 53 percent of the firm's total sales.

The volume and range of these international activities complement 3M's U.S. operations in at least three important ways. First, they require extensive sales and technical support staff in foreign countries to generate the sales. Second, they require extensive investments in warehousing and distribution facilities in the foreign markets to ensure that customer service requirements are met. Finally, 3M needs to perform extensive research and develop-

ment both in the United States and abroad. Much of the foreign research and development tailors particular products to the needs of host markets.

Efficient foreign distribution, sales, technical support, and research and development generate increasing production and research and development in the United States and abroad. 3M's \$2.6 billion in Asia-Pacific sales supports \$182 million of the company's \$1 billion research and development budget, much of which is spent in the state of Minnesota. Asia-Pacific sales also support over 2,000 U.S. jobs at the 3M Center in St. Paul.

3M's U.S. manufacturing facilities continue to play a major role in supplying products overseas. Close to one-third of 3M's sales to the Asian region are supported by finished and semi-finished goods exported from the United States. If Japan is excluded from the tally, U.S. exports account for approximately 50 percent of sales in the region. In many countries, market access is denied unless some local value-adding manufacturing operation is established as an investment.

Case Study: Hewlett-Packard

This case study underscores the importance of slicing up the value chain, proximity to market, and the headquarter role of the parent.

Hewlett-Packard Company (HP), based in Palo Alto, California, designs, develops, manufactures,



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and sells some 23,000 different products in the information technology and

instrumentation fields. Its products range from components, calculators, palm-top to mainframe computers, printers and other computer peripherals, and medical, analytical, and electronic instrumentation.

While some 60 percent of its \$38.4 billion in revenues comes from sales outside the United States, most employees are in the United States, as are the large majority of HP's research and development and manufacturing operations. HP is the tenth largest U.S. exporter, selling to over 135 nations. HP also spends approximately \$3 billion annually on research and development, which is vital to the firm's success because nearly 70 percent of its current revenues are from products invented within the last two years.

HP has made a large number of overseas foreign direct investments and will continue to do so, particularly because overseas markets in the Asian-Pacific, European, and Latin American markets are expected to grow faster than the U.S. market. HP now has direct sales, manufacturing, and/or

research and development operations in some 40 countries. These investments are crucial to position HP in these markets as a reliable, customer-driven company able to design, build, deliver, and service its many products. These local investments in a wide range of areas (e.g., research and development, sales, service, support and manufacturing personnel, and facilities) enable HP to continue to support its worldwide growth, including growth in HP's U.S. employment and exports in the years to come.

One of many examples of how HP's market-driven investments have provided substantial benefits to the United States is its decision in 1982 to establish a manufacturing presence in Mexico. Typical of the types of formal and informal political barriers that American firms face in trying to sell their products abroad, the Mexican government at that time closed its borders to certain computer imports to encourage local production and thus, the development of a local computer industry.

HP decided that the market was critical strategically and that, in the long run, HP could greatly improve its market position in Mexico by investing there in production and customer-driven sales, service, and support operations. Since 1985, those investments have helped increase HP's U.S. exports to Mexico twenty-fold, a pace several times faster than HP's overall export growth in that time period. In addition, some of these exports ultimately reach other Latin American countries with which Mexico has negotiated trade advantages.

Case Study: Cargill

This case study offers an interesting combination of examples of host-market services, slicing up the value chain, and proximity to market.

Cargill is an international marketer, processor, and distributor of agricultural, food, and financial and industrial products with some 79,000 employees at 1,000 locations in 72 countries. The company is headquartered in Minneapolis, Minnesota. Cargill's worldwide fertilizer business includes both production and distribution activities. Production activities are concentrated in the United States and range from the mining of phosphate rock at three mines in central Florida to the manufacturing of finished fertilizer products at chemical processing facilities in Florida. In addition, Cargill distributes fertilizer in more than 20 countries around the globe. Distribution activities include warehousing, bagging and bulk blending operations, custom application, and crop-consulting services.



The capital-intensive phosphate mining and processing operations are Cargill's largest investments in the fertilizer business. The Florida facilities produce more than 4 million tons of finished phosphate products per year, of which approximately 75 percent is exported.

Cargill distributes more than 13 million tons of fertilizer through its worldwide network of distribution facilities. Bagging and blending facilities are located in host countries for at least two reasons. First, it is more efficient to transport fertilizer in bulk from large-scale production

plants located near key raw materials to the end-use market. There, it typically is bagged and in some cases, blended with other nutrients to meet local requirements. For example, Cargill ships phosphate from Florida in bulk (often in combination with other fertilizer products to lower total transportation costs) to Colombia, where it is blended with other products, such as nitrogen, potash, and micro nutrients. The products are then bagged and sold to local coffee growers. A second reason for bagging and blending in the host market is to better tailor products to local variations in soil and crop requirements.

In addition to high-quality fertilizer products, Cargill offers farmers a range of important services. Custom-application services use a set of technologies, commonly referred to as "precision farming," that rely on detailed soil sampling, computerized field mapping, and satellite-guided application by sophisticated equipment that varies the fertilizer application rate according to the requirements of the field. Crop-consulting services include soil sampling to determine soil nutrient requirements, field scouting to evaluate crop conditions and the need for weed or pest control, the development of field-specific data bases to analyze performance, and financial and risk-management advice.

Selling fertilizer abroad — even when the basic material is produced in the United States — requires a significant host-country presence in a number of activities. Many of these, such as soil testing, simply cannot be performed from the United States. Others must be performed in the host countries to ensure quality, timeliness, and value.

Case Study: Cargill (continued)

The investment in distribution facilities abroad provides a number of benefits to Cargill's production and distribution businesses in the United States. Because the Florida facility produces basic phosphate fertilizer for the entire world, its plants operate 24 hours a day, 365 days a year. This allows the plants to achieve lower unit operating costs and thereby allows Cargill to deliver an overall less expensive product. If the plants served only the U.S. market, they would sit idle most of the year because fertilizers are required only during very short periods of growing seasons. Cargill's global presence, however, helps generate demand for its fertilizers year-round. During periods of zero demand in some markets, other markets are just hitting their peak demand.

Case Study: United Technologies

This case study is an example of both sourcing based on economic considerations and the importance of host-market services to support manufacturing.

United Technologies Corporation (UTC), headquartered in Hartford, Connecticut, is a leading manufacturer of high-



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technology industrial

products. The Otis Elevator Company, one of UTC's major divisions, is the world's largest manufacturer and servicer of elevators, escalators, moving walkways, and other horizontal transportation systems. In 1996, Otis' total revenues were \$5.6 billion. Currently, 1.2 million Otis elevators and escalators operate throughout the world, including Otis elevators in 12 of the world's 20 tallest buildings.

Otis currently operates five joint ventures in China. These Chinese operations are relatively new and have been undertaken primarily because of the large growth potential of the Chinese market. More than 200,000 elevators are expected to be purchased in China during the next five years, and Otis aims to capture a large share of this expanding market.

Otis has chosen to service the huge Chinese elevator market by using local production complemented by exports of components from the United States. While success in a large and growing market such as China necessitates a local presence of host-market services, sourcing decisions were also influenced by natural and political trade barriers. First, transportation costs for completed elevators are much higher than for elevator components. Regular-size elevator systems, which make up the bulk of demand in China, cost up to \$7,000 per system to ship to China, and large systems can cost double that amount. Shipping

various components alone costs a fraction of these amounts, so Otis can realize significant overall cost savings by shipping only certain parts from the United States for matching and final assembly in China. Second, Chinese import tariffs are also a factor in establishing this kind of sourcing structure. Chinese tariffs on completed elevators (and escalators) are currently about 40 percent, while tariffs on elevator components are only about 20 percent. Otis can realize lower overall production costs by producing standard equipment in China and selected components for large or specialized systems in the United States.

Because of this organizational decision, elevators currently sold in China have some parts produced locally, but a sizable share of parts are produced in the United States. In particular, Otis' plant in Bloomington, Indiana has been a major producer of Chinese elevator components. Activity in this plant has expanded dramatically as demand for elevators has risen in China. In terms of exports, Otis' total U.S. exports to China have risen from \$7 million in 1993 to \$78 million in 1996. In terms of employment, the Bloomington plant has rebounded from layoffs in the early 1990s triggered by the U.S. recession. Today, the plant employs 1,100 workers — 250 more than during the early 1990s.

Otis' elevator production in China and in the United States is clearly complementary thanks to the firm's dispersed production structure. The company's activity in the two countries is also complementary in another important way. Of the 5,000 total Otis employees in China, only about 39 percent — slightly fewer than 2,000 — actually manufactures elevators. The other 61 percent are involved in services and administrative work — activities, such as sales and product maintenance — that support the manufacturing. These are jobs that could not be performed from the United States.

Case Study: Citicorp/Citibank



Citicorp is a New York-based global financial services organization. Its 89,400 employees — including 51,000 outside the United States — serve consumer and corporate customers in over 3,200 offices in 98 countries. Net income in 1996 was \$3.8 billion, with more than half of the company's revenues generated outside the United States. Citicorp is the sole shareholder of Citibank, N.A. (Citibank), its major subsidiary.

In many of the countries in which Citibank operates, local regulators require a local presence for the bank to do business there. In Malaysia, for example, the Central Bank grants a special status known as "Tier-1" only to those banks that satisfy stringent local requirements regarding capital adequacy, asset quality, management efficiency, earnings performance, and liquidity position. Meeting these requirements for Tier-1 status requires Citibank to maintain a significant presence in Malaysia. Since 1959, its Citibank Berhad (Limited) operations have grown from 17 to 1,100 employees. Today, Tier-1 status confers certain operating abilities, such as being able to operate in a foreign currency up to US \$5 million per exporter. Overall, this status allows Citibank to offer a full range of products to both corporate and consumer customers.

Beyond host-country regulations, however, Citibank feels it is critical to establish a local-

Case Study: Caterpillar

The following case study details considerations facing an American company with global operations in order to maximize the benefits of proximity to its markets and to slice up the value chain.

Caterpillar Inc., the world's leading manufacturer of construction and mining equipment, natural-gas engines, and industrial gas turbines, is also a leading global manufacturer of diesel engines. Headquartered in Peoria, Illinois, the company posted 1996 sales of more than \$16.5 billion, of which \$5.5 billion was from U.S.-produced exports.

In the foreseeable future, fast growth in developing countries will generate substantial demand for infrastructure products, such as roads, dams, bridges, and electric-power generation. In turn, this infrastructure demand will stimulate demand for construction and mining equipment in a wide range of industries. The developing world already accounts for 23 percent of Caterpillar's sales and this share is expected to rise in the future.

Caterpillar aims to meet this demand in part by investing in these developing countries. One of Caterpillar's long-standing foreign investments in the developing world has been in Indonesia. Caterpillar first entered this market in 1970 when the company granted licensing rights of its products to P.T. Trakindo Utama, a well-respected local retailer of industrial products. Trakindo helped generate demand for Caterpillar products in Indonesia through its extensive knowledge of the local market and its partnership with Caterpillar for after-sales main-

tenance and support, critical components of long-term value. Initially, Caterpillar planned to meet this demand in part by local assembly. In 1982, the company received permission from the Indonesian government to establish with its dealer, Trakindo, a new joint-venture company named P.T. Natra Raya (PTNR).

Located on 25 acres of land at Cileungsi in western Java, PTNR was initially set up to assemble parts produced primarily in the United States and then to sell the finished products — such as medium track-type tractors, wheel loaders, and motor graders — in Indonesia through Trakindo. The company segmented production this way because of Indonesia's tariff structure. Indonesia levies a 15-percent tariff on imports of certain finished industrial products, but the country levies no tariffs on imports of components that are then assembled in the country when additional local value added is performed. Faced with these tariff constraints, Caterpillar decided to export parts kits for selected products destined for the Indonesian market from the United States to PTNR. PTNR employees assemble finished products from these kits along with some locally produced components, such as blades, buckets, seats, and tires. The alternative is to export these finished products from the United States and subject the equipment to the higher tariffs.

In 1996, Trakindo sold nearly 2,000 pieces of Caterpillar construction equipment. PTNR produced about half this volume from imported parts kits. The other half was comprised of finished products imported primarily from the United States. Most of Caterpillar's U.S. factories have a sizable share of their production

Case Study: Caterpillar (continued)

directly linked to exports around the world, including Indonesia.

More recently, Trakindo helped expand Caterpillar's U.S. operations by securing sizable new sales. In September 1997, P.T. Newmont Nusa Tenggara, an Indonesian affiliate of Denver-based Newmont Gold, agreed to purchase from Trakindo more than 120 pieces of Caterpillar mining machinery valued at \$175 million. Almost all essential components in this deal will be produced in various Caterpillar plants in Illinois. These components will then be exported to Indonesia for final assembly and pre-delivery service by Trakindo before delivery to

Newmont. Caterpillar believes a key factor in securing this contract was the extensive product-support agreements between Newmont and Trakindo. These agreements guarantee certain operating and maintenance costs as well as machine availability. Trakindo's local-market knowledge and product-support network provide customer service from 41 branches throughout the Indonesian archipelago.

This case study provides a clear example of the international provision of services and illustrates the importance to service sector firms of proximity to the market and the headquarter's role for their parents.

* * * * *

The balance of evidence from the BEA data, academic research, and corporate case studies indicates that FDI generally complements U.S. parent activity. In several ways, affiliate expansion abroad tends to lead to U.S. parent expansion. This means that foreign affiliate expansion generally triggers in U.S. parents additional investment, research and development, trade, and input purchases from domestic suppliers — all the activities that help raise the U.S. standard of living.

CHAPTER VI

Conclusions and Policy Recommendations

CONCLUSIONS

The analysis in the preceding chapters has developed two essential points. First, by raising U.S. worker productivity, American companies with global operations help raise the U.S. standard of living. Second, because the U.S. and foreign activities of these companies tend to complement each other, the ability of these companies to help raise the U.S. standard of living depends crucially on their ability to undertake foreign direct investment abroad.

In several important ways, American companies with global operations help raise the U.S. standard of living by raising U.S. productivity.

- American companies with global operations undertake the majority — 57 percent in most years — of U.S. investment in physical capital in the manufacturing sector. This helps raise U.S. productivity by providing more inputs for people to work with.
- American companies with global operations perform the majority — between 50 percent and 60 percent — of total U.S. research and development. This helps raise U.S. productivity by leading to improved technologies for producing products more efficiently.
- American companies with global operations ship the majority — between 60 percent and 75 percent — of total U.S. exports. They also receive a sizable share — about 30 percent — of total U.S. imports. Both exports and imports help raise U.S. productivity by providing more inputs and improving technology.
- These productivity gains appear to show up in higher wages. American companies with global operations pay their workers higher wages than those paid by comparable American companies without global operations. Across 115,000 manufacturing plants in 1987, production workers received an average of 6.9 percent less at comparable domestic plants employing more than 500 employees and 15.2 percent less at comparable domestic plants employing fewer than 500 employees. Non-production workers received an average of 5.0 percent less at comparable domestic plants employing more than 500 employees and 9.5 percent less at comparable domestic plants employing fewer than 500 employees.
- These productivity gains may also extend to domestic suppliers from which U.S. parents of American companies with global operations purchase their intermediate inputs. For the past 20 years, U.S. parents have purchased over 90 percent of their intermediate inputs — \$2.4 trillion in 1994 — from domestic, not foreign, suppliers.

The performance of American companies with global operations affects the U.S. standard of living through their investments in physical capital and research and development in the United States, and international trade. Their continued contribution to these key determinants of U.S. productivity is vital to the health of the U.S. economy.

Because the U.S. and foreign activities of American companies with global operations tend to complement each other, the ability of these companies to raise the U.S. standard of living depends crucially upon their ability to undertake FDI abroad.

- Within American companies with global operations, foreign affiliate expansion generally triggers in U.S. parents additional investment and research and development in the United States, input purchases from domestic suppliers, and trade. As stated earlier, these activities are key determinants of the U.S. standard of living. Restrictions on FDI that prevent U.S. companies from expanding abroad generally will reduce U.S. parent activity and thus, lower the U.S. standard of living.
- A wide range of empirical evidence — from the BEA data and academic research to new case studies of 10 American firms prepared for this report — document how, on balance, FDI generally complements U.S. parent activity.

POLICY RECOMMENDATIONS

The United States must continue to strengthen the open system of global trade and investment in order to maximize the contributions of American companies with global operations to an improved standard of living for all Americans.

U.S. trade and investment policies should take into account the following recommendations based on the research and findings in this study:

- **Recommendation #1:** The U.S. government should maintain its open trade and investment policies. Moreover, these policies should recognize the ways in which trade and foreign direct investment benefit the U.S. economy.

The ongoing globalization of international markets means that the well-being of the U.S. economy is increasingly related to the well-being of other countries. Protectionist policies on investment and trade are thus, increasingly costly. The United States needs to maintain its efforts to liberalize its policies in these areas.

While pursuing liberalization, policy makers should also address the distribution of the gains from this liberalization. Although the U.S. economy overall benefits from freer international investment and trade, these gains may not be evenly distributed across the entire population. Indeed, certain groups can be hurt in real terms, despite the overall benefit to the economy. To ensure that the support for liberal investment and trade policies extends even to those most directly threatened by liberalization, policy makers should consider well-targeted redistribution policies, such as education and training for these groups.²²

■ **Recommendation #2:** The U.S. government should continue to negotiate aggressively for more open foreign markets and should persuade foreign governments to end restrictions on trade and investment.

Restrictions on foreign affiliates can inhibit the activity of American companies and thereby reduce their contribution to the U.S. economy and the U.S. standard of living. Therefore, foreign governments should be persuaded both to dismantle barriers to FDI and trade and to enact rules that ensure national treatment of foreign affiliates of American companies. Concretely, this includes eliminating or restricting policies, such as limits on American companies' ownership shares of foreign affiliates and affiliate performance requirements (e.g., minimum purchases from host-country suppliers).

Policy makers should push the liberalization of both investment and trade through bilateral, regional, and multilateral agreements. Such agreements should promote open investment regimes and the highest possible standards of protection for U.S. investment.

■ **Recommendation #3:** The U.S. government should strive to continue to harmonize its international trade, investment, and tax policies. In the case of American companies with global operations, this harmonization should take into account the many ways that their foreign operations tend to complement their U.S. activities.

Policy makers need to ensure that policy initiatives in one area do not contradict initiatives in other areas. For example, trade restrictions can also limit FDI and vice versa. Moreover, liberalization of trade and investment policies should not be undermined by tax policy.

When harmonizing policies on trade, investment, and taxation, U.S. policy makers should ensure that policies aim to increase U.S. productivity and thus, the U.S. standard of living.

■ **Recommendation #4:** Given that most services are inherently non-tradable, firms in these industries must invest abroad to serve global markets. Accordingly, efforts to liberalize trade and investment should focus special attention on the unique needs of U.S. services industries.

Historically, much of U.S. international economic policy has focused solely on manufacturing. Additional efforts should be made to promote U.S. and international policies that are unique to the challenges facing overseas investment in services. Among other things, U.S. policy makers should give priority to the upcoming World Trade Organization negotiations on services. In particular, the United States should support efforts to strengthen rules governing trade in services, broaden coverage within the services sector, and encourage greater participation by developing countries.

MYTHS AND REALITIES OF U.S. TRADE AND FOREIGN INVESTMENT

Having reviewed the research and findings on the impact of U.S. foreign direct investment on the U.S. economy, the

reader may find useful the following discussion of some of the most commonly held misconceptions about American companies with global operations.

MYTH

American companies with global operations have been rapidly expanding employment abroad while reducing employment in the United States. This has left a small and declining portion of their total employment in America, demonstrating that outward foreign direct investment (FDI) merely destroys U.S. jobs to create foreign jobs.

REALITY

This is incorrect both factually and conceptually. Factually, total U.S. parent employment increased slightly from just under 19 million in 1977 to just over 19 million in 1994. In contrast, total foreign affiliate employment declined during the same period — from just over 7 million in 1977 to about 6.7 million in 1994. In short, U.S. parents account for a large — and growing — majority of the total worldwide workforce of American companies with global operations. In 1977, U.S. parents accounted for 72.8 percent of the total worldwide employment and by 1994 they accounted for 74.3 percent of that total.

Conceptually, FDI does not create or destroy U.S. jobs on net for the U.S. economy. The total number of jobs in the economy is a macroeconomic outcome of the interaction between people's labor-supply decisions and the level of aggregate demand. FDI does affect the composition of jobs by allowing the economy to focus on the kinds of jobs the United States is relatively good at doing compared to the rest of the world. These tend to be jobs that are generally more productive and therefore, tend to raise the U.S. standard of living.

Moreover, the balance of evidence indicates that the U.S. and foreign operations of American companies with global operations tend to complement each other rather than substitute for each other. Restrictions on the numbers of jobs in foreign affiliates may very well reduce the number of jobs in U.S. parents, not raise them.

MYTH

The majority of the sales by foreign affiliates of U.S. companies with global operations returns to the United States — particularly because foreign affiliates merely substitute for production originally done in the United States.

REALITY

In 1994, across all sectors together, only 10 percent of all foreign affiliate sales went to the United States. The other 90 percent stayed abroad, with fully 67 percent of total sales remaining within the host-country market where the items were actually produced. Even for manufacturing, which is arguably the most internationally tradable industry, only 14 percent of all affiliate sales went to the United States.

These magnitudes suggest that the organization of production worldwide for American companies with global operations is more complicated than the affiliates just substituting for production originally done in the United States and then shipping the goods back home. In reality, the typical production structure seems to be based on complementary — not substitutable — activity between U.S. parents and foreign affiliates.

MYTH

American companies with global operations locate foreign affiliates almost entirely in low-wage, developing countries, presumably to realize lower labor costs.

REALITY

Based on several measures, such as employment, assets, and sales, the large majority of foreign affiliate activity is located in developed countries, not developing countries. In 1994, across all sectors together, developed countries hosted nearly 67 percent of total U.S. foreign affiliate employment and more than 75 percent of total U.S. foreign affiliate assets and sales. This concentration of activity in developed countries is probably due in part to the fact that these countries as a group still account for the majority of total world output.

MYTH

American companies with global operations are stand-alone operations that buy inputs only from foreign affiliates and do not interact with the broader U.S. economy.

REALITY

This is incorrect on two counts. First, U.S. parents buy the overwhelming majority of their intermediate inputs from domestic suppliers, not foreign suppliers. In 1994, \$2.4 trillion of inputs — 91.2 percent of total U.S. parent input purchases — came from domestic sources, not foreign sources. Second, the fact that U.S. parents account for a sizable share — approximately 30 percent — of all U.S. imports is good, not bad, for the U.S. economy. These imports benefit the U.S. economy in many ways, including giving U.S. companies access to foreign-produced capital goods and technologies. In addition to importing goods and services, U.S. parents export significant amounts of goods and services. They account for between 60 percent and 75 percent of all U.S. exports. Furthermore, foreign affiliates of American companies with global operations receive a sizable — and increasing — share of U.S. parents' exports, from 35 percent in 1977 to 41 percent in 1994.

MYTH

Outward foreign direct investment (FDI) by American companies with global operations means reduced investment by these firms in the United States.

REALITY

This is incorrect on two counts. First, the U.S. parents of American companies with global operations undertake the majority of total U.S. manufacturing investment in physical capital — between 52 percent and 57 percent since 1977. A similar picture characterizes investment in technology. U.S. parents perform between 51 percent and 62 percent of total U.S. research and development. Overall, U.S. parents undertake the majority of total U.S. investment in both physical capital and research and development.

Second, the balance of evidence indicates that the U.S. and foreign operations of American companies with global operations tend to complement each other rather than substitute for each other. Restrictions on outward FDI in foreign affiliates may very well reduce investment by U.S. parents, not raise it.

MYTH

Because of foreign direct investment (FDI) and the threat of job loss, American companies with global operations can pay low wages to their U.S. workers.

REALITY

The data for 115,000 U.S. manufacturing plants in 1987 indicates the exact opposite. On average, U.S. parents pay higher wages than do purely domestic plants. Even when controlling for differences across plants in worker type, industry of operation, output level, age, and state, U.S. parent plants pay comparable workers higher wages. Production workers earn an average of 6.9 percent less at domestic plants employing more than 500 employees and 15.2 percent less at domestic plants employing fewer than 500 employees. Non-production workers earn an average of 5.0 percent less at domestic plants employing more than 500 employees and 9.5 percent less at domestic plants employing fewer than 500 employees. Moreover, there are several reasons to suppose these figures understate the size of the overall compensation premium paid by U.S. parents. The higher wages paid by U.S. parents seem to result directly from the productivity-enhancing activities of these parents, including substantial physical investment, research and development, and international trade.

APPENDIX

Data Description

Data Definitions and Data Collection Procedures

The primary data source for this report is the Bureau of Economic Analysis (BEA) within the U.S. Department of Commerce. The BEA tracks American companies with global operations, each of which is a business enterprise consisting of one American “parent” and one or more foreign “affiliates.” A parent is an individual or a group such as a trust, corporation, or partnership that controls a business enterprise incorporated in the United States. A foreign affiliate is a business enterprise located abroad in which there exists “outward FDI.” In turn, outward FDI is defined as direct or indirect ownership or control by a single parent of at least 10 percent of either the voting securities of an incorporated foreign business enterprise or an equivalent interest in an unincorporated foreign business enterprise. Majority-owned affiliates are those in which the parent has more than a 50-percent ownership stake. Minority-owned affiliates are those in which the parent has between a 10-percent and 50-percent ownership stake.

American companies with global operations are obliged under the International Investment and Trade in Services Survey Act to respond to BEA surveys about their activities. Data for both the parent and affiliates are requested from someone located in the parent, but someone located in the affiliate may report the affiliate information. Determining whether the parent has at least a 10-percent ownership stake in the affiliate can be complicated when there is more than one ownership link between the parent and affiliate. In these cases, the percentages of ownership for each link are determined and then multiplied to determine the parent’s overall stake in the affiliate. Affiliates must

be business enterprises, i.e., an organization established to make a profit or otherwise secure economic advantage. Parents, however, need not be business enterprises. They may instead be, among other things, an individual, a non-profit organization such as a charity, or a government. In identifying U.S. parents, residence in the United States rather than U.S. citizenship is the relevant criterion.

Since 1977, the BEA has tracked American companies with global operations in two different ways. In four years — 1977, 1982, 1989, and 1994 — the BEA conducted comprehensive censuses. In the intervening years — 1983-1988 and 1990-1993 — the BEA conducted smaller surveys.

The censuses (also called “benchmark surveys”) cover every American company with global operations and collect data on both the U.S. parent and its foreign affiliate(s), as defined earlier. The BEA identifies these companies both by checking whether each one from the previous year has “died” and by monitoring news services for the “birth” of new ones since that year. Substantive data must be reported only by those companies with at least one affiliate whose total assets, sales, or net income/loss exceed \$3 million. Companies not meeting this criterion need to report only their name, employer identification number, and the number of affiliates. No other information is available for these firms. In practice, these “small” companies account for negligible amounts of activity. In 1989, they accounted for only 0.3 percent of total affiliate assets, 0.4 percent of total affiliate sales, and 0.1 percent of total affiliate net income. It is important to note that because their total activity is so small, *Mainstay III* ignores these “small” American companies with global operations.²³

Data are required to be reported on a fiscal-year basis. For example, the 1994 fiscal year is defined as the company’s financial-reporting year that ended in

calendar year 1994. Companies can have fiscal years that do not exactly coincide with calendar years. Companies born during the course of the fiscal year and existing companies that acquire new affiliates during the fiscal year are required to report data as if the new operations had existed the entire year. For example, annual compensation at a newly acquired affiliate should cover the entire fiscal year's compensation at that enterprise, not just the compensation paid since acquisition.

Data are required to be reported following generally accepted accounting principles in the United States. In particular, this means monetary amounts must be reported in U.S. dollars. Affiliate activity involving foreign currencies must be translated into dollars according to Financial Accounting Standards Board Statement #52. Under these rules, assets and liabilities are to be converted to dollars using spot exchange rates quoted on the date of the balance sheet. Revenues and expenses are to be converted to dollars using average spot exchange rates during the relevant reporting year.

Each affiliate is classified by its country of location, i.e., the country in which its physical assets are located and in which its primary activity is conducted. This country need not be the country in which the affiliate is incorporated.

Each parent or affiliate is classified into a “primary” 3-digit Standard Industrial Classification (SIC) industry according to a three-step procedure. First, the parent or affiliate is classified in the one-digit industry that accounts for the largest percentage of its sales. Second, within that one-digit industry, it is classified in the two-digit industry that accounts for the largest percentage of its sales. Third, within that two-digit industry, it is classified in the three-digit industry that accounts for the largest percentage of its sales. Once this three-digit “primary” industry is identified, the BEA classifies all of the parent's or affiliate's activity into this industry. Notice that this methodology implies that within an American company with global operations, the parent and

affiliate(s) need not be classified in the same industry. For example, if a telephone company owns an affiliate that builds automobiles, the affiliate is placed in the automobile industry rather than in the telecommunications industry.²⁴

In its publicly released data, the BEA is legally obliged to suppress any information that might identify an individual firm.

Use of the BEA Data in *Mainstay III*

There are four comments worth mentioning about the BEA data and their use in the *Mainstay III* report.

First, the report covers only non-bank parents and affiliates. Banking parents and affiliates are not counted because the BEA gathers very little information from banking companies. Thus, whenever this report talks about “all” American companies with global operations, it should be remembered that banking affiliates are excluded. This is not a serious omission — even for the services sector — because the large majority of services activity is outside of banking.

Second, this report focuses on four years only: 1977, 1982, 1989, and 1994. Mainly, this is done because the BEA tracked American companies with global operations more closely in these “census” years. Accordingly, the data in these four years are probably higher quality than data from other years. (See the previous section in this Appendix for more details.)²⁵ It also is done to simplify the presentation of the data. The important trends in the data stand out across the census years alone. The intervening survey years are not necessary to see these trends.

Third, keep in mind that each year a different set of firms constitute the sample of all American companies with global operations, i.e., the BEA data over time constitute an “unbalanced panel.” From year to year there are “births”; some purely domestic firms acquire at least one foreign affiliate and become American companies with global operations. There

are also “deaths”; some American companies with global operations divest their foreign holdings and become purely domestic firms, or some American companies with global operations merge and two (or more) separate companies become one. It would be interesting to know how changes over time break out between changes in ongoing American companies with global operations and changes in “births” and “deaths,” but this kind of breakdown is not in the publicly available BEA data.

Finally, this report aggregates the BEA’s industries into three broad sectors: agriculture, manufacturing, and services. As discussed in the Preface of this report, this broad focus beyond just manufacturing is an important contribution of this study.

The component BEA industries within each of the aggregate sectors are listed below:²⁶

Manufacturing:

- Food and Kindred Products
- Chemicals and Allied Products
- Primary and Fabricated Metals
- Industrial Machinery and Equipment
- Electronic and other Equipment
- Transportation Equipment
- Tobacco
- Textiles and Apparel
- Lumber, Wood, Furniture, and Fixtures
- Paper and Allied Products
- Printing and Publishing
- Rubber and Plastics
- Glass, Stone, and Clay Products
- Instruments and other Products

Agriculture:

- Agriculture, Forestry, and Fishing
- Food and Kindred Products

Services:

- Automotive Rental and Leasing
- Business Services
- Communication and Public Utilities
- Construction
- Engineering, Architectural, and Surveying Services
- Finance (except Banking), Insurance, and Real Estate
- Health Services
- Hotels and other Lodging Products
- Management and Public Relations Services
- Motion Pictures
- Retail Trade
- Transportation
- Wholesale Trade
- Other Miscellaneous Services

It is important to note that the BEA classifies each business enterprise into just one industry category even if that business enterprise conducts several lines of business. The more individual American companies with global operations are in diverse lines of business, the less accurate the BEA classification potentially is. (See the previous section in this Appendix for more details.) For example, a U.S. parent whose main business line is manufacturing might have sizable businesses in services sectors, such as wholesaling. To the extent that this is the case for lots of parents, the BEA data probably over-classifies activity into manufacturing and under-classifies it into services. However, this over-classification does not seem to be too severe. In 1994, parents classified as manufacturing had about \$1.9 trillion in total sales, of which 85 percent (slightly over \$1.6 trillion) was classified as manufactured products.

ENDNOTES

- 1 In this report, the term “American companies with global operations” is synonymous with the commonly used term “U.S. multinational corporations.” This kind of company is defined as a company consisting of one U.S. “parent” business enterprise and at least one foreign “affiliate” business enterprise in which the parent maintains at least a 10-percent ownership stake.
- 2 Ideally, one would like to deflate these nominal values of FDI flows into real terms. This is not done here, however. One reason is that there is no reliable price index for FDI flows. Another is that even if a reliable price index were available, applying it to these data would be difficult because the original source reported the data in 10-year increments instead of annually.
- 3 Here, developed countries are defined as Australia, Canada, Japan, and all countries in Western Europe.
- 4 Notice that this report defines productivity as the productivity of labor. There are other measures of productivity as well. For example, capital productivity is a measure of the average value of output produced per unit of capital, and land productivity is a measure of the average value of output per unit of land.
- 5 Krugman (1990), pp. 9-13.
- 6 Krugman (1990), p. 15.
- 7 This assumes that the economy has not reached its “steady state” at which the amount of investment in physical capital just offsets capital depreciation (i.e., the inevitable wear and tear on capital goods from their use). In the steady state (with constant technology and no population growth), output per worker is constant. Most economists think, however, that in the real world, countries are not in the steady state.
- 8 The common way to calculate the contribution of technology to output growth is to subtract from observed output growth the associated growth of labor, capital, and intermediate inputs. Any “residual” output growth is attributed to technology.
- 9 Data for 1977 are not reported because the BEA reported the 1977 research and development data differently from the subsequent years. In 1997, the BEA reported research and development performed for U.S. parents, whereas in the subsequent years, the BEA reported research and development performed by U.S. parents. This change in reporting methods is significant because in the other three census years, the amount performed by parents exceeds the amount performed for parents by approximately \$10 billion. The difference is explained by the fact that U.S. parents perform a lot of research and development “for” the U.S. government rather than for themselves.
- 10 This is not to say that international trade benefits every individual in a country. Indeed, trade theory clearly demonstrates a range of situations in which there can be winners and losers from international trade within a country — but with the winners almost always winning more than the losers lose such that the economy overall is better off. In recent years, many academic economists have been actively researching whether international trade (and other factors) has contributed to rising income inequality in the United States. Research is ongoing and many questions remain to be explored, but to date, the preliminary consensus is that trade has accounted for a relatively small share — about 10 percent to 15 percent — of the overall rise in inequality. For a good summary of the research to date, see Richardson (1995).
- 11 Production workers are defined as workers (up through the line-supervisor level) engaged in various activities actually involved in manufacturing output. These activities include fabrication, assembly, inspection, and packing. Non-production workers are defined as all other workers employed by manufacturing firms. Their activities include sales, advertising, finance, and management.
- 12 “Comparable” is with respect to all the other plant characteristics: age, industry, output level, and state.
- 13 All these wage differences are statistically significant at very high significance levels.

- 14 Direct measures of workers' marginal productivity are virtually impossible to obtain, and without them this conclusion can never be completely certain. It is important to note here that one can observe average worker productivity at firms quite easily. High average productivity is not, however, the same thing as high marginal productivity. Each worker earns his or her individual contribution to the firm's output, not the contribution to output averaged across all workers. Workers are paid on the margin, not on the average.
- 15 Doms and Jensen classify a firm as an American company with global operations only if 10 percent of total firm assets are located abroad. It is conceivable that many firms that the BEA classifies as American companies with global operations do not meet this criterion. For example, a U.S. parent with just a single, relatively small foreign affiliate may fall below Doms and Jensen's 10-percent threshold.
- 16 The trillion is not a typo. In 1994, the current value of total GDP — the total value of new goods and services produced within the United States — was approximately \$7 trillion.
- 17 These high percentages broadly reflect that the U.S. economy overall — despite all its international trade — is a relatively closed economy. More than 85 percent of U.S. output is sold to Americans.
- 18 There are two important points to make regarding these data on U.S. parent input purchases from domestic sources. First, the BEA data do not contain any information on what value-added share of these inputs themselves comes from within the United States. To determine this would require detailed information about the domestic suppliers to U.S. parents. This information simply does not exist. Second, technically the BEA's measure of "domestic" purchases also includes purchases of services inputs from foreign residents. In decomposing inputs between domestic and foreign sources, the BEA reports foreign goods inputs but not foreign services inputs. However, given that services are much less tradable than goods and that the foreign purchases of goods constitute less than 10 percent of total parent input purchases, the amount of foreign services inputs is assumed to be negligible.
- 19 Reich (1991), pp. 112-113.
- 20 The ideal empirical test between complementarity and substitutability would be to run the experiment of forcing American companies with global operations to close their affiliates and see what happens to the parents. On balance, would U.S. parents expand (indicating substitutability) or contract (indicating complementarity)? The obvious problem here is that running this experiment is impossible, so less direct evidence needs to be analyzed.
- 21 Because of different counting procedures in the two tables, the total number of affiliates in each table differs slightly.
- 22 For a thorough discussion of how policy makers can balance both liberalization and redistribution, see Dani Rodrik (1997). Also, see Graham (1996) and Graham and Krugman (1995).
- 23 The surveys in non-census years cover every American company with global operations that reported in the most recent census at least one affiliate with total assets, sales, or net income/loss exceeding \$15 million. From the data collected from these "large" American companies with global operations, the BEA calculates growth rates in activity for these parents and affiliates in various industry and country groupings. It then assumes the same growth rates for parents and affiliates of "small" companies with affiliates in the \$3 million to \$15 million range in the same groupings. Thus, the BEA obtains estimates for all companies in the survey years.
- 24 Also, note that industry classification is done at the enterprise level, not the establishment level. An establishment is a single physical location where economic activity occurs, and in reality many enterprises consist of more than one establishment. For the 1989 census, the BEA also separately classified parents and affiliates by establishments. Comparing the two classifications indicates only very small differences for affiliates and slightly larger ones for parents. This is consistent with affiliates being much less diversified than parents.
- 25 For example, between 1982 and 1989 and again between 1989 and 1994, the censuses report increases in the total number of parents and affiliates. However, in the intervening years of 1983-1988 and 1990-1993, the surveys generally report declines in these numbers. This suggests that the surveys in the intervening years might have missed some new births that were not discovered until the next census year.
- 26 Note that the industry "food and kindred products" is counted both in manufacturing and agriculture. The Standard Industrial Classification scheme places this industry in manufacturing as well as in agriculture. This is done to give a more comprehensive picture of agriculture (i.e., one that includes not just growing food, but also adding value to crops to transform them into final food products).

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