

INTERNATIONALIZED PRODUCTION IN  
DEVELOPED AND DEVELOPING  
COUNTRIES AND IN INDUSTRY SECTORS

Robert E. Lipsey

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### **ABSTRACT**

Internationalized production, that is, production in a country controlled by firms based in another country, grew from about 4½ percent of world output in 1970 to over 7 percent in 1995. The importance of internationalized output fell substantially in developing countries until around 1990 but has been increasing since then, especially in the “transition” countries, where it has grown from less than \$100 million in 1977 to over \$25 billion in 1994.

The petroleum sector was the one with the highest share of internationalized production in the 1970s, but that share has declined sharply, especially in the developing countries, where important operations were nationalized. Manufacturing is now the sector in which internationalized production plays the largest role, the internationalized share rising from under 12 percent to more than 16 percent in 1990. That share was probably considerably larger in 1995, given the increase in the absolute value of internationalized output by more than a third from 1993 to 1995.

Outside of petroleum and manufacturing, internationalized production was of little importance. For the world as a whole, the internationalized share was about 3½ percent in 1990. However, if the trend in U.S.-owned production is an indication, the role of internationalized production in this sector may be changing; the share in total production of U.S. foreign affiliates in developing countries of a broad service sector including trade and finance rose from 6 percent in 1977 to 18 percent in 1995.

Robert E. Lipsey  
National Bureau of Economic Research  
50 East 42nd Street, 17th Floor  
New York, NY 10017-5405  
relqc@cunyvm.cuny.edu

## Internationalized Production in Developed and Developing Countries and in Industry Sectors

### Introduction

Many different measures have been used to describe the importance of the internationalization or “globalization” of production in the world economy, production in one country by firms based in another country, arising from direct foreign investment by home country firms in operations in a host country. Since flows of such direct investment are part of almost every country’s balance of payments accounts, these are the most frequently cited measures of internationalization, along with stocks of direct investment, usually derived by cumulating the flows over time. Even if these data were accurate, it is not obvious what they should be compared to in order to judge the importance of the phenomenon they represent; there is no obvious denominator to compare them with. They are sometimes compared with host country or home country GDP, but since they are not part of GDP, it is not clear what a ratio between the two concepts means. Furthermore, the flows are identified by the country of immediate, rather than ultimate, ownership, so that it is not clear what country is the real source of the flow. Countries differ in their treatment of retained corporate earnings, with the result that data are not comparable across countries. The stock measures derived from flows ignore the effects of exchange rate fluctuations, of price changes, and often of retained earnings.

An earlier paper (Lipsey, Blomström, and Ramstetter, 1998) measured the share of internationalized production in world output. In this paper, the estimates are extended to 1995 and allocated by type of host country (developed vs. developing) and by broad industrial sector.

The measure of production used here is value added, or gross product originating. In measuring internationalization, the denominators are GDPs for the countries involved or value

added or gross product originating in a sector or an industry and the numerators are value added or gross product in the foreign affiliates of a home country or the foreign-owned firms within a host country.

Unfortunately, there are only three countries that provide data on gross product or value added for their firms' foreign affiliates, or the materials needed to calculate them, the United States, Sweden, and Japan, and the Japanese data suffer from many defects that affect all their data for foreign affiliates, not just those for value added. Germany collects data on sales by its firms' foreign affiliates, which we use here to make very rough estimates of value added. There are more sources of data on value added from the host country side because a number of countries have coded their industrial censuses, or at least their manufacturing censuses, to distinguish establishments controlled by foreign firms from those controlled domestically. This coding permits the calculation of value added in foreign controlled, or internationalized, production within the country

These gross output measures have their own defects, even though they are the most satisfactory for our purpose. Since profits are a large part of gross output, the figures tend to be volatile, a particular problem if one is trying to discern trends from data that are not available annually, as is generally the case. In addition, for the countries that report only sales, it is necessary to assume that value/sales ratios are constant and are not affected by changes in the composition of production, something we know from the U.S. data is not true. For example, the ratios are much higher in manufacturing than in trade affiliates.

## Internationalized Production in World Output

The main trends in the importance of internationalized production are summarized in Table 1. Internationalized production by firms based in the United States, Germany, Japan, and Sweden, the countries for which we have such data, grew from 2½ per cent of world output in 1970 to a little over 3 per cent in 1977, and 3½ per cent in 1995.

It is clear, if one judges by data on the nominal stock of outward direct investment, that the role of these four countries in total world investment has been declining steadily, at least over the last 20 years or so. If we assume that the share of these four countries' firms in world output is proportional to, or moves in parallel with, their countries' share of direct investment stocks, we can estimate the trend in the internationalized production share of world output, as in column 3 of Table 1. That share has been increasing, from about 4½ per cent in 1970 to around 6 per cent in 1990-1992, and to over 7 per cent in 1994 and 1995.

These aggregate shares of internationalized production may seem surprisingly small in view of the extent of discussion of "globalization." One reason is the concentration of this production and of direct investment in two highly visible and closely watched sectors: manufacturing and petroleum. In the United States, for example, they accounted in 1994 for 18 per cent of total domestic output but they accounted for almost three quarters of production by U.S. affiliates abroad. U.S.-owned internationalized production was about equal to home production in petroleum, and 17 per cent as large as home production in manufacturing, but less than 2 per cent as large in all other industries combined. Thus, despite the recent surge in public utility and telecommunications investment, internationalized production remains very largely a phenomenon of the mining and manufacturing sectors and a minor part of the much larger service sector.

**TABLE 1**

**ESTIMATE OF INTERNATIONALIZED PRODUCTION FROM THE HOME-COUNTRY SIDE**

	<b>AFFILIATE (INTERNATIONALIZED) OUTPUT OF FIRMS FROM FOUR HOME COUNTRIES <sup>a</sup> AS % OF WORLD GDP</b>	<b>SHARE (%) OF FOUR HOME COUNTRIES IN WORLD STOCK OF OUTWARD FDI <sup>b</sup></b>	<b>SHARE OF INTERNATIONALIZED OUTPUT IN WORLD GDP <sup>c</sup></b>
<b>1970</b>	2.5	(55)	4.5
<b>1977</b>	3.1	(57)	5.4
<b>1982</b>	3.2	(55)	5.8
<b>1990</b>	3.0	50	6.0
<b>1992</b>	3.1	50	6.2
<b>1993</b>	3.2	49	6.5
<b>1994</b>	3.4	47	7.2
<b>1995</b>	3.5	48	7.3
<b>1996</b>		47	

<sup>a</sup> US, Japan, Germany, and Sweden

<sup>b</sup> Figures in parentheses are straight - line interpolations from estimates for 1960, 1975, 1980 and 1985, from Lipsey, Blomström, and Ramstetter (1998) and later years from UN volumes.

<sup>c</sup> Including four countries. (Calculated as (col.1:col.2)\*100.

<sup>d</sup> Rough estimates

Source: Appendix Tables A-1, C-2, Lipsey, Blomström, and Ramstetter (1998), United Nations (1997) annex table 4

### Internationalized Production in Developing Country Output

The share of internationalized production in developing countries can be estimated in more or less the same way as for the world as a whole. One advantage of the developing country data is that the four investing countries for which we have data, the United States, Japan, Germany, and Sweden, account for a larger proportion of the total foreign direct investment in these countries than in developed countries, ranging from 62 to 68 per cent during the 1990s. There is, therefore, less room for errors from adding the non-reporting countries. On the other hand, the GDP estimates for the developing countries and the conversions into U.S. dollars via exchange rates are more questionable than those for the world, dominated by the figures for the developed countries.

The proportions of direct investment stocks in developing countries owned by the four home countries we cover has ranged since 1970 from a little under half to over 60 per cent, and even as high as two thirds outside the “formerly planned” or “transition” economies (Appendix Table B-7). It appears that the four-country share has fallen somewhat during the 1990s, but the figures are not reliable enough to inspire confidence in that judgment. These estimated four-country shares are used in Table 2, together with estimates of production by affiliates of firms from these countries, to calculate the internationalized shares of output in developing countries. Those shares, aside from the earliest one excluding the planned economies, seem to have been considerably below the shares for the whole world shown in Table 1, and by implication, below the ratios in developed countries. Whether we use UN or World Bank figures for total output in developing countries, it appears that the trend in the internationalized share was downward until about 1990, but has turned around since then. The recent shares are beginning to look more like those for the world as a whole, at least outside the transition economies. However, the upward



**TABLE 2**

**ESTIMATE OF INTERNATIONALIZED PRODUCTION IN DEVELOPING COUNTRIES FROM THE HOME COUNTRY SIDE**

	ALL DEVELOPING COUNTRIES					DEVELOPING COUNTRIES EXCLUDING TRANSITION ECONOMIES				
	OUTPUT OF MNCs <sup>a</sup>	TOTAL OUTPUT		MNC SHARE		OUTPUT OF MNCs <sup>a</sup>	TOTAL OUTPUT		MNC SHARE	
		UN	WORLD BANK	UN	WORLD BANK		UN	WORLD BANK	UN	WORLD BANK
\$ MILLION US	\$ BILLION US		PER CENT		\$ MILLION US	\$ BILLION US		PER CENT		
1977	136,943	2,606		5.25		136,875	1,520		8.97	
1982	140,711	4,116		3.42		139,149	2,632		5.29	
1990	190,342	6,618	4,923	2.88	3.87	183,524	4,174	3,308	4.40	5.55
1992	215,425	6,339	5,043	3.40	4.27	198,817	5,150	3,644	3.86	5.46
1993	254,536	5,053		5.04		226,101	3,762		6.01	
1994	291,095	5,391		5.40		263,077	4,096		6.42	

<sup>a</sup> Four - Country output from Appendix Table C-3 divided by share of 4 countries' outward stock in reported total inward stock in all developing countries

Sources: Appendix Tables A-1, B-7, C-3, and United Nations (1995 b).

trend clearly is strongest in the transition economies, and that growth accounts for much of the overall upward trend in developing countries as a group.

There are several elements in the calculation of the recent estimates of the internationalized share that may bias the trend upwards. One is the reported decline in GDP, translated by exchange rates into U.S. dollars, in the former Soviet Union and other “transition” economies. If their exchange rates have been falling faster than the internal purchasing power of their currencies, the declines in aggregate output, and the increases in the internationalized share of output, may be exaggerated. There may also be questions about the extent of the inflow into China and the size of the investment stock there, because of the role of “round trips” through Hong Kong that take advantage of incentives for foreign investors. Some unknown part of the inward investment stock and flow and of production arising from such practices would disappear if firms were classified as foreign- or domestically- owned according to the country of ultimate beneficial ownership rather than the country of immediate ownership. The use of immediate ownership may also inflate the regional Asian and world stocks of FDI if, for example, much of the investment in China is carried out by firms in Hong Kong that have already been counted as investments in Hong Kong from Taiwan or other countries.

The growth of internationalized production in developing countries since 1990 appears less rapid if we omit the “formerly planned” economies from the category. The difference is fairly small for production by firms from the United States (53% vs. 58% growth between 1990 and 1995), but much larger for firms from Germany (60% vs. almost 100% between 1990 and 1995), because production in the “reform” countries, mainly in Europe, rose from 4½ per cent of German-owned output in developing countries in 1990 to over 23 per cent in 1995 (Appendix Table C-3). Unfortunately, we do not have the same output information for Japan. However, the

data for investment stocks indicate that the transition economies accounted for less than 1 per cent of the Japanese outward investment stock in 1982, a little over 3 per cent in 1990, and 6&1/2 per cent in 1995.

The share of these four home countries' firms in developing country output outside the transition countries grew by only 16 per cent during the 1990s; their share in the output of all developing countries rose by 40 per cent (Table 2).

These impressions about shares in developing country output can be tested against the independent, but still sketchy, data from the host country side. Those from a couple of combinations of these host countries suggested that there was something of a fall in the internationalized shares after 1977, followed by an increase to about 3&1/2 per cent in 1990, close to the estimate from the home country side of 3 to 4 per cent (Lipsey, Blomström, and Ramstetter, 1998). The story since then is uncertain because few of the countries have published up-to-date information.

One very strong trend is shown by the data for China, where the share of "industry" output produced by firms other than those in the state and collective sectors, mostly foreign owned firms, increased as shown below:

Share of "Industry" Output Produced by Firms Other Than State and Collectively Owned		
	%	
1990	4.4(a)	
1991	5.7(a)	
1992	7.1(a)	
1993	10.2(a)	12.9
1994		15.9
1995		19.7
1996(8 mos.)		21.2

(a) Other than state, collectively, or individually owned  
**Source:** China, State Statistical Bureau (Various Years).

Although these numbers refer to the gross value of output rather than value added and to “Industry” rather than total output, when much of China’s output is still in the agricultural sector, the internationalized sector is clearly reaching an important level. The gross value of output in 1994 of almost 850 billion yuan might be associated with about 300 billion in net output, if value added ratios are anything like those in other countries. That would have been in a year in which GDP was about 4.4 trillion yuan, implying that internationalized production had reached something in the neighborhood of 7 per cent of total national output, well above the share in most capitalist countries, especially large ones.

In contrast to the enormous changes in the role of internationalized production in China, the story for India, at least through 1990, was one of minimal importance and a static position. The share of such production in total output hardly varied from about 1&3/4 per cent from 1975 through 1990 and the share of foreign-owned manufacturing output in GDP remained close to 1&1/4 per cent. The foreign-owned share in manufacturing output itself was, if anything, declining. It had been at 7&1/2 per cent in 1975 and 7 per cent around 1980, but did not reach as high as 6&1/2 per cent during the second half of the 1980s (Lipsey, Blomström, and Ramstetter, 1998). Data on inflows and stocks of FDI during the 1990s suggest at least some reversal of this decline as India liberalized its rules on inward investment. Inflows grew to more than ten times their 1985-1992 level by 1996 and the inward stock grew to five times the 1990 level but, to put the numbers in some comparative perspective, it can be pointed out that the inward stock in 1996 was still only about a third of that in Hong Kong and five per cent of that in China (United Nations, 1997).

Few observations are available for other developing Asian countries in the 1990s, but the initial ones do not show anything like the rate of growth observed for China. For the other countries there is a mixture of increases and decreases in the role of internationalized production. Given the large weight of China in the total of developing country GDPs, it is understandable why the internationalized share is rising for the group as a whole.

Another perspective on changes in the importance of internationalized production is given by U.S. affiliate shares in developing country output calculated by the U.S. Department of Commerce for 27 developing countries ( Mataloni and Fahim-Nader, 1996). Between 1989 and 1994, the U.S. affiliate share rose in 13 countries, fell in 12, and remained constant in two. For a longer period, from 1982 to 1995, U.S. affiliate shares increased in 9 of the countries, remained constant in one, and decreased in 17 (Mataloni, 1997, p.56). These data confirm the impression that while there has been a rise in the share of internationalized production in aggregate world output, it is heavily concentrated in a fairly small number of countries.

#### The Sectoral Distribution of Internationalized Production

Data on internationalized production by sector are scarce and data by sector and region are even scarcer, but it is possible to draw some inferences about trends for three very broad sectors, manufacturing, primary production, or mining, including petroleum, and others, including all types of services. The last is most of world output and is a mixture of infrastructure services, such as electric power production and distribution and telecommunications, personal services, business services, such as the financial sector, and government services.

Some hint of the trend can be gleaned from the distribution of the stock of direct investment. The UN has calculated that the share of the primary sector in the outward investment of the largest home countries was 23 per cent in 1970 and 25 per cent in 1975, but had fallen to

11 per cent by 1990. The primary share of the inward investment stock fell from 16 per cent to 9 per cent in developed host countries between 1975 and 1990 but in the same period stayed above 20 per cent in developing countries, first rising from 21 to 24 per cent by 1985 and then falling back to 22 per cent.

The United States is the only country for which we have production data for this sector, the main component of which is petroleum, but the output data combine the primary production part of the industry with refining and marketing, and therefore exaggerate the absolute and relative size of affiliate production. The importance of this industry in U.S.-owned foreign production was as follows, in per cent:

1977	38
1982	38
1989	24
1991	25
1992	26
1993	26
1994	23
1995	22

Source: Mataloni and Goldberg(1994); Mataloni(1995) and (1997);  
and Mataloni and Fahim-Nader(1996).

This decline in importance took place despite the fact that, within the U.S. petroleum industry itself, foreign production in all petroleum-related activities increased from less than 60 per cent of domestic oil and gas extraction in 1982 to more than 100 per cent in 1994 (after the ratio was cut in half from 1977 to 1982).

Relative to world production in mining and quarrying, the U.S. petroleum industry's internationalized output fell from 23 per cent in 1977 to 18 per cent in 1990, but the change was much larger in developing countries, where the decline was from the same 23 per cent to 10 per cent (Mataloni and Goldberg, 1994, and United Nations, 1993). The fading of the role of U.S.

internationalized production in this sector is exemplified by the declines in the U.S. affiliate production share between 1982 and 1995 in the United Arab Emirates from 10 per cent to 2.8 per cent and in Saudi Arabia from 3.3 per cent to 0.3 per cent (Mataloni, 1997, p.56).

The history of internationalized production in manufacturing is quite different, as far as we can tell with the meager data available. For this estimation we lack world totals for manufacturing gross output since 1990 and worldwide data on stocks of FDI in manufacturing. We assume that the shares in manufacturing FDI of the four countries for which we have production data are the same as their shares in total FDI. The results of this calculation are shown in Table 3.

The share of internationalized production in world manufacturing output is much higher than the share in total output. In 1990 it reached 16.3 per cent, about a 40 per cent increase over the 11.6 per cent of 1977. Despite the declining role of manufacturing in the world economy, internationalized manufacturing output increased relative to total world output, from 2.3 per cent in 1977 and 1982 to around 3 per cent in 1989-1992, and to almost 4 per cent in 1994-95.

Outside of manufacturing and mining, internationalized production has played a small role. Firms from the United States, Japan, and Germany accounted for 1.7 per cent of world output in this group of sectors in 1990, 1.8 per cent outside of agriculture (Appendix Table C-10). If we assume the same importance for these home countries in the world total for this services, etc. sector as for total FDI, the implied trend in the internationalized share would be as follows:

1977	2.3
1982	2.5
1989	3.1
1990	3.4

Thus there seems to be some indication of a rising trend up through 1990, although the shares remain small.

**TABLE 3****AFFILIATE (INTERNATIONALIZED)  
MANUFACTURING OUTPUT OF  
FIRMS FROM FOUR  
HOME COUNTRIES AS % OF**

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	WORLD MFG. GROSS OUTPUT	WORLD GDP	
		UN	WORLD BANK
<b>1977</b>	11.6	2.3	
<b>1982</b>	12.6	2.3	
<b>1989</b>	15.3	2.9	
<b>1990</b>	16.3	3.1	3.0
<b>1991</b>		3.1	2.9
<b>1992</b>		3.1	3.2
<b>1993</b>			3.4
<b>1994</b>			3.8
<b>1995</b>			3.9

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SOURCE: Appendix Table C-5



This is a very broadly defined sector, but for U.S. affiliates a further breakdown is possible from the same sources as for Appendix Table C-2. The largest component of this sector is wholesale trade, consisting mainly of the sales affiliates of U.S. manufacturing parent firms. The shares of these affiliates in total affiliate output ( in per cent) were:

1977	7.01
1982	8.68
1989	11.86
1990	11.30
1991	11.53
1992	11.00
1993	11.43
1994	11.72
1995	12.05

The large increase in the importance of these affiliates took place between 1977 and 1989, with little change thereafter.

The finance (except banking) sub-sector's share in affiliate output was highly volatile, but larger in the 1990s than in 1977 and 1982. However, only after a 50 per cent increase in 1995 did it reach 3 per cent of U.S. affiliate production.

The steadiest rise in importance was for "Services," including a variety of business and personal services, ranging from hotels and restaurants to engineering and consulting services. The share of this group of services, in per cent, was:

1977	2.43
1982	3.58
1989	4.56
1990	4.80
1991	5.08
1992	5.68
1993	5.99
1994	6.99
1995	7.28

This group of industries almost tripled in importance over this period, with an increase every year. If there is any current trend in the industry composition of U.S. firms' internationalized production, this seems to be it.

Trade affiliates have always been much more important as a part of Japanese FDI than of that of the United States or other countries. In 1980, they accounted for almost 60 per cent of production in Japanese foreign affiliates, both selling Japanese manufactures abroad and buying foreign products, especially raw materials, for the Japanese market. Their importance has decreased since then, but they still were larger than Japanese manufacturing affiliates as foreign producers until 1992 (Lipsey, Blomström, and Ramstetter, 1998, Table 5a). Production in Japanese trade affiliates has also been larger than in U.S. wholesale trade affiliates, in contrast to the situation in manufacturing and in FDI as a whole. The two countries' affiliates account for about 3½ per cent of market economy gross output in Trade, suggesting that all internationalized production in this sector probably is roughly 7 per cent of the world total, with little change, or perhaps a slight increase since the late 1970s.

#### Sectoral Composition in Developing Countries

Only fragmentary data are available from the home-country side on the sectoral composition of production in developing countries, especially outside the distinction between manufacturing and other industry groups. For the mining industry, we can compare the output of U.S. petroleum industry affiliates with the total gross output of the mining and quarrying industry in developing countries. The share of the U.S. affiliates fell sharply, from 23 per cent in 1977 to less than 10 per cent in 1990 (Appendix Table C-7). Since that industry sector was at the same time becoming a smaller part of the total output of these countries, the share of U.S.-owned internationalized petroleum output in the aggregate output of developing countries fell even more,

from almost 3 per cent to only about half of one per cent (Appendix Tables A-1, A-2, and C-7). Another way of describing the declining importance of the petroleum industry in U.S. affiliate production in developing countries is the fact that while the industry accounted for more than two thirds of all U.S.-owned production in these countries in 1977, its share was less than a quarter in 1995 (Appendix Tables C-3 and C-7).

Most of the declining share of the petroleum industry was taken up by manufacturing, the share of which in U.S.-owned developing country output rose from 22 per cent to almost a half in 1995 (Appendix Tables C-3 and C-8). Despite this rise, U.S. affiliates were responsible for a declining share of total manufacturing output in developing countries after a peak at a little under 6 per cent in 1982. In 1990, U.S. manufacturing affiliates produced only 4½ per cent of manufacturing output and less than 1 per cent of total output in these countries (Appendix Tables A-1, A-2, and C-8).

Data from the host country side do not suggest any rise of internationalized shares in developing country manufacturing during the 1980s. The two largest countries, India and China present contrasting pictures: little or no change in the foreign-owned share in India, at least up to 1990, and perhaps a decline from the 1970s levels, while in China there was a strong upward trend in the foreign share. As shown above, that rise in China accelerated greatly in the 1990s, but China does not seem to be at all typical of developing countries in this respect.

Although both agriculture and mining were far more important parts of aggregate output in developing countries than in developed countries (27 per cent of GDP as compared with 4 per cent in 1990 according to United Nations, 1993), they were declining sectors in both groups of countries. The manufacturing sector, in contrast, was declining in the developed countries but rising in importance, slowly, in developing countries, so that by 1990, its share in the latter group,

at 19 per cent of GDP, was not far below the 23 per cent of the developed countries. The service sector, broadly defined to include all the others, was growing more important in both sets of countries, although the process had gone further by 1990 (73 per cent) in the developed countries than in the developing ones (58 per cent).

The growing importance of the service sector in developing countries' output had its counterpart in U.S. affiliate production in these countries. A "service" sector consisting of Wholesale trade, Finance, except banking, and Services, which accounted for 6 per cent of U.S. affiliate production in developing countries in 1977, was the source of 18 per cent of such production in 1995 (Mataloni, 1997). Despite the growth of this sector within U.S. affiliate output, internationalized production remained a very small part of host country output, which was also growing rapidly. From 1977 to 1990, the share of U.S. affiliate production in developing country service sector output fell, from about  $\frac{1}{2}$  of 1 per cent to  $\frac{1}{3}$  of 1 per cent, and the share of the total GDP in these countries also fell (Appendix Tables A-1, A-2, and C-9). After 1990, the trend was reversed, and in the next five years, the share of internationalized service output in GDP in the developing countries more than doubled. However, the shares of internationalized production remain so small that they could not be important to the host economies in the aggregate for a long time. That is not to say that the internationalized production in the service sector may not be extremely important in particular activities, such as telecommunications, computer services, or tourism, but those roles cannot be studied using data for broad aggregates.

### Summary

Internationalized production, defined as production by firms outside their home countries, is a better measure of the impact of direct investment than the more readily obtainable measures, such as FDI flows and stocks, exports, or affiliate sales. Such production is estimated to have

increased from about 4½ per cent of world output in 1970 to around 6½ per cent in 1990-1993, and perhaps to 7½ per cent in 1995. It is concentrated in two sectors of the economy, petroleum and manufacturing, and accounts for much smaller fractions of the output of the broadly defined Service sector, which is the source of two thirds or so of world production. Internationalized production is less important in developing countries than in developed countries, but has been increasing rapidly since 1990, mainly because of the rise in investment in the formerly planned economies, particularly China and, for Germany, Central and Eastern Europe. Outside of these countries, there does not appear to have been rapid growth of internationalized production in the developing countries.

The main change in the sectoral distribution of internationalized production has been the decline in the importance of the primary sector, particularly petroleum. Internationalized production plays a larger role in manufacturing than in most other sectors, about 16 per cent of the total in 1990 as compared with 11½ per cent in 1977, and internationalized manufacturing production has become larger relative to total world GDP despite the decline in the importance of the manufacturing sector. Internationalized production has also gained as part of the “Service” sector, consisting of all industries except manufacturing and mining, but the internationalized share remains small, only about 3½ per cent. Within the subsector consisting of wholesale and retail trade the internationalized portion is larger, perhaps about 7 per cent, and has grown slowly, if at all. The trade sector has been becoming a larger part of U.S.-owned internationalized production but has declined from its former dominance in Japanese-owned production.

Within developing countries, the strongest trend has been the decline in the role of internationalized production in mining. The share of U.S.-owned production in manufacturing output in these countries has also fallen, but that of Japanese production and of German

production has offset the decline of U.S. firms. The major growth in internationalized production in manufacturing seems to have been in China and in formerly planned economies in Europe, but there has so far been little change in other developing countries. There is some indication of growth in the role of internationalized production in developing country service sectors, but the shares are still small and will probably remain so.

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**APPENDIX A**  
**WORLD AGGREGATE DATA**

APPENDIX TABLE A-1

WORLD OUTPUT<sup>a</sup> AT MARKET EXCHANGE RATES, 1990-1995

(Units: \$ Billions)

	1990	1991	1992	1993	1994	1995 <sup>d</sup>
WORLD						
WORLD MINUS FORMERLY PLANNED	21,243	22,133	23,548	23,712	25,299	27,937
DEVELOPED	19,629	20,680	22,150	22,421	24,004	26,564
DEVELOPING	16,321	17,301	18,505	18,659	19,908	22,072
FORMERLY PLANNED (TRANSITION)	3,308	3,379	3,644	3,762	4,096	4,492
	1,614	1,453	1,399	1,291	1,295	1,373
WORLD	23,024	24,733	23,547	24,100	26,141	29,063

<sup>a</sup> GDP

Sources:

(b) - World Bank Diskette, (c) - International Monetary Fund (1997), Table A1.

(d) - Extrapolated from 1994 by GNP, from World Bank(1997), Table 1.

## APPENDIX TABLE A-2

### GROSS PRODUCT OF MARKET ECONOMIES,<sup>a</sup> BY BROAD PRODUCING SECTOR Millions of US Dollars (Current Prices) and Per cent

#### Developed Market Economies

Year	GDP	Agriculture	Mining &			Services <sup>b</sup>	Percent of GDP	
			Quarrying	Manufacturing			Services	Mfg
1977	5,039,151	200,025	107,542	1,317,597	3,413,987	67.75	26.15	
1978	6,076,103	244,085	126,610	1,585,296	4,120,112	67.81	26.09	
1979	6,929,688	273,666	168,851	1,782,431	4,704,740	67.89	25.72	
1980	7,745,919	272,753	240,321	1,906,216	5,326,629	68.77	24.61	
1981	7,830,968	271,995	272,339	1,874,588	5,412,046	69.11	23.94	
1982	7,726,972	260,745	256,084	1,791,069	5,419,074	70.13	23.18	
1983	8,010,869	239,267	245,272	1,848,360	5,677,970	70.88	23.07	
1984	8,367,231	255,910	246,632	1,941,996	5,922,693	70.78	23.21	
1985	8,743,777	249,722	240,796	1,999,436	6,253,823	71.52	22.87	
1986	10,658,330	300,696	197,662	2,481,473	7,678,499	72.04	23.28	
1987	12,377,760	337,065	216,208	2,862,481	8,962,006	72.40	23.13	
1988	13,867,210	354,943	227,690	3,235,197	10,049,380	72.47	23.33	
1989	14,320,780	371,998	236,541	3,290,287	10,421,954	72.78	22.98	
1990	15,976,430	404,598	259,205	3,603,232	11,709,395	73.29	22.55	

#### Developing Market Economies

Year	GDP	Agriculture	Mining &			Services <sup>b</sup>	Percent of GDP	
			Quarrying	Manufacturing			Services	Mfg
1977	1,265,145	235,856	158,693	223,768	646,828	51.13	17.69	
1978	1,454,592	261,909	159,428	265,151	768,104	52.81	18.23	
1979	1,731,710	290,110	220,334	315,859	905,407	52.28	18.24	
1980	2,070,053	320,153	304,569	366,457	1,078,874	52.12	17.70	
1981	2,229,044	337,478	298,272	391,217	1,202,077	53.93	17.55	
1982	2,199,815	331,255	292,490	375,824	1,200,246	54.56	17.08	
1983	2,130,010	342,388	254,479	371,947	1,161,196	54.52	17.46	
1984	2,139,803	355,640	221,595	390,671	1,171,897	54.77	18.26	
1985	2,175,990	356,947	213,597	409,745	1,195,701	54.95	18.83	
1986	2,250,704	383,835	143,875	438,598	1,284,396	57.07	19.49	
1987	2,505,352	410,330	161,056	498,500	1,435,466	57.30	19.90	
1988	2,735,309	451,256	156,315	565,132	1,562,606	57.13	20.66	
1989	3,076,729	475,715	171,623	633,501	1,795,890	58.37	20.59	
1990	3,463,001	551,127	217,560	668,671	2,025,643	58.49	19.31	

<sup>a</sup> All except formerly planned economies

<sup>b</sup> GDP minus Agriculture, Mining and Quarrying, and Manufacturing

Source: United Nations (1993).

## APPENDIX TABLE B-1

### U.S. OUTWARD FDI STOCK, TOTAL AND IN DEVELOPING COUNTRIES

(Units: \$ Million U.S.)

	TOTAL		DEVELOPING COUNTRIES				
	BEA	UN 1988	Data From			UN 1988	BEA
			Total <sup>a</sup>	OECD	China		
1970		78094				21,421	19,940
1975		124212				23,288	
1976		136396				25,016	30,715
1977		147,207				25,515	
1978		164,114				30,124	
1979		190,657				37,758	
1980		220,347				47,355	
1981		236,052				53,697	
1982	207,752	227,841	55,506	49	.	56,792	55,652
1983	212,150	230,503	53,333	100	.	58,132	55,477
1984	218,093	236,558	55,569	209	.	61,460	58,476
1985	238,369	250,722	59,390	311	.	60,879	62,655
1986	270,472	276,075	66,856	167	.	62,433	70,737
1987	326,253		78,117	207	.		82,492
1988	347,179		84,271	307	.		87,598
1989	381,781		96,044	436	.		93,025
1990	430,521		105,953	354	127		105,409
1991	467,844		118,369	426	292		117,546
1992	502,063		139,495	563	1,699		137,796
1993	564,283		158,798	916	3,377		155,420
1994	640,320		180,099	1,656	4,270		175,827
1995	717,554			2,127 b	4,739 c		195,999
1996	796,494			2,883 b	6,480 c		222,273

a= Non-OECD area plus Mexico

b= BEA data

c= BEA data for Eastern Europe

Sources: Bargas (1997), OECD (1996) and (1993); United Nations (1988);  
and U.S. Department of Commerce (1981) and (1997), tables 11\_8288.txt and 11\_8995.txt.

## APPENDIX TABLE B-2

### JAPANESE OUTWARD INVESTMENT STOCK, TOTAL AND IN DEVELOPING COUNTRIES

( Units: \$ Million U.S.)

	TOTAL			DEVELOPING COUNTRIES			
	OECD	UN 1988	UN 1996	OECD		UN 1988	
				Total	China	Central + Eastern Europe	
1970		3,579				1,784	
1975		15,942				8,362	
1976		19,405				10,623	
1977		22,210				12,313	
1978		26,809				14,996	
1979		31,804				17,377	
1980		36,497	18,833			19,446	
1981		45,403				24,603	
1982	53,670	53,131		29,427	71	199	28,116
1983	61,815	61,276		33,700	74	199	32,380
1984	71,973	71,431		38,255	188	199	36,905
1985	83,642	83,649	44,296	41,999	288	199	41,070
1986	105,962	105,970		49,433	514	199	48,477
1987	139,326			59,522	1740	206	
1988	186,349			72,580	2036	215	
1989	253,891			87,073	2474	234	
1990	310,806		204,659	98,655	2,823	288	
1991	352,392			109,492	3,402	520	
1992	386,530			119,956	4,472	590	
1993	422,555			130,937	6,163	699	
1994	463,606		284,259	146,626	8,729	765	
1995	500,318 a		306,769				

Source: OECD (1996) and (1993); United Nations (1988), (1996), and (1997).

a - Extrapolated by data from UN (1996) and (1997).





APPENDIX TABLE B-4

SWEDISH OUTWARD INVESTMENT STOCK,  
TOTAL AND IN DEVELOPING COUNTRIES

	SKr Million		X Rate		\$US Million	
	TOTAL	DEVELOPING COUNTRIES	SKr per \$ U.S.	TOTAL	DEVELOPING COUNTRIES	
1970						305
1977						877 <sup>c</sup>
1980					5,611 <sup>b</sup>	1,209
1981						
1985					12,408 <sup>b</sup>	
1986	110,000	17,000	7.124	15,442		2,386
1987	140,000	20,000	6.340	22,081		3,154
1988	175,000	23,000	6.127	28,561		3,754
1989	238,000	26,000	6.447	36,917		4,033
1990	284,000	37,000	5.919	47,983		6,251
1991	296,000	28,000	6.048	48,946		4,630
1992	336,000	23,000	5.824	57,694		3,949
1993	370,000	29,000	7.783	47,537		3,726
1994	442,000 <sup>a</sup>	30,514 <sup>d</sup>	7.716	57,284		3,955
1995				71,491		

<sup>a</sup> Estimated by adding flows to the stock of 1993.

<sup>b</sup> UN (1997)

<sup>c</sup> Straight-line interpolation between 1970 and 1981.

<sup>d</sup> The figure of 94 billion SKr published in OECD (1966) appears implausible. The 1993 total, plus net flows, has been substituted.

Sources: OECD (1982), (1994) and (1996); International Monetary Fund (1996a); United Nations (1996 and 1997).

**APPENDIX TABLE B-5**

**INWARD FDI STOCK, 1990-1995**

(Units \$ Million US)

	DEVELOPING COUNTRIES							
	World	Total <sup>a</sup>	China	Cent.&East Europe	Total	OTHER DEVELOPING		
						Central Asia <sup>b</sup>	Other Formerly Planned Asia <sup>c</sup>	LDC n.e.c.
1970 <sup>d</sup>	238,100	55,500	0	0	55,500			
1977 <sup>d</sup>	358,700	92,700	0	0	92,700			
1980	479,175	122,795	57	77	122,661			
1982 <sup>e</sup>	584,246	168,656	429	107	168,120			
1985	745,171	218,948	3,444	170	215,334			
1990	1,726,199	363,139	14,135	2,851	346,153		802	345,351
1992	1,948,104	433,680	29,657	7,766	396,257	-	744	395,513
1993	2,079,538	515,334	57,172	13,980	444,182	-	814	443,368
1994	2,342,182	608,511	90,959	19,722	497,830	-	1,186	496,644
1995	2,865,839	805,618	126,808	34,038	644,772	1,564	5,239	637,969
1996	3,233,228	935,773	169,108	46,363	720,302	2,713	7,852	709,737

<sup>a</sup> Including Israel and South Africa

<sup>b</sup> Former Soviet Republics

<sup>c</sup> Cambodia, North Korea, Lao Republic, and Viet Nam.

<sup>d</sup> Calculated by subtracting inflows (Appendix Table B-6) from 1980 stock

<sup>e</sup> Interpolated between 1980 and 1985 stocks by using cumulated flows from Appendix Table B-6, starting with 1980 stock, and interpolating ratios of cumulated to actual stock.

Source: Appendix Table B-6 and United Nations (1994), (1995), (1996) and (1997), Annex Table 3

**APPENDIX TABLE B-6**

**Reported Inflows of Direct Investment**  
 (\$ Billion, except as noted)

	World	DEVELOPING COUNTRIES			
		Total	China	Excl. China	Poland (\$ Mill)
1971	12.1	2.5			
1972	13.3	1.9			
1973	16.6	4.3			
1974	18.5	5.8			
1975	19.6	8.0			
1976	16.3	7.3			
1977	24.2	7.4		7.4	
1978	33.2	10.2		10.2	
1979	38.5	10.6		10.6	
1980	48.8	9.3		9.3	8
1981	60.7	20.4		20.4	15
1982	51.0	24.7	0.4	24.3	13
1983	53.9	17.3	0.6	16.7	16
1984	63.9	16.8	1.3	15.5	28
1985	58.0	14.5	1.7	12.8	15

Source: International Monetary Fund (1992) and earlier issues.

**APPENDIX TABLE B-7**

**FOUR COUNTRIES <sup>a</sup> STOCKS OF FDI IN DEVELOPING COUNTRIES  
SELECTED YEARS, 1970-1996**

	<u>All Developing Countries</u>		<u>Developing Countries except China and Central+Eastern Europe</u>	
	4 Countries' Outward Investment Stock	4-Country Share of Total Inward Stock	4 Countries' Outward Investment Stock	4-Country Share of Total Inward Stock
<b>1970</b>	25,957	46.8	25,957	46.8
<b>1977 <sup>b</sup></b>	43,762	47.2	43,762	47.2
<b>1982 <sup>b</sup></b>	98,589	58.5	98,589	59.1
<b>1990</b>	224,644	61.9	220,625	63.7
<b>1991</b>	250,349		244,563	
<b>1992</b>	282,291	65.1	272,821	68.8
<b>1993</b>	313,538	60.8	298,928	67.3
<b>1994</b>	357,327	58.7	336,207	67.5

<sup>a</sup> US, Japan, Germany and Sweden (assumed 0 in China and Central+Eastern Europe).

<sup>b</sup> 1978 for Sweden

Source: Appendix Tables B-1 through B-6.

APPENDIX TABLE C-1

GERMAN MNC AFFILIATE SALES, TOTAL AND BY REGION

Units: (Million DM)

Year	All Countries	Developed		Developing		South Africa		Formerly Planned		LDC	OPEC	Yugo	FPexcYu	SOURCE
		A	B	A	B	B	A	exOPEC						
1976	174.2	144.5	141.0	30.5		3.3		24.4	5.9	0.2	0.0	84		
1977	192.7	160.9	157.3	32.0		3.4		26.7	5.1	0.2	0.0	84		
1978	221.6	186.5	182.6	35.3		3.7		28.9	6.2	0.2	0.0	86		
1979	275.3	237.9	233.2	37.8		4.3		31.1	6.3	0.4	0.0	87		
1980	325.3	280.9	274.3	44.8		6.2		37.3	7.1	0.4	0.0	87		
1981	400.5	342.6	334.0	58.4		8.2		47.8	10.1	0.4	0.1	89		
1982	419.4	362.6	352.9	57.2		9.3		46.8	9.9	0.4	0.1	90		
1983	436.1	384.5	373.7	52.1		10.3		42.8	8.7	0.5	0.1	91		
1984	522.9	462.6	452.5	60.8		9.6		51.2	9.0	0.5	0.1	92		
1985	564.0	496.4	488.3	68.2		7.5		57.9	9.6	0.6	0.1	92		
1986	514.5	460.5	453.4	54.6		6.5		48.1	5.5	0.6	0.4	92		
1987	522.0	468.0	459.7	54.6		7.7		49.5	4.0	0.6	0.5	92		
1988	612.8	547.3	537.5	66.2		9.1		60.3	4.4	0.7	0.8	92		
1989	701.3	628.6	617.1	73.8		10.3	2.6	66.5	4.7	1.2	1.4	94		
1990	746.0		664.2	81.8	68.4	9.7	3.7					95		
1991	793.2		702.0	91.2	72.8	10.7	7.7					95		
1992	830.1		734.1	96.0	73.0	10.9	12.1					97		
1993	889.1		773.8	115.4	85.6	11.1	18.7					97		
1994	971.3		841.6	129.7	93.3	11.8	24.6					97		
1995	1020.5		876.2	144.2	98.0	13.0	33.2					97		

A-Including South Africa and Formerly Planned (with Yugoslavia)

B-Excluding South Africa and Formerly Planned (with Yugoslavia)

Source: Germany, Deutsche Bundesbank (1997 and earlier issues)

## APPENDIX TABLE C-2

### AFFILIATE (INTERNATIONALIZED) OUTPUT, FOUR COUNTRIES, 1990-1995

(Units: \$ Million)

	U.S.	Germany	Japan	Sweden	4 Countries
<b>1990</b>	356,033	161,102	151,879	14,130	683,644
<b>1991</b>	356,069	167,291	176,302	14,054 <sup>b</sup>	713,716
<b>1992</b>	361,524	180,009	180,918	13,979 <sup>b</sup>	736,390
<b>1993</b>	359,179	188,221	210,456 <sup>c</sup>	13,904 <sup>b</sup>	771,760
<b>1994</b>	403,696	209,487	252,867 <sup>c</sup>	13,828	879,878
<b>1995</b>	462,559	249,232	292,236 <sup>c</sup>	17,257 <sup>a</sup>	1,021,284

<sup>b</sup>interpolated on a straight line.

<sup>c</sup> Appendix Table C-6.

Sources: For the U.S., Mataloni (1995) and (1997) , Mataloni and Goldberg (1994), and Mataloni and Fahim-Nader (1996); for Germany sales from Appendix Table C-1, converted into US\$ and multiplied by .35; For Japan, Lipsey, Blomström, and Ramstetter (1998) and Appendix Table C-6; and for Sweden, Tabulations by the Industriens Utredningsinstitut and Appendix Table C-4.

**APPENDIX TABLE C-3, PART A  
AFFILIATE OUTPUT IN ALL DEVELOPING COUNTRIES**

	US \$ MILLION US	JAPAN		GERMANY			SWEDEN		4 COUNTRIES	
		TRILLIONS OF ¥	X-RATE ¥ PER \$ US <sup>c</sup>	\$ MILLION US	SALES DM BILLION	X-RATE DM PER \$ US <sup>c</sup>	SALES \$ MILLION US	SALES * 0.35 \$ MILLION US		
1977	53,655		268.51	5,428 <sup>b</sup>	32.0	2.3222	13,780	4,823	731	64,637
1978									725	
1982	59,270	3.5 <sup>i</sup>	249.08	14,052	57.2	2.4266	23,572	8,250	744	82,316
1983		3.5	237.51	14,736						
1986									853	
1989	56,838	4.4	137.96	31,893	73.8	1.8806	39,243	13,735	1,295	103,761
1990	60,578	5.5	144.79	37,986	81.8	1.6157	50,628	17,720	1,538	117,822
1991	58,676	6.3	134.71	46,767	91.2	1.6595	54,956	19,235	1,611	126,289
1992	67,202	6.3	126.65	49,743	96.0	1.5617	61,471	21,515	1,782	140,242
1993	74,616		111.20	54,297	115.4	1.6533	69,800	24,430	1,415	154,758
1994	80,588		102.21	60,802	129.7	1.6228	79,924	27,973	1,510	170,873
1995	95,948		94.06	73,743	144.2	1.4331	100,621	35,217		206,735 <sup>k</sup>

**APPENDIX TABLE C-3, PART B**  
**AFFILIATE OUTPUT IN DEVELOPING COUNTRIES EXCEPT**  
**TRANSITION ECONOMIES, 4 HOME COUNTRIES, 1977-1995**

	U.S. \$ Million US	JAPAN <sup>j</sup>		GERMANY		SWEDEN <sup>a</sup>		VA (\$ Mill)	X-Rate (Kr per \$) <sup>c</sup>	VA Countries
		\$ Million US	Sales DM Billion	\$ Million U.S. Sales	Sales x .35 (MSEK)	VA (MSEK)	VA Countries			
1977	53,653	5,428 <sup>b</sup>	31.8	13,694	4,793	3,277 <sup>d</sup>	4.4816	731	64,605	
1978						3,277	4.5185	725		
1982	59,263	13,923	56.7	23,366	8,178	4,675 <sup>e</sup>	6.2826	744	82,108	
1983										
1986						6,073	7.1236	853		
1989	56,831	30,901	71.2	37,860	13,251	8,346 <sup>g</sup>	6.4469	1,295	102,278	
1990	60,463	36,788	78.1	48,338	16,918	9,103	5.9188	1,538	115,707	
1991	58,341	45,092	83.5	50,316	17,611	9,741 <sup>g</sup>	6.0475	1,611	122,655	
1992	66,435	47,644	83.9	53,724	18,803	10,379 <sup>g</sup>	5.8238	1,782	134,664	
1993	73,356	51,451	96.7	58,489	20,471	11,017 <sup>g</sup>	7.7834	1,415	146,693	
1994	78,539	54,327	105.1	64,765	22,668	11,655	7.7160	1,510	157,044	
1995	92,717	68,968	111.0	77,454	27,109		7.1333		190,627 <sup>k</sup>	

<sup>a</sup> Including transition economies.

<sup>h</sup> Interpolated on a straight line between 1990 and 1994.

<sup>b</sup> Sales, from Ramstetter (1993) multiplied by VA/sales ratio for 1980 from Ramstetter (1996).

<sup>c</sup> Period average exchange rate

<sup>i</sup> Assumed equal to 1983.

<sup>d</sup> Assumed the same as 1978

<sup>j</sup> Total in developing countries multiplied by ratio of

<sup>e</sup> Interpolated on a straight line between 1978 and 1986

stock in developing countries other than transition

<sup>f</sup> Assumed the same as 1989

economies to stock in all developing countries

<sup>g</sup> Interpolated on a straight line between 1986 and 1989

from Appendix Table B-2

<sup>k</sup> Extrapolated from 1994 by 3-country total.

Source: For Germany, Appendix Table C-1; for the U.S., Mataloni and Fahim-Nader (1996), Mataloni and Goldberg (1994), Mataloni (1995) and (1997); For Japan, Ramstetter (1996), and Appendix Table C-6. Appendix table 1; for Sweden, data from the Industriens Utredningsinstitut of Stockholm; Exchange rates from IMF (1997).



**APPENDIX TABLE C-4**

**WORLD MANUFACTURING OUTPUT BY MNC AFFILIATES, 4 COUNTRIES**

	U.S. (\$ Million U.S.)	Japan	Germany			Sweden		4 Countries Output
			Sales (DM Billion)	Sales (\$ Million U.S.)	Output <sup>c</sup>	VA (MSEK)	VA <sup>g</sup> (\$ Million U.S.)	
1977	71,609	9,363 <sup>a</sup>	105.6	45,474	15,916	19,317 <sup>d</sup>	4,310	101,198
1978						19,317	4,275	
1980		13,516						
1982	99,756	13,963 <sup>b</sup>	212.9	87,736	30,708	34,416 <sup>e</sup>	5,478	149,905
1983		14,187	222.2	87,025	30,459			
1986		35,262	251.7	115,911	40,569	49,516	6,951	
1989	172,008	50,267	344.5	183,245	64,136	75,104 <sup>f</sup>	14,130	300,541
1990	187,573	68,886	362.8	224,547	78,591	83,634	14,054	349,104
1991	182,085	79,554	395.5	238,325	83,414	89,400 <sup>h</sup>	14,783	359,032
1992	181,927	88,760	404.5	259,013	90,655	95,166 <sup>h</sup>	16,341	375,246
1993	177,746	117,344	441.0	266,739	93,359	100,932 <sup>h</sup>	13,081	401,530
1994	205,208	145,928	493.0	303,796	106,329	106,699	13,828	471,293
1995	232,764	174,512	514.3	358,872	125,605			548,989 <sup>i</sup>

<sup>a</sup> Extrapolated from 1986 by sales from Ramstetter (1993).

<sup>b</sup> Interpolated on a straight line between 1980 and 1983.

<sup>c</sup> Sales x .35.

<sup>d</sup> Assumed equal to 1978.

<sup>e</sup> Interpolated on a straight line between 1978 and 1986.

<sup>f</sup> Interpolated on a straight line between 1986 and 1990.

<sup>g</sup> Exchange Rates from Appendix Table C-3.

<sup>h</sup> Interpolated on a straight line between 1990 and 1994.

<sup>i</sup> Extrapolated from 1994 by 3- country total

Sources: Same as Table C-2.

APPENDIX TABLE C-5

ESTIMATE OF MANUFACTURING OUTPUT BY ALL MNCs  
FROM THE HOME COUNTRY SIDE

1977	1982	1989	1990	1991	1992	1993	1994	1995	4 countries		World MNC		Market Economies		Internationalized Mfg. Share of Mfg.	
									MNC Output <sup>a</sup>	Share of World FDI Stock <sup>b</sup>	Output Estimate <sup>c</sup>	Mfg. Gross Output <sup>d</sup>	Total GDP UN <sup>e</sup>	Total GDP World Bank <sup>f</sup>	Gross Output	Total GDP UN
\$ Mill US	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)							
101,198	57	178	1,541	7,689	11.6	2.3										
149,905	55	273	2,167	11,886	12.6	2.3										
300,541	50	601	3,924	20,597	15.3	2.9										
349,104	50	698	4,271	22,856	16.3	3.1	23,024									
359,032	50	718		22,855	24,733	3.1										
375,246	50	750		24,568	23,547	3.2										
401,530	49	819			24,100	3.4										
471,293	47	1,003			26,141	3.8										
548,989	48	1,143			29,063	3.9										

Sources:

<sup>a</sup> Appendix Table C-4.

<sup>b</sup> Table 1.

<sup>c</sup> Col. 1/col. 2.

<sup>d</sup> United Nations (1993).

<sup>e</sup> United Nations (1995).

<sup>f</sup> World Bank World Tables diskette.

## APPENDIX TABLE C-6

### EXTRAPOLATIONS OF JAPANESE AFFILIATE OUTPUT

	Total Sales of Affiliates		Outward Invest. Stock <sup>c</sup>	Ratio: Sales/ Invest. Stock	Output
	¥ Billion <sup>a</sup> (1)	\$ Million <sup>b</sup> (2)	\$ Million (3)	(4)	(\$ Million) (5)
<b>ALL COUNTRIES</b>					
1992	79,007	624,315	386,530	1.6152	180,918 <sup>d</sup>
1993		(738,922) <sup>e</sup>	422,555	(1.7487)	214,130 <sup>f</sup>
1994		(872,599) <sup>e</sup>	463,606	(1.8822)	252,867 <sup>f</sup>
1995	94,855	1,008,452	500,318	2.0156	292,236 <sup>f</sup>
<b>WORLD MINUS NORTH AMERICA, EUROPE, AND OCEANIA</b>					
					Est. from Invest. Stock
1992	18,777	148,376	119,956	1.2369	49,743 <sup>d</sup>
1993			130,937		54,297 <sup>g</sup>
1994			146,626		60,802 <sup>g</sup>
1995	28,901	307,261			92,178 <sup>f</sup>
<b>ALL COUNTRIES, MANUFACTURING</b>					
1992	25,114	198,451			88,760 <sup>d</sup>
1993					117,344 <sup>h</sup>
1994					145,928 <sup>h</sup>
1995	36,700	390,176			174,512 <sup>f</sup>

<sup>a</sup> From MITI tabulations, unadjusted.

<sup>b</sup> Translated using annual average exchange rates from Appendix Table C-3

<sup>c</sup> From Appendix Table B-2.

<sup>d</sup> From Ramstetter (1996) and Lipsey, Blomström, and Ramstetter (1998).

<sup>e</sup> Interpolated between 1992 and 1995 by outward investment stock.

<sup>f</sup> Extrapolated from 1992 by affiliate sales.

<sup>g</sup> Extrapolated from 1992 by outward investment stock.

<sup>h</sup> Interpolated on a straight line between 1992 and 1995.

**APPENDIX TABLE C-7**

**OUTPUT OF U.S. PETROLEUM AFFILIATES COMPARED WITH  
DEVELOPING COUNTRY AND MARKET ECONOMY  
MINING AND QUARRYING OUTPUT**

	U.S. Petroleum Affiliate Output		Market Economy Mining & Quarrying Output		U.S. Petroleum Affiliate Share	
	Total	Developing	Total	Developing	Total	Developing
	\$ Million US		\$ Million US		%	
<b>1977</b>	62,010	36,595	266,505	158,693	23.3	23.1
<b>1982</b>	85,608	30,230	448,574	292,490	19.1	10.3
<b>1989</b>	77,195	17,960	408,164	171,623	18.9	10.5
<b>1990</b>	86,987	21,478	476,765	217,560	18.2	9.9
<b>1991</b>	88,835	19,398				
<b>1992</b>	92,526	20,002				
<b>1993</b>	91,506	22,072				
<b>1994</b>	94,005	19,451				
<b>1995</b>	100,363	23,438				

Source: Mataloni and Goldberg (1994); Mataloni (1995) and (1997);  
Mataloni and Fahim-Nader (1996); and United Nations (1993).

**APPENDIX TABLE C-8**

**OUTPUT OF U.S. MANUFACTURING AFFILIATES COMPARED WITH  
DEVELOPING COUNTRY AND MARKET ECONOMY  
MANUFACTURING OUTPUT**

	U.S. Manufacturing Affiliate Output		Market Economy Manufacturing Output		U.S. Manufacturing Affiliate Share	
	Total	Developing	Total	Developing	Total	Developing
	\$ Million US		\$ Million US		%	
<b>1977</b>	71,609	11,933	1,541,365	223,768	4.65	5.33
<b>1982</b>	99,756	21,862	2,166,893	375,824	4.60	5.82
<b>1989</b>	172,008	28,903	3,923,788	633,501	4.38	4.56
<b>1990</b>	187,573	30,133	4,271,903	668,671	4.39	4.51
<b>1991</b>	182,085	29,544				
<b>1992</b>	181,927	34,964				
<b>1993</b>	177,746	37,097				
<b>1994</b>	205,208	41,333				
<b>1995</b>	232,764	46,953				

Source: Mataloni and Goldberg (1994); Mataloni (1995) and (1997);  
Mataloni and Fahim-Nader (1996); and United Nations (1993).

**APPENDIX TABLE C-9**

**OUTPUT OF U.S. AFFILIATES OUTSIDE OF PETROLEUM AND  
MANUFACTURING COMPARED WITH DEVELOPING COUNTRY AND  
MARKET ECONOMY OUTPUT OTHER THAN MINING AND MANUFACTURING**

	Output of U.S. Affiliates Outside of Petroleum and Manufacturing		Market Economy Output Outside of Mining and Manufacturing		Share of U.S. Affiliates in Total Output Outside of Mining and Manufacturing	
	Total	Developing	Total	Developing	Total	Developing
	\$ Million US		\$ Million US		%	
1977	27,517	5,127	4,496,426	882,684	0.61	0.58
1982	38,353	7,178	7,311,320	1,531,501	0.52	0.47
1989	70,791	9,975	13,065,557	2,271,605	0.54	0.44
1990	81,473	8,967	14,690,763	2,576,770	0.55	0.35
1991	85,149	9,734				
1992	87,071	12,236				
1993	89,927	15,447				
1994	104,483	19,804				
1995	129,432	25,557				

Source: Mataloni and Goldberg (1994); Mataloni (1995) and (1997);  
Mataloni and Fahim-Nader (1996); and United Nations (1993).

**APPENDIX TABLE C-10**

**NONMANUFACTURING NON-PETROLEUM OUTPUT BY U.S. AFFILIATES AND  
NONMANUFACTURING OUTPUT BY JAPANESE AND GERMAN AFFILIATES**

	<u>Affiliates of</u>				<b>Market Economies:</b>	
	<u>U.S.</u>	<u>Japan</u>	<u>Germany</u>	<u>3 Countries</u>	<u>GDP minus Output in</u> <u>Mfg. &amp; Min.</u>	<u>Mfg., Min. &amp; Agric.</u>
	Units: Millions of \$ U.S.				Units: Billions of \$ US	
<b>1977</b>	27,517	18,518	12,630	58,665	4,497	4,060
<b>1980</b>		31,934			6,998	6,406
<b>1982</b>	38,353	39,551 <sup>a</sup>	29,783	97,777	7,211	6,619
<b>1983</b>		43,360			7,421	6,839
<b>1989</b>	70,791	69,230	66,533	206,554	13,066	12,218
<b>1990</b>	81,473	82,993	82,511	246,977	14,691	13,735
<b>1991</b>	85,149	96,748	83,877	265,774		
<b>1992</b>	87,071	91,249	89,354	267,674		
<b>1993</b>	89,927	93,112	94,862	277,901		
<b>1994</b>	104,483	106,939	103,158	314,580		
<b>1995</b>	129,432	117,724	123,627	370,783		

<sup>a</sup>Extrapolated from 1983 by investment stock

Source: Appendix Tables C-2, C-4, C-7, Lipsey, Blomström, and Ramstetter (1998), and United Nations (1993).