The Competitiveness and Comparative Advantage of U.S. Multinationals 1957-1984 *

Introduction

In an earlier study it was shown that the share in world manufactured exports of firms located in the U.S. moved differently from the share of U.S. multinational firms, including both their domestic and their overseas operations. The U.S. share fell steadily from the 1950s through the mid-1970s, but the share of U.S. multinational firms did not decline at all or even increased (Lipsey and Kravis, 1985). That contrast suggests that it is important to distinguish between the factors that determine the competitiveness of the U.S. as a production location and those that determine the competitiveness of U.S. firms. The latter might include characteristics such as the firms' management and technology, since the firm characteristics would affect the firms' performance in both home and foreign operations.

Much of the standard analysis of trade developments explains increases or decreases in a country's exports and imports or shares in

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The sources of the data are described in the appendix tables to LIPSEY and KRAVIS (1986) but could not be reproduced here for lack of space. The most important sources of data on the operations of U.S. parent firms and their foreign affiliates are the reports of the Bureau of Economic Analysis of the U.S. Department of Commerce. These include the benchmark surveys of 1966, 1977, and 1982 and the sample surveys for later years (U.S. DEPARTMENT OF COMMERCE, 1975, 1981, 1985, 1986a, and 1986b). The main sources of trade data are United Nations trade tapes, converted to industry categories by the authors, and corrected by them to include countries omitted from the tapes and to adjust for the underreporting of U.S. exports to Canada.

world trade by changes in the country's prices relative to those of its competitors and suppliers and by changes in incomes in its markets. That emphasis on price developments is the reason for the belief that the very high exchange value of the U.S. dollar was a major factor accounting for the large U.S. trade and current account deficits of recent years.

A rival explanation for U.S. trade difficulties that has been offered in recent years is that the problems are internal to U.S. firms; they have lost their technological lead or their management skills and, therefore, alterations in monetary and fiscal policies will not restore the competitiveness of the U.S. (See, for example, Abernathy *et al.*, 1983.) The decline of U.S. firms is seen as stemming from defects in the training of managers, from the emphasis in U.S. firms on short-term results, from the deterioration of technical education in this country, or from the declining U.S. lead in research and development investment.

Factors internal to firms are just the ones that have, in the last few years, become the main explanations for the phenomenon of direct investment. They are the elements of the competitiveness and comparative advantage of individual firms that enable them to produce in countries outside the ones where they originated in competition with local firms that have the advantage of familiarity with local product and factor markets and the favor of local governments. In the literature on multinationals (*e.g.*, Dunning, 1981), these are treated as belonging to firms rather than to countries, and as being readily transferable from country to country within, but not between, firms. The more transferable these attributes are geographically, the less they can be the basis for national competitiveness and comparative advantage.

The implication for national trade policy is that factors that contribute to firm competitiveness and comparative advantage will not necessarily contribute to national competitiveness and comparative advantage. Subsidies to R & D, to innovation, or to management or technical training may enhance the competitiveness of national firms in world markets, but that competitiveness may be exploited by producing outside the home country.

A corresponding implication is that the factors producing firm comparative advantages should be studied by examining measures of the competitiveness and comparative advantage of firms rather than that of their home countries. And any large difference between the fortunes of a country and those of the firms based in it helps us to determine whether the responsibility for changes lies with macroeconomic policy or with the determinants of firm advantages, such as management or technology.

The export share of the U.S.

Although our main interest in this paper is in the competitiveness of U.S. multinationals, we begin by examining, for comparison, developments in the competitiveness of the U.S. as a country. U.S. export shares of manufactured goods declined from the early or mid-1950s to the early or late 1970s, the date depending on the series used for measurement. The years 1976-78 were the lowest points so far in most series, and there was some recovery after that. Ratios for the years covered by surveys of U.S. investment abroad were as follows:

U.S. Manufactured Exports as % of Mfd. Exports by

	All Countries [a]	Developed Countries [a]
	[b]	[b]
1957	21.3	25.7
1966[c]	16.4	18.7
1966	17.5	19.4
1977	13.3	15.1
1982	14.3	16.5
1983[d]	13.7	16.0
1984[d]	14.0	16.6

[a] The terms "all countries", "World", "developed countries" and "LDCs" as used here and elsewhere in the paper refer to market economies only.
[b] Manufactured exports defined as in LIPSEY and KRAVIS (1986), notes to Appendix Table U-1a, including manufactured foods and some items from SITC 9.
[c] Comparable to 1957.
[d] Extrapolated from 1982 by published data at 3- and 4-digit SITC level.
Source: LIPSEY and KRAVIS (1986), Appendix Tables U-1 and U-1b, except for 1983 and 1984.

The period from 1977 to 1982 saw a slight reversal of that trend, although it may turn out to be only a temporary one.

The role of prices

Of the two broad explanations for changing export shares suggested above, we explore only very briefly here the role of prices. As a measure of the change in U.S. prices relative to those of its main competitors, or what we might call the price competitiveness of the U.S., we use an index of U.S. export prices relative to an index of world

prices of manufactured exports, based on prices of the U.S. and of six main competitors, weighted by the importance of commodities in U.S. exports and described in Bushe, Kravis, and Lipsey (1986).

We ask first whether movements in the relative U.S. price level explain annual U.S. shares in exports of manufactures in the period from 1955 through 1983.

$$(1)\quad \text{Log USExS} = \underset{(12.03)}{3.30} + \underset{(8.57)}{0.99}\ \log PL_t - \underset{(9.34)}{1.08}\ \log PL_{t-1} - \underset{(19.41)}{0.19}\ T \qquad \bar{R}^2 = .96,\ DW = 1.77,\ No.Obs = 29$$

USExS = U.S. exports of products in SITC 5-8 as per cent of exports by developed market economies. For the period before 1965, shares in exports of SITC 5-8 are extrapolated back by shares in total exports (LIPSEY and KRAVIS, 1986, Appendix Table U-1b).

PL = Export Price index for the U.S. (1975=100) relative to export price index for 7 countries, including the U.S.

T = Time.

Figures in parentheses are t statistics.

The export share of the U.S. as a country is explained by a downward trend and by the current and lagged price levels. The equation implies that a higher relative U.S. price level is associated with a higher U.S. export share in value terms in the year it occurs but with a lower share in the following year.

A large part of the very high $\bar{R}^2$ in this equation is accounted for by the trend term. An alternative approach is to explain changes in the U.S. export share by changes in relative prices.

$$(2)\quad \Delta\text{USExS} = \underset{(7.55)}{1.10} + \underset{(3.54)}{0.58}\ \Delta PL_t - \underset{(4.13)}{0.69}\ \Delta PL_{t-1} \qquad \bar{R}^2 = .38,\ DW = 1.70,\ No.Obs = 28$$

Δ = variables in the form X_t/X_{t-1}

The equation, explaining a little more than a third of the variation in shares, indicates that a rise in the relative U.S. export price first increases the U.S. export share in value terms in the year of the price increase and then reduces it the next year by a greater amount. The total decrease in share resulting from a 10 per cent price increase would be about 1 per cent. Since a unitary elasticity of substitution would imply constant export value shares, these coefficients imply a cumulative elasticity of substitution a little over one.

We can also test whether a high price level has any independent influence on changes in the U.S. export share aside from that of the price change.

$$(3)\quad \Delta\text{USExS} = \underset{(7.89)}{1.15} + \underset{(3.09)}{0.47}\ \Delta PL_t - \underset{(3.36)}{0.55}\ \Delta PL_{t-1} - \underset{(1.41)}{.00072}\ PL_t \qquad \bar{R}^2 = .40,\ DW = 2.07^a,\ No.Obs = 28$$

[a] After correction for serial correlation.

The price level coefficient is negative even when the current and lagged price changes are included in the equation, suggesting some additional unfavorable effects of high prices. However, the price level adds little to the explanation of trade shares once lagged price changes are included.

These results indicate that a good deal of the competitiveness of the U.S. as a country can be attributed to U.S. price levels and changes in them, relative to the rest of the world. Earlier work on machinery and transport equipment (Kravis and Lipsey, 1982, and Bushe, Kravis, and Lipsey, 1986) has suggested that a more thorough analysis would reveal still longer lags and price elasticities or substitution elasticities further above unity.

These export responses to price levels and price changes include the behavior of U.S. parent companies and must reflect their actions to a considerable extent, since they account for about two thirds of U.S. exports of manufactured goods. We now turn to the analysis of their exporting patterns.

The competitiveness of U.S. multinationals

We saw earlier that the U.S. share in world manufactured exports declined between 1957 and 1966 from 21 or 22 per cent to 16-18 per cent. It then dropped to the 13 to 14 per cent range in 1977, where it remained in the early 1980s. The figures are repeated in line 1 to make comparisons with the export record of multinationals easy.

Shares (%) in World Exports

		1957	1966	1977	1982	1983	1984
1.	U.S.	21.3[a]	17.5[b]	13.3	14.3	13.7	14.0
	U.S. Multinationals						
2.	Parents	n.a.	11.0	9.2	9.5	9.1	9.2
3.	MOFAs[c]	5.8[a]	8.2[d]	9.7	9.7	9.9	10.3
4.	Parents and MOFAs	n.a.	17.7	17.6	17.7	17.7	18.1

[a] Not comparable with later years.
[b] Figure comparable to 1957 would be 16.4.
[c] Exports by majority-owned foreign affiliates (MOFAs) as per cent of exports by all countries except the U.S.
[d] Figure comparable to 1957 would be 7.9.

Source: 1957-1982 from LIPSEY and KRAVIS (1986), Appendix Table U-1; 1983 and 1984 from U.S. DEPARTMENT OF COMMERCE (1986a) and (1986b), Table 57, and United Nations trade data.

It can be seen (line 4) that the overall share of U.S.-based multinationals, including exports by parents and majority-owned affiliates (MOFAs),[1] was essentially stable. Exports from the U.S. by multinational parents shared, though to an attenuated degree, the decline between 1966 and 1977 in total U.S. exports. However, the growth of affiliate exports more than offset this decline.

Exports by parent firms from the U.S., after declining as a share of world and developed-country exports between 1966 and 1977, varied within fairly narrow ranges:

Shares (%) of U.S. Multinationals in World Exports of Manufactures

	Parents from U.S. as % of		Majority-Owned Affiliates in		
	World Exports	Developed-Country Exports	Developed Countries as % of Developed-Country Exports (except U.S.)	LDCs as % of LDC Exports	
1957	n.a.	n.a.	6.6	2.8	
1966	11.0	12.1	8.7	3.6[a]	4.8
1977	9.2	10.5	10.2		6.5
1982	9.5	10.9	10.0		7.7
1983	9.1	10.6	10.4		7.2
1984	9.2	10.8	10.9		7.7

[a] Comparable to 1957.

Source: 1957-1982 from LIPSEY and KRAVIS (1986), Appendix Table U-1; 1983 and 1984 from U.S. DEPARTMENT OF COMMERCE (1986a) and (1986b) and United Nations trade data.

As is implied by the fact that parent export shares declined less than those of the U.S. as a whole, the share of parent firms in U.S. exports of manufactures rose substantially between 1966 and 1977. Some of that rise was lost between 1977 and 1982.

Parent Firm Share (%) in U.S. Exports

1966	62.7
1977	69.4
1982	66.2
1983	67.0
1984	65.8

Source: 1966-1982 from LIPSEY and KRAVIS (1986), Appendix Table U-1; 1983 and 1984 from U.S. DEPARTMENT OF COMMERCE (1986a) and (1986b) and United Nations trade data.

[1] Export data are not available for minority-owned affiliates.

That increased importance of multinational firms as exporters from the U.S. in 1966-77 was apparently not the result of a shift of firms from non-multinational to multinational status. In fact, the number of firms reporting as multinationals actually decreased slightly from 1966 to 1977. However, in the period when the multinationals' share decreased, between 1977 and 1982, there was a substantial decline in the population of U.S. multinational firms.[2]

The shares of majority-owned affiliates in exports of both developed and LDC host countries shows a pattern of sharp increases and, for developed countries, rough stability since 1977. The MOFA share in exports of developed countries increased by more than 50 per cent in the 20 years before 1977 and then remained fairly stable through 1984. The share of U.S. affiliates in LDC exports grew by almost 75 per cent from 1957 through 1977 at a time when the share of these countries in world exports was also increasing substantially,[3] and it rose to higher levels in the early 1980s. Thus, in both developed and less developed host countries, there was a period of active development in which the majority-owned affiliates outpaced other host-country firms, followed by a period of less dynamic growth (for both the countries and the affiliates), in which the affiliates' exports increased in step with those of other host-country firms.

As is implied by what has been said about parents and affiliates, majority-owned overseas affiliates' shares in exports by U.S. multinationals jumped substantially from 1966 to 1977, and their share of exports by all U.S. firms more than doubled from 1957 to 1977. Then

[2] Part of this reduction in population may be illusory and the growth of parent exports therefore understated. The cutoff point below which full data for affiliates did not have to be reported was increased from $ 500,000 in 1977 to $ 3 million in 1982. Any parent firm with no affiliates above the cutoff size was exempt from reporting on its own activities. We were able to make an adjustment, quite small, for the effect of this change on affiliate exports, but we are not able to guess the effect on parent exports or other parent variables. The impact on aggregate affiliate measures is limited by the unimportance of affiliates of that size in the totals, but it is conceivable that quite large parents with only marginal overseas production were eliminated from the list even without making any changes in their overseas activities. Thus, we do not know what the decline in parents' share of U.S. exports represents. It could be mostly a statistical artifact, it could represent a turning away from multinationality by U.S. firms, or it could represent a decline in the competitiveness of U.S. multinationals relative to other U.S. firms, or a shift in U.S. comparative advantage away from industries in which U.S. multinationals have their advantages. A conclusion on this issue requires disaggregation by industry and the study of fixed groups of firms.

[3] This result seems to contradict the findings of a paper by NAYYAR (1978) to the effect that the share of U.S. majority-owned affiliates in developing-country exports fell from about 10.6 per cent to below 9 per cent in the early 1970s. The growth of affiliate exports to 1974 in Nayyar's data seems very slow in view of our 1977 census total. Furthermore, he defined aggregate developing country manufactured exports much more narrowly than in our calculations.

the affiliates' share decreased slightly between 1977 and 1982 before increasing again, to its highest recorded level, in 1984.

MOFA Share (%) in Exports by U.S. Multinationals and by All U.S. Firms

	Multinationals[a]	All U.S. Firms[a]	
1957	n.a.	17.6	
1966	38.1	28.9[b]	27.8
1977	47.7		40.0
1982	46.7		38.7
1983	48.4		40.5
1984	49.2		40.8

[a] Includes exports of MOFAs. [b] Comparable to 1957.

Source: 1957-1982 from LIPSEY and KRAVIS (1986), Appendix Table U-1; 1983 and 1984 from U.S. DEPARTMENT OF COMMERCE (1986a) and (1986b) and United Nations trade data.

That switch in the 1977-82 period suggests a move by U.S. multinational firms toward producing in the U.S., perhaps as a response to the low values of the U.S. dollar in the late 1970s and early 1980s, before shifting back toward foreign production as the dollar recovered.

To what may the superior foreign export performance of U.S.-controlled firms be attributed? Several possibilities suggest themselves. One is that American affiliates were sharing in the superior (to the U.S.) export growth of their host countries. This would involve behavior like that of other domestic firms in the host countries. Another is that U.S. parents systematically shifted their export operations to foreign bases, not through a diminution in their exports from the U.S. but by increasing exports more rapidly from their foreign locations than from their U.S. operations. Perhaps in the end the basic factors underlying export sourcing decisions are not very different for these two possible explanations. However, if U.S. affiliate exports merely kept pace with the rate of growth in host country exports, there may be a stronger presumption that the ME was simply responding to the host country's competitive opportunities. Affiliate export performance in host countries superior to that of both local firms and U.S. parents, on the other hand, suggests an active policy of shifting exports and a role in promoting host-country export growth.

The comparative advantage of U.S. multinationals

Before examining how different industries contributed to these changes in exports and export shares we use the distribution of exports among industries to identify the comparative advantage of the United States and of its multinational firms. We identify the comparative advantage in terms of the relative distributions of exports. U.S. multinationals, for example, are regarded as having a comparative advantage in the chemical industry relative to the U.S. as a country (or to the world as a whole), if the share of chemicals in their exports is larger than the share of chemicals in U.S. (or world) exports. It would be desirable to use net exports as the criterion for countries, but we have not so far made such calculations for the multinationals, and it is also not as clear for them what the figures would mean. One reason for the uncertainty is that their exports are classified by industry rather than by product, and while we consider it reasonable to assume that their exports are within that industry, the assumption that their imports were also in the same industry would be more questionable. Another drawback to this method of assessing comparative advantage is that it ignores distortions in the composition of trade due to government interventions.

The differences between the distributions of U.S. and U.S. multinationals' exports and those of the world and of developed countries in 1966, the first year for which all are available, are given below. They show that the U.S. had comparative advantages relative to the world in chemicals, machinery, particularly non-electrical, and transport equipment. U.S. multinational firms' comparative advantage ran along the same lines, but to an exaggerated degree. Their concentration in chemicals and machinery was slightly greater than that of the U.S. and in transport equipment, much greater, while they exported a smaller proportion of foods, metals, and other manufactured products.

The corresponding comparisons for 1982 show a similar pattern for the U.S. However, there were some shifts. The U.S. had less of a comparative advantage in chemicals and transport equipment and more in non-electrical machinery, and a large disadvantage in metals. The breakdown of transport equipment into motor vehicles and equipment and other transport equipment reveals that the U.S. comparative advantages was in the latter subgroup, mainly aircraft and parts. In motor vehicles the U.S. showed comparative disadvantages relative to the world and to developed countries as a group.

Differences between Industry Distributions of Exports by the U.S. and U.S. Multinationals and those of the World[a] and Developed Countries[b] in 1966

	Industry Share (%) in U.S. Exports minus Industry Share of		Industry Share (%) in U.S. Multinat. Exports minus Industry Share of		Industry Share (%) in U.S. Multinat. Exports minus Industry Share in U.S. Exports
	World Exports (1)	Developed Countries' Exports (2)	World Exports (3)	Developed Countries' Exports (4)	(5)
Foods	−4.3	−.9	−7.3	−3.8	−3.0
Chemicals	2.4	1.7	3.0	2.2	.5
Metals	−3.6	−3.2	−8.2	−7.8	−4.6
Machinery	8.0	6.0	8.8	6.8	.8
Non-elect.	6.9	5.5	n.a.	n.a.	n.a.
Electrical	1.1	.5	n.a.	n.a.	n.a.
Transp. Equip.	5.8	4.5	14.0	12.7	8.2
Other Mfg.	−8.3	−8.1	−10.2	−10.1	−2.0

[a] All market economies. [b] Developed market economies.

Source: LIPSEY and KRAVIS (1986), Appendix Table U-9.

Differences between Industry Distributions of Exports by the U.S. and U.S. Multinationals and those of the World[a] and Developed Countries[b] in 1982

	Industry Share (%) in U.S. Exports minus Industry Share of		Industry Share (%) in U.S. Multinat. Exports minus Industry Share of		Industry Share (%) in U.S. Multinat. Exports minus Industry Share in U.S. Exports
	World Exports (1)	Developed Countries' Exports (2)	World Exports (3)	Developed Countries' Exports (4)	(5)
Foods	−3.2	−1.5	−5.4	−3.6	−2.1
Chemicals	1.5	.9	5.1	4.4	3.6
Metals	−4.5	−4.7	−6.9	−7.1	−2.4
Machinery	10.1	8.7	7.6	6.2	−2.5
Non-elect.	9.0	7.6	3.9	2.5	−5.1
Electrical	1.0	1.1	3.7	3.8	2.6
Transp Equip.	2.8	1.2	10.0	8.4	7.1
Motor vehicles	−1.2	−2.5	7.7	6.4	8.9
Other transp. equip.	4.0	3.8	2.2	2.0	−1.8
Other Mfg.	−6.8	−4.7	−10.4	−8.4	−3.7

[a] All market economies. [b] Developed market economies.

Source: LIPSEY and KRAVIS (1986), Appendix Table U-9.

For U.S. multinational firms, a finer breakdown by industry for 1982 than was available for 1966 reveals that they possessed comparative advantages relative to the world as a whole and to developed countries

in both electrical and non-electrical machinery. Largely, the industry pattern of their comparative advantage was similar in 1982 to the earlier one, with some shift towards chemicals and a large decline in their comparative advantage in transport equipment. The breakdown of the transport equipment industry into the two subgroups indicates that U.S. multinationals held comparative advantages in both, and that the margins were larger for motor vehicles than for other transport equipment.

The 1982 comparison between U.S. multinationals and the U.S. as a country (Col. 5) shows that the multinationals' comparative advantage in machinery relative to that of other U.S. firms had disappeared; the U.S. as a production location showed a large comparative advantage relative to U.S. multinationals, although the latter enjoyed a smaller, but noticeable, comparative advantage in electrical machinery relative to the U.S. The multinationals, by 1982, had increased their advantage in chemicals but reduced that in transport equipment relative to the U.S. Within transport equipment, U.S. multinationals had a large comparative advantage in motor vehicles relative to the U.S. but the U.S. as a country had a noticeable comparative advantage in other transport equipment relative to U.S. multinationals. The contrast reflects the fact that the motor vehicle industry is one of the most multinational of U.S. industries in its operations, in the sense that a high proportion of its employment is overseas (Kulchycky and Lipsey, 1984, p. 2) and it does much of its exporting from abroad, while the other transport equipment industry is among the least multinational and does most of its exporting from the U.S. Even among parent firms, other transport equipment companies have small proportions of their employment abroad relative to parents in other industries, and tend to fill export demand from the U.S.

The differences between the comparative advantages of the U.S. and of U.S. multinationals would show up more strongly if we compared the multinationals, or the parent companies themselves, with non-multinational U.S. companies. However, that comparison is difficult because of incompatibilities in the classification of exports between the product classification for the U.S. and the industry classification we used for the multinationals. It is clear, in any case, that U.S. parents possess large comparative advantages relative to non-multinational U.S. firms in chemicals and electrical machinery, but that the non-multinational firms have a strong comparative advantage in non-electrical machinery.

A different set of observations on the comparative advantage of the U.S. and of U.S. multinationals can be made by comparing U.S. firms in general and U.S. parents with foreign-owned firms in the U.S. In this case we are comparing U.S. firms not with foreign countries in general but with foreign multinationals, holding constant the production conditions of the U.S.

Differences between Industry Distributions of Exports by Foreign Multinationals Operating in the U.S. and those of the U.S. and of U.S. Parents

	Industry Share in Foreign-Owned Firms Exports from the U.S. minus Industry Share in Exports by			
	1977		1982	
	U.S.	U.S. Parents	U.S.	U.S. Parents
Foods	1.6	5.1	−2.1	.9
Chemicals	15.7	13.8	23.3	21.5
Metals	4.6	5.6	1.0	2.2
Machinery				
Non-elec.	−1.2	.8	−8.4	−3.5
Electrical	1.2	−.6	1.3	−3.2
Transport Equip.	−23.0	−29.1	−8.6	−15.6
Other Mfg.	1.2	4.3	−6.6	−2.3

Source: LIPSEY and KRAVIS (1986), Appendix Table U-8.

Data on exports by foreign-owned firms in the U.S. are not available for 1966 but we can make the comparisons for 1977 and 1982. The earlier year may be affected by the fact that many of the foreign-owned operations were new or had been foreign-owned for only a short time.

The most striking characteristic of the exports by foreign-owned U.S. firms in 1977 was the high concentration in chemicals, mainly by German multinationals, and the absence of exports of transport equipment, both areas of U.S. and U.S. firms' comparative advantage. The concentration of exports by the foreign multinationals in chemicals increased substantially between 1977 and 1982. Thus, although chemicals was an industry of U.S. and U.S. multinationals' comparative advantage relative to the rest of the world, there are indications that at least German multinational firms possessed greater firms-specific advantages in this area. The comparative disadvantage of foreign multinationals in transport equipment was still large in 1982 but had diminished greatly, especially relative to the U.S. in general.

Competitiveness within industry groups

The decline in the competitiveness of the U.S. relative to other developed countries and to the world between 1966 and 1982, as manifested in its falling shares of exports, was spread across all the major groups (Cols. 1 and 2):

Percentage Changes in Shares of World[a] and Developed-Country[b] Exports of Manufactures 1966 to 1982

	Share of U.S. in Exports of		Share of U.S. Multinationals[c] in Exports of		Share of U.S. Multinationals Relative to U.S. Exports of	
	World (1)	Developed Countries (2)	World[d] (3)	Developed Countries[e] (4)	World[f] (5)	Developed Countries[g] (6)
Foods	−18	−23	+ 4	+ 8	+27	+40
Chemicals	−25	−21	+11	+17	+48	+48
Metals	−31	−32	− 6	− 3	+35	+43
Machinery	−16	−10	− 8	−10	+10	0
Non electrical	−10	− 7	n.a.	n.a.	n.a.	n.a.
Electrical	−22	−12	n.a.	n.a.	n.a.	n.a.
Transport Equipment	−33	−24	−21	−19	+18	+ 7
Other Mfg.	−14	− 2	− 6	+ 5	+ 9	+ 7
All Mfg.	−19	−15	− 1	+ 1	+22	+19

[a] All market economies.
[b] Developed market economies.
[c] Parents and majority-owned affiliates.
[d] Numerator: exports by parents and all majority-owned affiliates; denominator: exports from all market economies.
[e] Numerator: exports by parents and all majority-owned affiliates in developed market economies; denominator: exports from developed market economies.
[f] 100 [(Col. 3 + 100) ÷ (Col. 1 + 100)]
[g] 100 [(Col. 4 + 100) ÷ (Col. 2 + 100)]

Source: LIPSEY and KRAVIS (1986), Appendix Table U-7.

However, it was smaller in non-electrical machinery than in the other groups. Relative to developed countries, the decline was smaller in the whole machinery industry than in any of the others except miscellaneous manufactures.

As we know from the aggregate data presented earlier, the story was quite different for the worldwide operations of U.S. multinationals, including those of parents and their majority-owned affiliates (Columns 3 and 4). U.S. multinationals gained in world export shares in foods and chemicals and lost shares in the other industries. Even where their world shares declined, they held up better than those of the U.S. as a country. That relationship can be seen clearly in the changes in the

export shares for U.S. multinationals relative to those for the U.S. as a country (Columns 5 and 6). On the average, U.S. multinationals' export shares increased more or decreased less than those of the U.S. by a margin of about 20 per cent. In no industry group did they lose relative to the U.S. as a whole, but in machinery the growth of their exports from developed countries just kept pace with that of the U.S.

In the case of machinery, both U.S. multinationals and the U.S. as a country lost ground, but neither by much. In the case of transport equipment, both the U.S. as a country and U.S. multinationals lost export shares by around a quarter of the 1966 level.

Comparative advantage, growth in demand, and overall competitiveness

Changes in the overall competitiveness of a country or of its multinational firms can be factored into several elements. One is the set of changes in competitiveness within industries. A second is their comparative advantage, which determines the extent to which they produce and export in each industry. And a third is the rate at which world trade grows in each industry. The last is partly a reflection of the rate of growth of demand and partly a result of shifts in the degree to which demand is met by each country's local output in each industry. The first two of these elements have already been touched upon.

The rate of growth in world trade has varied a good deal among industries. In the whole period covered, and in each of the sub-periods, world exports of chemicals, electrical machinery, and transport equipment grew more rapidly than manufactured exports in general, while exports of foods and metals grew less and those of non-electrical machinery and other manufacturing clustered close to the average.

Both the U.S. and U.S.-owned multinational firms were oriented toward the faster-growing industries in this breakdown, with their below-average weighting of foods and metals and high weights for chemicals, machinery, and transport equipment. This was even more the case for the U.S. multinationals than for the U.S. Thus, if the U.S. and its multinational firms had retained their shares of exports within these industry groups, their shares of aggregate manufacturing exports would have increased.

Growth in Exports[a] by Market Economies:
Ratios of Terminal-Year to Initial-Year Values

	1977/1966	1982/1977	1982/1966
Foods	4.67	1.40	6.54
Chemicals	5.72	1.72	9.86
Metals	4.62	1.49	6.87
Machinery	5.94	1.67	9.91
Non-electrical	5.34	1.64	8.78
Electrical	7.16	1.71	12.21
Transport Equipment	6.82	1.55	10.56
Other Mfg.	5.21	1.55	8.10
Total Mfg.	5.49	1.57	8.63

[a] These are values and are affected, of coutse, by differences among industry groups in price changes as well as in quantity changes. Figures are ratios of terminal-year to initial-year values.

Source: LIPSEY and KRAVIS (1986), Appendix Table U-6.

We can compare the actual changes in U.S. and U.S. multinational firms' exports with those that would have occurred if they had retained their 1966 shares within industries. We refer below to this calculated export growth as "constant share" export growth.

The bias of the U.S. and U.S. multinationals toward fast-growing industry groups is indicated by their high "constant share" growth rates, a little higher for the multinationals than for the U.S. but both above the world growth rate. Actual U.S. exports fell far short of that hypothetical growth and the export growth of multinationals fell short as well, although not by as much. That means that the stability in the U.S. multinationals' share of world exports was the result of a combination of declining shares within at least some industry groups with an orientation toward the faster-growing industries.

Growth of Manufactured Exports: Ratios of Terminal Year to Initial-Year
Actual and Constant Share Values

	1982/1966		1977/1966		1982/1977	
	Actual	Constant Share	Actual	Constant Share	Actual	Constant Share
All market economies	8.63		5.49		1.57	
U.S.	7.02	8.99	4.16	5.65	1.69	1.59
U.S. multinationals	8.59	9.37	5.43	5.87	1.58	1.60

Source: LIPSEY and KRAVIS (1986), Appendix Tables U-3, U-5, and U-6.

In the decade from 1966 to 1977, the comparative advantage of both the U.S. and U.S. firms favored above-average export growth, given the

rates of growth of the seven industry groups. The prospective margin in the constant-share growth ratio for the U.S. was .16 over the world growth ratio and for U.S. multinationals the margin was .38. In actuality the U.S. fell far below the hypothetical constant share growth rate and far below the world growth rate despite its favorable composition of exports. U.S. multinationals' exports grew at close to the world rate because their export composition was favorable, and the favorable export mix made up for the loss of shares within groups.

Given the industry growth rates over the next five years, the U.S. and U.S. multinational firm export mixes in 1977 would have produced roughly constant shares in total manufactured exports. In fact, U.S. exports grew at a little more than both the world rate and their constant share rate. For U.S. multinationals, actual export growth was close to the world rate, as in the earlier period. However, their growth was below the U.S. rate, as had not been the case for the earlier decade.

If the composition of exports in 1966 had been that of 1982 for the U.S., U.S. multinationals, and the world, and if the industry export growth rates of the 1966-1982 period had been as they were, the comparisons would have come out as follows:

Constant Share Export Growth (Ratios), 1982/1966, Assuming 1966 and 1982 Industry Distribution of Exports

	1966 Export Distribution	1982 Export Distribution
U.S.	8.99	9.22
U.S. multinationals	9.37	9.59
All market economies	8.63	8.91

Source: See previous table.

In 1982, the U.S. multinationals continued to show the greatest bias toward what had been the fast-growing export sectors of 1966-1982. That bias was stronger than that of the U.S., which was, in turn, more oriented to such sectors than was the world as a whole. However, the rest of the world moved toward the rapidly growing export industries a little faster than either the U.S. as a country or U.S. multinationals.

Conclusion

The worldwide share of U.S. multinational firms (U.S. parent companies plus their majority-owned affiliates) in manufactures exports has been nearly stable since 1966. We do not know what happened to parent exports from the U.S. before 1966, but the very large growth in affiliate exports makes it probable that the total share of U.S. multinationals increased between 1957 and 1966. The early growth (1957-66) and later stability (1966-77) of overall U.S. multinational export shares occurred while the share of the U.S. as a geographical location declined substantially, from over 20 per cent to 13 or 14 per cent. Since 1977, there have been no clear trends in the shares of all U.S. firms, of parents, and of majority-owned affiliates in the aggregate, although the affiliate share continued to increase in developing countries. Thus, U.S. multinationals conformed to the market performance of local firms, both in the U.S. and in developed countries abroad during these years. This is in contrast to the rapid expansion of their exports prior to 1977. In those years, they increased their exports from virtually all foreign locations at a faster rate than other host-country firms, and their exports from the U.S. faster than non-multinational U.S. firms.

This record is consistent with the view that American management and technology remained competitive, and is at variance with the argument sometimes made that the fall in the share of the U.S. in world manufactures exports was due to management failures and declines in technology. Perhaps the greater integration of the world economy with respect to transport and communications, and hence the greater ease of managerial control over activities in distant locations, facilitated the expansion of affiliate exports in the 1957-77 period. Even so, American management should be credited with taking advantage of these opportunities. And since 1977, American-controlled firms abroad have maintained their shares in a rapidly growing world market, with powerful competition from Japan and some other industrial countries and the advent of new competitors.

While we do not attempt to explain fully the decline in the U.S. country share in export markets, we find that a substantial part of the changes in share during a thirty-year period could be accounted for by movements in U.S. export prices relative to those of its main competitors. That finding is further evidence, in our view, that much of the explanation for the export performance of the U.S. as a geographical

entity must be looked for in the factors that determine price levels. Over the short run, at least, these are presumably monetary, fiscal, and related policies that affect exchange rates and rates of inflation.

The loss of U.S. shares between 1966 and 1982 extends to each of the major branches of manufacturing. The shares of U.S. multinationals, however, increased in foods, chemicals, and, relative to developed countries, in other manufactures. They also showed smaller declines than those of the U.S. in most other categories.

The comparative advantage of U.S. has been in chemicals, machinery, and transport equipment, and this is even more true for U.S. multinationals. These are industries in which exports have been growing rapidly in world markets. They contributed substantially to an export composition weighted in favor of products with relatively strong demand growth. However, the growth of manufactures exports between 1966 and 1977 by all firms located in the U.S. fell short, by almost a third, of what it would have been if the U.S. had maintained a constant share in each industry and thus participated proportionately in the expansion of world trade in each industry. The exports of U.S. multinationals also fell short of constant-share growth, but by less than 10 per cent. Between 1977 and 1982, in contrast to the earlier period, the export growth implied by constant shares for the U.S. and for U.S. multinationals was close to the world and developed-country averages. That is, the composition of exports for both was a little less favorable relative to other countries than it had been before. The growth in U.S. exports in those years was close to or even slightly greater than would have been produced by constant 1977 shares in each industry, while that of U.S. multinationals was slightly less. Thus, in the latest period for which we have data, when U.S. exports kept pace with those of other countries, as they had failed to do in the preceding quarter-century, the differentiation between U.S. multinationals and the U.S. as a country was greatly reduced.

The major conclusion about U.S. multinationals is that they have continued to hold a very steady share in world exports. That has been true while the U.S. country share was declining and it remained true when the U.S. country share rose. The multinationals' position in exports thus seems to have been quite insulated from changes in home-country policies or circumstances.

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