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CENTER DISCUSSION PAPER NO. 177

# THE ROLE OF THE MULTINATIONAL FIRM IN THE EXPORTS OF MANUFACTURES FROM DEVELOPING COUNTRIES

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# The Role of the Multinational Firm in the Exports of Manufactures from Developing Countries*

## I

Despite the failure of the rich countries to give substantial general tariff preferences[1] for the exports of manufactures from less developed countries (LDC's), their exports of manufactures have grown rapidly during the last decade. While the precise rate of growth depends on one's definitions of "manufactures" and of "less developed countries," data based on GATT definitions indicate that the value of manufactured exports by LDC's grew by about 15 percent per year during the last decade, and by 1970 manufactures accounted for about 20 percent of total LDC export earnings and about 30 percent of export earnings excluding fuels.[2]

The LDC's have had previous spurts in their exports of specific commodities, and a large literature exists on why the rapid expansion of their exports of

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[1]The preference scheme introduced by the European Economic Community in 1971 will not, under its present arrangements, have much impact on LDC exports. See Richard N. Cooper, "The European Community's System of Generalized Tariff Preferences: A Critique," (Economic Growth Center Discussion Paper No. 132, November, 1971).

[2]Exports of manufactures (iron and steel, chemicals, engineering products, road motor vehicles, textiles and clothing, and other manufactures) by LDC's rose from $3.5 billion in 1963 to $9.8 billion in 1970. Their exports of fuels were $18 billion in 1970, and their total exports were $55 billion in 1970. Data from International Trade 1970 (Geneva: GATT, 1971), p. 23 and International Trade 1971 (Geneva: GATT, 1972), p. 15.

primary products in the 19th century did not lead to significant economic development in these nations. The general theme of much of this literature is that, in Kindleberger's words, "until the last few years, direct investment in the less developed countries took on an enclave character, in which foreign factors of production--management, capital, and frequently labor--were combined with limited host-country inputs such as a mineral deposit, tropical climate, or in some countries, common labor."[1]

Various writers stress different factors in explaining the development of these enclaves. Myint[2] deals with the lack of a domestic transport system and of a smoothly operating market mechanism; Myrdal says[3] "that the course of events took this 'colonial' character was not mainly due either to the designs of those who provided the capital and built the economic enclaves, or to the intentional policies of their governments. It was much more the natural outcome of the unhampered working of the contemporary market forces." Hymer and Resnick, on the other hand, stress the deliberate policy of the governments of the colonial powers, "as Europe formulated a single strategic conception for the development

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[1]Charles P. Kindleberger, American Business Abroad (New Haven: Yale University Press, 1969), p. 146.

[2]Hla Myint, "The 'Classical Theory' of International Trade and the Underdeveloped Countries," Economic Journal, 68 (June 1968), reprinted in Readings in International Economics, eds. Caves and Johnson (Homewood, Illinois: Richard D. Irwin, Inc., 1968), pp. 318-338.

[3]Gunnar Myrdal, An International Economy, Problems and Prospects (New York: Harper and Brothers, 1956), p. 100.

of the world economy and planned a new division of labor."[1] All these writers agree that foreign firms played a significant role in the development of these enclaves.[2]

While we do not have comprehensive data on the role of multinational firms[3] in the contemporary boom in LDC exports of manufactures, there are scattered bits of evidence suggesting that these firms account for a large share of these LDC exports. Between 1965 and 1968 annual exports from developing countries by foreign affiliates of U.S. manufacturing firms rose from $700 million to $1.4 billion.[4] Between 1957 and 1966 Latin America's annual exports of manufactures rose from $709 million to $1,613 million, and subsidiaries of U.S. firms accounted for 65 percent of this increase of $804 million.[5] I estimate that in 1971 foreign firms[6] accounted for at least 15 percent of South Korea's $875 million of exports of manufactures, at least 20 percent of Taiwan's $1,428 million of exports of

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[1] Stephen Hymer and Stephen Resnick, "International Trade and Uneven Development," Trade, Balance of Payments, and Growth, ed. Jagdish Bhagwati et. al. (North Holland Publishing Co., 1971), p. 483.

[2] As the cases of Argentina, Australia, and Canada indicate, an export boom under the auspices of Europeans can facilitate economic development when the original native population is negligible.

[3] Unless otherwise stated, in this paper I consider a multinational firm as one that has production facilities in at least two countries.

[4] Survey of Current Business (October 1970), p. 20.

[5] The Effects of United States and Other Foreign Investments in Latin America (New York: The Council for Latin America, Inc., 1970), p. 29.

[6] Unless otherwise stated, in this paper I consider a foreign firm as a firm not wholly owned by local citizens. Anecdotal evidence indicates that some firms that are considered as local by LDC governments are in fact controlled by foreigners; this may be especially important in textiles because of the way LDC governments allocate their export quotas under the International Textile Agreement.

manufactures, and over 50 percent of Singapore's $285 million of exports of manufactures. IBM is said to have been the largest single exporter of manufactures from both Argentina and Brazil in 1969.[1] In 1969 locally-owned firms accounted for only 42 percent of $325 million of trade in manufactures within the Latin American Free Trade Association.[2]

What are the consequences for the LDC's of this role by the multinational firm? Can an "enclave" develop when the LDC exports manufactures? Consider, for example, the case of the Mexican "border" industries. Exports of manufactures to the U.S. under item 807.00[3] rose from $7 million in 1966 to $211 million in 1970. The Mexican value added on these exports was about one-third, almost entirely wages at rates above the Mexican average. Mexican workers in these industries spent 50-70 percent of their wages on U.S. commodities.[4] Is this a contemporary example of the 19th century phenomenon discussed over 20 years ago by Singer, where "...the productive facilities for export from underdeveloped countries, which were so largely a result of foreign investment, never became a part of the internal economic structure of those underdeveloped countries themselves, except in the purely geographical and physical sense"?[5]

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[1]Testimony of John Tuthill, U.S. Policies Towards Developing Countries (Joint Economic Committee of the Congress, May 1970), p. 729.

[2]Juan Carlos Casas, "Las Multinacionales y el Comercio Latinoamericano," Cemla Boletin Mensual 18 (December 1972), pp. 605-614. I owe this reference to Carlos Diaz-Alejandro.

[3]Item 807.00 concerns the U.S. tariff on the foreign value added of U.S. imports of items fabricated from U.S. components.

[4]Data for 1966 U.S. imports and for the import component of Mexican wages from Economic Factors Affecting the Use of 807.00 and 806.30 (Washington: U.S. Tariff Commission, 1970), pp. 66, 180. I owe this reference to Kenneth Jameson. Data for 1970 U.S. imports kindly supplied by U.S. Tariff Commission.

[5]H. W. Singer, "The Distribution of Gains Between Investing and Borrowing

The next section of this paper reviews the various theories about why firms invest overseas in order to see what consequences can be deduced from these theorems. The following section presents some empirical evidence based on my field work in South Korea, Taiwan, and Singapore and on other available empirical research. The final section is a brief conclusion on the use of incentives by LDC's to attract multinational manufacturing firms.

As indicated above, much of the exports from LDC's by multinational firms goes to other LDC's. But a large share is sold in the U.S. Imports from all LDC's under tariff item 807.00 rose from $61 million in 1966 to $530 million in 1970 (though not all of these imports are from subsidiaries of U.S. firms). Thus future U.S. trade patterns are related to future LDC trade patterns.

It may be appropriate at this point to indicate why I pay little attention to the consequences of these trade and investment flows on U.S. workers, capitalists, consumers, etc. Partially this omission reflects my own comparative advantage and partially it reflects a judgment that those U.S. citizens injured by such trade and investment could be--though may not be--assisted by the U.S. Government.

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Countries," American Economic Review, 40 (May 1950), reprinted in Readings in International Economics, eds. Richard E. Caves and Harry G. Johnson (Homewood, Illinois: Richard D. Irwin, 1968), p. 308.

## II

Different theoretical models lead to different deductions about the consequences of foreign corporate investment. MacDougall[1] used a one-sector model in which every firm operates in a competitive environment and maximizes profits with perfect certainty. With no change in technology and no economies of scale, additional foreign capital can then be shown to drive down the rate of profit on the initial stock of capital, raise the wage rate, and increase domestic income. As my colleague Richard Brecher pointed out, the results change as soon as one moves to a two-sector model. With linear homogeneous production functions in each sector, a "small" country (facing constant terms of trade) will find that additional foreign capital has no impact either on the distribution of income or on domestic income (since all the extra output accrues to the foreigners).

In the formal theoretical literature stemming from the Heckscher-Ohlin theory of international trade, foreign investment is seen as a substitute for foreign trade.[2,3] It follows from this vision that the opportunity to attract foreign capital, like the opportunity to engage in foreign trade, could make workers in the LDC better off by equalizing factor prices throughout the world.

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[1] G. D. A. MacDougall, "The Benefits and Costs of Private Investment from Abroad: A Theoretical Approach," Economic Record (March 1960), reprinted in Readings in International Economics, ed. Richard E. Caves and Harry E. Johnson (Homewood, Illinois: Richard D. Irwin, Inc., 1968), pp. 172-194.

[2] See, for example, Robert Mundell, "International Trade and Factor Mobility," American Economic Review, 47 (June 1957), reprinted in Readings in International Economics, ed. Richard E. Caves and Harry G. Johnson (Homewood, Illinois: Richard D. Irwin, Inc., 1968), pp. 101-114.

[3] Ohlin, tempering formal logic with empirical observation, was more cautious. Observing that there were many factors at work, he concluded that "the tendency toward a reduction of trade may be counteracted by a tendency to increased trade..."

But just as one can specify a set of assumptions that leads to "immiserizing growth" via expanding foreign trade, so can one set up a model where foreign investment in the presence of domestic "distortions" can reduce labor's income and/or domestic income in the LDC's. The range of theoretical outcomes becomes even broader when one admits the possibility of the foreign firm's bringing a new technology as well as capital.[1]

The formal Heckscher-Ohlin theory assumes, among other things, that production functions are the same throughout the world, that every businessman maximizes profits in a world of perfect competition, and that everyone has complete knowledge of the present and the future. This set of assumptions has at least two weaknesses: (1) It leads one to analyze the impact of corporate investment in terms of capital flows rather than the transfer of technology and management skills even though reported capital flows are small[2] and (2) while it gives an insight into the consequences of attracting foreign investment by restricting imports,[3] it has difficulty in explaining why U.S., European, and

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Bertil Ohlin, Interregional and International Trade, rev. ed. (Cambridge: Harvard University Press, 1967), p. 215.

[1]Benjamin I. Cohen, "An Alternative Theoretical Approach to the Impact of Foreign Investment on the Host Country," (New Haven: Economic Growth Center Discussion Paper No. 164, November 1972).

[2]In 1971 U.S. direct investment in manufacturing in all developing countries was $521 million, of which 53 percent represented retained earnings; U.S. firms also borrow locally to finance investments in LDC's. For example, in 1970 U.S. manufacturing affiliates in Latin America spent $669 million on plant and equipment; net capital outflows from the U.S. were $100 million; retained earnings were $200 million, and the balance was financed by borrowing outside the U.S. and by depreciation allowances. Data from Survey of Current Business (November 1972) and Survey of Current Business (March 1972).

[3]See Mundell, op. cit., pp. 111-114.

Japanese firms invest in LDC's in order to produce manufactures for sale in the rich countries. How are these multinational firms able to produce at lower costs than local LDC firms? Why don't importers in the rich countries buy directly from LDC firms? The answer, in my view, has two parts.

The first comes from the Hymer-Kindleberger analysis of direct foreign investment, which stresses that the foreign company has some advantage--such as better management, a better production technology, or the ownership of a brand name product--which allows it to compete with local firms even though it knows less about the LDC economy and has its headquarters thousands of miles away from the production site.[1] Thus one sees foreign investment in terms of partial monopoly rather than of perfect competition. What determines the size of the firm's monopoly profits when the initial investment is made? Will the multinational firm try to maintain its monopoly position by, for example, threatening potential LDC rivals with a price war? Kindleberger says that "...in the bilateral monopoly...game represented by direct investment in the less-developed country, there has been a steady shift in the advantages from the side of the company to that of the country."[2] His examples refer, however, to multinational firms exporting natural resources from a LDC. It is less clear that a LDC government can tax the profits of a foreign company producing manufactures for export. As Fortune put it, "the developing countries' contribution...will be reserves of low-cost and teachable labor."[3] Since there are now several LDC's[4] which have demonstrated a capacity to supply this type of labor, it is difficult for just one of them to

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[1] For an exposition of this theory, see Charles P. Kindleberger, American Business Abroad (New Haven: Yale University Press, paperback, 1969), pp. 11-33.

[2] Ibid., p. 150.

[3] "The Poor Countries Turn from Buy-Less to Sell-More," Fortune (April 1970), p. 91.

[4] Such as South Korea, Taiwan, Singapore, Mexico, and Brazil.

tax the "monopoly" profits of the foreign firm.[1] The foreign firm will simply move to another LDC or arrange its "transfer prices" so as to show little profits in the LDC trying to tax the monopoly profits. Thus the direct benefits of the investment to the LDC are limited to the wages and local purchases by foreign firms; there may also be "indirect" benefits, such as the diffusion throughout the local economy of the foreign firm's technical and market knowledge, managerial skills, or trained labor force. The evidence on these points is discussed in the next section of this paper.

The second part of the answer is that multinational firms may also invest in developing countries in order to reduce the risks involved in supplying their major markets from a single source. A multinational firm may geographically diversify its production even if this diversification raises production costs above that of LDC firms. While such investments may reduce the multinational firm's global risks,[2] it may increase the LDC's risks as compared to having a local firm exporting to the rich country. The multinational firm is subject to pressures in many more countries than is the local firm, and the LDC may be viewed as marginal

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[1]This statement is true only for those U.S. firms which do not immediately repatriate their LDC profits to the U.S. For those U.S. firms which do immediately repatriate these profits, the method of calculating the credit against the U.S. corporate tax for income taxes paid to LDC governments permits the U.S. firm to minimize its total tax payments only if it pays some income tax to the LDC. See the discussion in Robert Hellawell, "United States Income Taxation and Less Developed Countries: A Critical Appraisal," Columbia Law Review, 66 (December 1966), esp. pp. 1395-1398.

[2]For evidence on this point, see Benjamin I. Cohen, "Foreign Investment by U.S. Corporations as a Way of Reducing Risk," (Economic Growth Center Discussion Paper No. 151, September 1972).

to the multinational firm exporting to rich countries. Stobaugh, for example, reports that one U.S. electronics firm responded to the 1969-1970 decline in U.S. radio sales by stopping production in its new Taiwan plant rather than curtailing production in its U.S. plant.[1] We do not yet have any systematic comparison of local and multinational firms' responses to shifts in world demand.

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[1]Robert B. Stobaugh, "How Investment Abroad Creates Jobs at Home," Harvard Business Review, 50 (September-October 1972), pp. 122-123.

## III

Since alternative theoretical models lead to different consequences of foreign investment, I turn now to some preliminary results of empirical work I have done in South Korea, Taiwan, and Singapore. All three of these countries have had a rapid expansion of their manufactured exports, as shown below:

| | Exports of Manufactures | | Annual Percentage Change |
|---|---|---|---|
| | 1967 (1) | 1971 (2) | (3) |
| | $ million | | |
| South Korea | 214 | 875 | 42 |
| Taiwan[1] | 394 | 1,428 | 38 |
| Singapore[2] | 132 | 285 | 22 |

[1]Excluding canned pineapple, canned mushrooms, and canned bamboo shoots.

[2]Excluding rubber and petroleum.

Sources: Monthly Economic Statistics (Bank of Korea, February 1972), p. 77; Industry of Free China (December 1972), pp. 136-137; Monthly Digest of Statistics (Singapore, Department of Statistics, May 1972), pp. 41-42.

In all three countries foreign firms were responsible for a significant portion of these exports in 1971: at least 15 percent in South Korea, at least 20 percent in Taiwan, and over 50 percent in Singapore. Exports by foreign firms are probably growing more rapidly than exports by local firms. For some products, such as transistors in South Korea and television sets in Taiwan, foreign firms

account for over 80 percent of the value of exports, while for other commodities, such as cloth, foreign firms apparently account for a small fraction of exports.

My general approach is to compare foreign firms with local firms making the same product. The products considered are: baseball gloves, cloth, feed stuff, flour, radios, sewing machines, television sets, toys, transistors, yarn, and wigs. Thus my sample excludes petroleum and chemicals because they are not exported by local firms; all the other major commodities exported from these countries by foreign firms are included. U.S. firms operate in all three countries and Japanese firms are in South Korea and Taiwan. The South Korean data are based on both factory tours and on questionnaires, and the results are reported in detail elsewhere.[1] The Singapore and Taiwan data are based on factory tours and on preliminary examination of questionnaires, and so my conclusions about these latter two countries are very tentative. The allocation of the 75 firms by product and nationality is shown in Table 1, where products are labeled to preserve confidentiality of the firms.

By comparing foreign and local firms producing and exporting the same commodity, I assume that local firms could expand exports if there were no foreign firms. It may be objected that the local firms could not expand because of a shortage of capital. As argued in Section II, one should look for the major contribution of foreign manufacturing firms in the areas of technology and management, not as a source of capital. The 12 foreign firms in my South Korea sample have an equity investment of only $12 million and employ 8,600 persons.

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[1]Benjamin I. Cohen, "Comparative Behavior of Foreign and Domestic Export Firms in a Developing Economy," Review of Economics and Statistics, 55 (May 1973).

Table 1

Number of Firms Interviewed

| Product | South Korea | | Taiwan | | Singapore | | Total | |
|---|---|---|---|---|---|---|---|---|
| | Local (1) | Foreign (2) | Local (3) | Foreign (4) | Local (5) | Foreign (6) | Local (7) | Foreign (8) |
| A | 2 | 2 | 3 | 7 | 0 | 3 | 5 | 12 |
| B | 0 | 0 | 2 | 6 | 0 | 0 | 2 | 6 |
| C | 1 | 4 | 2 | 1 | 0 | 1 | 3 | 6 |
| D | 2 | 1 | 2 | 1 | 0 | 1 | 4 | 3 |
| E | 4 | 2 | 2 | 1 | 1 | 3 | 7 | 6 |
| F | 0 | 0 | 1 | 2 | 0 | 0 | 1 | 2 |
| G | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| H | 1 | 2 | 2 | 1 | 0 | 0 | 3 | 3 |
| I | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| J | 0 | 0 | 1 | 2 | 0 | 0 | 1 | 2 |
| K | 1 | 1 | 1 | 2 | 0 | 0 | 2 | 3 |
| Total | 11 | 12 | 16 | 23 | 3 | 10 | 30 | 45 |

I do not have similar data for my Taiwan and Singapore sample. Schreiber reports, however, that five U.S. firms had a total equity investment in Taiwan of $13 million, along with $7 million borrowed in the U.S. and $22 million borrowed in Taiwan.[1]

U.S. firms whose LDC foreign subsidiaries sold $276 million in manufactures to the U.S. in 1969 report investment in the subsidiaries of $79 million and LDC employment of 66,000.[2] We also know that U.S. direct investment in manufacturing in all of Asia (excluding Japan) was only $217 million during the 3-year period of 1969-1971; of this amount reinvested earnings were $119 million. A profitable local firm would presumably have reinvested also, and so the net contribution of new capital by all U.S. manufacturing firms in these three years was $98 million.[3] This inflow of $98 million of new foreign capital via U.S. manufacturing corporations may be compared with the $62 million raised by Asian countries (excluding Japan) in the international bond market in 1969, 1970, and 1971.[4]

These countries can probably raise capital cheaper via the international bond market. The average issue yield on bonds issued by developing countries from 1969 through 1971 ranged from 6.5 percent to 8.9 percent.[5] While we do not

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[1] Jordan Schreiber, U.S. Corporate Investment in Taiwan (Cambridge, Mass.: University Press, 1970), p. 51.

[2] Economic Factors Affecting the Use of 807.00 and 806.30 (Washington: U.S. Tariff Commission, 1970), pp. 152, 164.

[3] The picture is similar in Latin America. Direct investment in manufacturing by U.S. firms was $1,102 million in 1969-1971, of which $685 million was reinvested earnings. Data from Survey of Current Business (November 1972), pp. 29, 31 and Survey of Current Business (October 1971), p. 35.

[4] Latin American countries raised $469 million in the international bond market in 1969, 1970, and 1971, as compared to $417 million of new foreign capital via U.S. manufacturing corporations in the same three years. Annual Report of the World Bank, 1972 (Washington, 1972), p. 93.

[5] Annual Report of the World Bank, 1972 (Washington, 1972), p. 94.

have direct evidence on the rate of return on investments by foreign manufacturing firms in particular LDC's, the U.S. Department of Commerce estimates that between 1969 and 1971 direct investment in manufacturing in all developing countries earned 14-15 percent on the U.S. parent firm's investment.[1]

My tentative observations from the firms in my sample are that: (1) foreign firms tend to export a somewhat higher fraction of their output than local firms, (2) foreign firms tend to import more and to buy less from local firms than do local firms making the same product,[2] (3) local firms tend to have a higher value added per dollar of sales than foreign firms, and (4) there is no clear pattern as to whether foreign firms pay their workers more than local firms. These conclusions are subject to two caveats. The firms in my sample are all primarily exporters. The comparison between local and foreign firms may be different when they are selling mainly in local markets.[3] Most of the foreign firms are also less than five years old, and their behavior may change over time.

What about the type of technology? While foreign firms probably pay less for capital than local firms, some people argue[4] that foreign firms may know more about the worldwide stock of available techniques and be more concerned with minimizing production costs than in acquiring prestige from a "modern," capital-intensive plant. Strassman, in a study of 14 U.S. firms and 22 Mexican firms

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[1]Earnings are broadly defined and include branch earnings, dividends paid by the foreign subsidiary to the parent, reinvested earnings by the subsidiary, interest paid by the subsidiary to the parent, and royalties and fees paid by the subsidiary to the parent. Survey of Current Business (November 1972), p. 23.

[2]This second finding is also true in Canada. A Citizen's Guide to the Gray Report (Toronto: The Canadian Forum, 1970), p. 59.

[3]Katz, for example, finds that in the Argentina pharmaceutical industry foreign firms pay higher wages. J. Katz, Importacion de Tecnologie, Aprendizaje Local e Industrializacion dependiante (Buenos Aires: Instituto DiTella, 1972).

[4]Ian Little, Tibor Scitovsky, and Maurice Scott, Industry and Trade In Some

producing in Mexico, concluded that U.S. firms were more likely than Mexican firms to adopt labor-intensive techniques.[1] Pack, in a study of three industries in Kenya, also found that the foreign firm was more likely to use a labor-intensive technique.[2] Wells, on the other hand, using a sample of 50 plants in six industries in Indonesia, found that foreign firms were more likely to use a capital-intensive technology.[3] Mason, in a study of 14 U.S. firms and 14 local firms in nine industries in Mexico and the Philippines, found that U.S. firms employed more building per worker and about the same amount of equipment per worker as compared to local firms.[4] Leff, in a study of 20 firms in the Brazilian capital goods industry, found that both foreign and domestic firms relied heavily on second-hand machinery imported from the rich countries.[5]

In my work I use electricity consumption per worker to measure capital-labor ratios among firms producing the same product, and I find no clear pattern. Sometimes foreign firms are more capital-intensive, and sometimes local firms are.

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Developing Countries: A Comparative Study (London: Oxford University Press, 1970), p. 57.

[1] W. Paul Strassman, Technological Change and Economic Development (Ithaca, New York: Cornell University Press, 1968), pp. 190-194.

[2] Howard Pack, "Employment in Kenyan Manufacturing--Some Microeconomic Evidence," (mimeo, April 1972).

[3] Though he explains this result in terms of foreign firms being more likely to have "monopoly" profits because they make consumer products with an internationally known brand name. Louis T. Wells, Jr., "Economic Man and Engineering Man: Choice of Technology in a Low Wage Country," (mimeo, November 1972).

[4] R. Hal Mason, "The Transfer of Technology through Direct Foreign Investment and the Factor Proportions Problem in Developing Countries," (mimeo, October 1970), pp. 53-63.

[5] Nathaniel Leff, The Brazilian Capital Goods Industry, 1929-1964 (Cambridge: Harvard University Press, 1968), p. 27.

These various studies seem to me to be inconclusive, perhaps because some look at firms selling only in the local market (Leff, Wells, and Pack), some look at firms concentrating on exports (Cohen), and some do not indicate the orientation of the firms in the sample (Strassman and Mason). Further empirical work is needed in this area.

What about the "indirect" or "external" consequences of direct foreign investment? Do foreign firms train local workers and/or managers who then move to local firms? Do foreign firms induce local suppliers to be more efficient? Do foreign firms demonstrate to local competitors more efficient ways of operating? My general response to this set of questions is that the answer is more likely to be affirmative when the foreign firm is the first to produce and export the commodity.

In both Korea and Taiwan labor turnover is low. In Korea only two firms, out of 18 answering the question, had had more than half of their assembly line workers with previous factory experience, and both of these firms were foreign. About half the firms reported that less than 10 percent of their employees (assembly line and supervisory) had been previously employed. Only one Korean firm and one foreign firm reported that more than 10 percent of those previously employed had worked for a foreign firm. The one Korean firm was making transistors, which is the only product in my Korean sample which was initially produced in Korea by a foreign firm. Similarly in Taiwan, where television sets and transistors were the only two products first produced by foreign firms, and local producers of these two commodities have many managerial and technical personnel who had previously worked for foreign firms. For the other seven commodities in my Taiwan sample, which were first produced and exported by local firms, foreign firms seem more likely to take workers away from local firms than to supply them

to local firms. In my Singapore sample, all products were initially produced by foreign firms.

Most assembly line workers in my sample come from rural areas in Korea and Taiwan.[1] A sample of 36 female workers, arbitrarily selected by me during factory tours, revealed that 52 percent of those working in Seoul had fathers who were farmers, and 85 percent of those working in other cities had fathers who were farmers. In a sample of 36 female workers in Taiwan, 27 percent of those working in Taipei had fathers who were farmers, as compared to 64 percent of those working in cities other than Taipei. One can only speculate as to why workers who have had no previous factory experience and frequently no previous urban experience can achieve such high levels of productivity.

In the cases of transistors in Korea, Taiwan, and Singapore and of television sets in Taiwan, foreign firms were the initial producers, and natives who worked for these foreign firms are now employed as technicians and managers to local firms. It is still too soon, however, to tell whether these local firms will be able to expand and to export in competition with the foreign firms.

A foreign sewing machine firm set up a factory in Taiwan and induced local suppliers of components to improve their quality. This improvement enabled local sewing machine firms to greatly expand their exports. This seems to be the only case where existing local firms benefitted from the arrival of a foreign competitor.

While the gross benefits to the LDC may be greater when the multinational firm invests in a product that local firms are not yet producing, the costs to the LDC of such investment may also be higher. In the "bilateral monopoly"

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[1] Singapore, a city-state of 2.1 million persons, has no significant rural population.

bargaining between the LDC government and the multinational firm, the LDC government presumably knows least about the products that have not been produced locally, and hence it is least able to evaluate the package of knowledge and management that a particular multinational firm offers. A LDC government can, for example, make a better choice among alternative foreign cotton textile firms than among alternative foreign color television firms.[1] Thus the net benefits (gross benefits minus costs) to the LDC may be no higher for foreign investment in a new product than for products already produced and exported by local firms.[2]

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[1]Individuals face the same problem. For most purchases the consumer can easily learn about the relative quality of similar products and compare the quality with the price. For those products a competitive private marketplace gives an "efficient" result. As Arrow noted, for some consumer purchases, such as medical care, the private marketplace is less likely to give an "efficient" result because "the value of information is frequently not known in any meaningful sense to the buyer; if, indeed, he knew enough to measure the value of information, he would know the information itself." Kenneth J. Arrow, "Uncertainty and the Welfare Economics of Medical Care," American Economic Review, 53 (December 1963), p. 946.

[2]This type of analysis suggests that a LDC, because it knows less about the technology than a rich country, will pay a multinational firm more than will a rich country. Johnson, using a different framework, reaches the opposite conclusion: that the LDC will pay less than the rich country for a particular "package" of knowledge and skill. Harry G. Johnson, "The Efficiency and Welfare Implications of the Multinational Firms" The International Corporation, ed. Charles P. Kindleberger (Cambridge: M.I.T. Press, 1970), p. 41.

## IV

Looking at either the various theoretical models or the empirical evidence, I find it difficult to make a general comparison of the benefits to the LDC of the two alternatives: (1) having direct foreign investment for the export of manufactures or (2) having the LDC government borrow the capital in the international bond market and the local firms either buy the technology or develop it locally. I suspect that the "narrow" economic factors discussed in the previous section explain only a small part of a LDC government's attitudes towards direct U.S. investment, and I have discussed elsewhere some of these other considerations for the case of South Korea.[1]

Suppose that for some set of reasons a LDC government decides it wants to attract a number of foreign firms. What policies should it adopt? South Korea, Taiwan, and Singapore all offer foreign firms five year exemption from income tax and exemption from import duties for raw materials that enter into exports.[2] Believing (or assuming?) that firms equate after-tax rates of return around the world, economic theorists tend to argue that the level of corporate income tax in a particular country will affect the inflow of foreign capital.[3] Economists

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[1]Benjamin I. Cohen, "Comparative Behavior of Foreign and Domestic Export Firms in a Developing Economy," Review of Economics and Statistics, 55 (May 1973), p. 196.

[2]These three governments also allow foreign firms to have 100 percent of the equity in the investment.

[3]Theorists sometimes note that a double taxation agreement or a tax credit scheme by the parent country's government will make the geographic allocation of investment independent of the LDC's tax rate (if the LDC tax rate is below that of the parent country). See for example, G.D.A. MacDougall, op. cit., pp. 175-176. As noted earlier, this argument implicitly assumes that the multinational firm immediately repatriates the profits it earns in the LDC.

who have interviewed businessmen about their investments in LDC's tend to be very skeptical that reducing the corporate income tax attracts additional foreign investment. Hughes and Seng, based on a survey of 127 firms from six countries that invested in Singapore, say "...foreign investors, almost without exception, stated that taxation concessions...did not play a significant role, and for the most part played no role at all, in bringing them to Singapore."[1] Aharoni, based on a survey of 38 U.S. firms that had made over a hundred decisions about direct foreign investment, concluded "...that the granting of income tax exemption by foreign governments is not an important factor in foreign investment decisions."[2] Schreiber, in a study of 22 U.S. companies in Taiwan found, "while half of the reporting companies said that the tax concession was meaningful, none said that without it they would not have invested in Taiwan."[3]

Even if it were true that multinational firms respond to tax incentives in LDC's, I suggest that a LDC government need not offer tax exemption to all foreign investors. There is substantial evidence[4] that most direct foreign investment is done by firms that are in oligopolistic industries. In such industries

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[1] Foreign Investment and Industrialisation in Singapore, ed. Helen Hughes and You Poh Seng (Canberra: Australian National University Press, 1969), p. 183.

[2] Yair Aharoni, The Foreign Investment Decision Process (Boston: Harvard University Graduate School of Business Administration, 1966), p. 235.

[3] Jordan Schreiber, U.S. Corporate Investment in Taiwan (Cambridge, Mass.: University Press, 1970), p. 75.

[4] See, for example, Raymond Vernon, Sovereignty at Bay (New York: Basic Books, 1971), esp. Chs. 1 and 3.

it is quite possible that most firms will imitate the investment behavior of the firm which first invests abroad.[1] As Aharoni put it, "when several companies in the same industry went abroad, others felt compelled to follow suit in order to maintain their relative size and their relative rate of growth... Imitating the commitments of a leader on the grounds that one is less vulnerable if his exposures are the same as those of his principal competitors."[2] Those readers who find this point obvious may skip the next two paragraphs.

One can take more formal the notion that in an uncertain world firms in an oligopolistic industry will follow any firm which invests abroad. Consider an industry with two U.S. firms, each of which sells in the U.S. and is deciding whether to continue production in the U.S. or to invest in a LDC for export to the U.S. Suppose total industry sales are independent of production costs (at least within the range considered in this example). Each firm faces two kinds of uncertainty: what will its rival do and how will costs in the LDC compare with those in the U.S. The latter uncertainty stems from such factors as the future of the exchange rate for the dollar, future U.S. tariff levels, and future productivity levels and wages in the LDC relative to those in the U.S. Each firm is assumed to perceive the same "payoff" matrix, as shown below:

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[1] Fifteen years ago Duesenberry argued that in an oligopolistic industry "it is important...for every firm to cut costs as fast as its rivals do. But that can be achieved equally well whether all the firms follow cautious policy and reduce costs slowly, or adopt a daring policy and reduce costs rapidly... the firm which is willing to take the greatest risks will set the pace of investment and research expenditures which in the long run set the level of costs." James Duesenberry, Business Cycles and Economic Growth (New York: McGraw-Hill Book Co., 1958), pp. 130-131.

[2] Aharoni, op. cit., pp. 65-66.

| | | | Firm B's profits | | | |
|---|---|---|---|---|---|---|
| | | | Invest in LDC | | Do not invest in LDC | |
| | | | LDC is low cost | LDC is high cost | LDC is low cost | LDC is high cost |
| Firm A's profits | invest in LDC | LDC is low cost | 12, 12 | --- | 20, 4 | --- |
| | | LDC is high cost | --- | 5, 5 | --- | 4, 20 |
| | do not invest in LDC | LDC is low cost | 4, 20 | --- | 10, 10 | --- |
| | | LDC is high cost | --- | 20, 4 | --- | 10, 10 |

Firm A's profits are shown to the left, and firm B's profits to the right. For example, if firm A invests in the LDC and firm B does not and if costs in the LDC turn out to be lower than costs in the U.S., then firm A's profits are $20 and firm B has profits of $4. If firm A invests in the LDC and firm B does not and if production costs in the LDC turn out to be higher than in the U.S., then firm A earns $4 and firm B earns $20.

Suppose each firm follows a strategy of maximizing its minimum profit. If firm B think firm A will invest in the LDC, then firm B will also invest, since investing implies a profit for firm B of at least $5, as compared to a possible profit of only $4 if it does not invest. If firm B thinks firm A will not invest in the LDC, then firm B will also not invest in the LDC. Therefore, once firm A invests, firm B will also invest even though firm B is still uncertain as to whether production costs will be lower in the LDC than in the U.S. Similarly, if firm B invests first in the LDC, firm A will follow suit.

It follows from this type of analysis that the LDC governments need only offer tax concessions to the first foreign investor in the industry. Since in

reality most industries have more than two firms, it might be necessary to offer incentives to the first, say, three foreign firms. Such a policy might even accelerate the decision to invest in the LDC's, since each foreign firm would strive to be one of the first three to invest. This type of analysis could also be extended to other "concessions" granted to foreign firms by a LDC government, such as permission for the foreign firm to have 100 percent of the equity in the LDC company. However, as noted in Section II, a single LDC cannot act alone in taxing foreign firms which are exporting manufactures. One can only speculate on whether the LDC governments will be able to form a common policy towards multinational manufacturing firms and thereby increase the benefits they receive from investments by these firms.