DIRECT FOREIGN INVESTMENT, STRUCTURAL ADJUSTMENT, AND INTERNATIONAL DIVISION OF LABOR: A DYNAMIC MACROECONOMIC THEORY OF DIRECT FOREIGN INVESTMENT

by

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I. Introduction

In recent years, with their large current account surpluses and high real exchange rates, Korea and Taiwan have started making direct foreign investment (DFI) in countries with the abundant supply of labor such as the ASEAN countries. What is interesting about these investments is that they are carried out by firms in labor-intensive industries on a relatively small scale and are thus different from U.S. DFI which is usually carried out by large enterprises in technologically advanced manufacturing and service industries as well as in natural resources. In fact, the pattern of DFI from Korea and Taiwan seems to parallel that of Japanese DFI in developing Asian countries in the second half of the 1960s and in the 1970s, which was then carried out by small and medium-sized firms in labor-intensive industries (Kojima 1973 and 1978). In other words, the Asian NIEs seem to be now replicating the investment experience of the Japan of the 60s and 70s while some of the ASEAN countries are now having a growth spurt similar to that the Asian NIEs went through in those years.

Direct foreign investment from Korea and Taiwan in ASEAN countries is a consequence of their having successfully industrialized in the past three decades. They now have large current account surpluses, high currency values, rapidly rising real wages as well as numerous incidents of labor strife. These are clearly signs that the comparative advantage of these countries is changing from labor-intensive to capital- and knowledge-intensive industries. The outflows of DFI from these Asian NIEs, when they are going through changes in comparative advantage, raise an interesting question as to what the relationship is between a country’s comparative advantage position and its foreign investment. Most of the past research on direct foreign investment has
not addressed this macroeconomic issue, focusing rather on the microeconomic aspect of investment decision of multinational enterprises.

Perhaps, the only exception is the work by Professor Kiyoshi Kojima whose pioneering theory on Japanese DFI deals explicitly with the relationship between comparative advantage and DFI (Kojima 1973 and 1978, Kojima and Ozawa 1984). In the light of recent increases in DFI from Korea and Taiwan it is thus worthwhile to re-examine Kojima’s contribution and find out whether his insight and theory are applicable to the recent experiences of Korea and Taiwan. Although his theory is presented as uniquely Japanese, it may have more general applicability if DFI from Korea and Taiwan is similar in character to that from Japan. In that case Kojima’s theory and Japanese policies with respect to its DFI should have important policy implications for rapidly industrializing countries such as Korea, Taiwan, and some of the ASEAN countries.

Section II presents a brief recapitulation of Kojima’s macroeconomic theory of direct foreign investment along with its critique. Section III then presents a dynamic macroeconomic theory of DFI, based on Kojima’s insight in the relationship between comparative advantage and DFI. Section IV concludes with policy implications of the dynamic theory.

II. Kojima’s Macroeconomic Theory of Direct Foreign Investment Revisited

A key point in Kojima’s theory is that Japanese DFI is complementary to Japan’s comparative advantage position and thus trade-oriented whereas U.S. DFI displaces its comparative advantage position and is thus anti-trade oriented. Thus, a major portion of Japanese DFI is directed toward securing natural resources with which Japan is poorly endowed, and even Japanese DFI in
manufacturing has been mostly in labor-intensive industries such as textiles and clothing, assembly of motor vehicles, and parts and components for electronic machinery. In contrast, U.S. DFI is carried out, according to Kojima, by large oligopolistic firms in the industries in which the United States has a comparative advantage.

Since a firm's decision to invest abroad or not is based on expected profits from investment, it must be shown, if there is to be a relationship between a country's DFI and its comparative advantage position, that a firm in a comparatively disadvantaged industry can make a higher rate of profit abroad than from an alternative investment project at home. To establish this relationship Kojima proposes a "correspondence principle," which states that a country's comparative profitability is higher in an industry in which it has a comparative advantage.

Kojima's demonstration of his correspondence principle is as follows: Denote $x_d$ and $x_f$ as the rates of profit in the x industry at home and abroad, respectively, and $y_d$ and $y_f$ as the rate of profit in the y industry at home and abroad, respectively. Then, according to the correspondence principle, $x_f/y_f > x_d/y_d$ if the home country has a comparative advantage in the y industry. Accordingly, firms in the y industry will invest at home while those in the x industry will invest abroad. This correspondence principle suffers, however, from three major conceptual problems.

The first is that a firm's investment decision is not guided by comparative profitability as defined above but by a comparison of absolute profit rates. To see this point, suppose that $x_f = 12\%$, $y_f = 5\%$, and $x_d = y_d = 10\%$, following Kojima. According to the correspondence principle, firms in the y industry will invest at home and those in the x industry will invest abroad.
The fallacy of this argument can be, however, easily demonstrated if we assume that \( x_f = 6\% \), \( y_f = 2.5\% \), and \( x_d = y_d = 10\% \). Here, we have the same comparative profitability as in Kojima's case but firms in neither industry will invest abroad as they can get a higher absolute profit rate at home.

The second problem with the correspondence principle is that it is formulated in terms of static comparative advantage and disadvantage. The pre-trade difference in cost in the theory of comparative advantage refers to a difference in static equilibrium, and consequently the profit rate is the same for all industries whether they are comparatively advantaged or disadvantaged. In other words, \( x_f/y_f = x_d/y_d \) when both countries are in static pre-trade equilibrium, and this relationship will hold whether the home country has a comparative advantage in the \( x \) or \( y \) industry. The profit rate may, however, differ between countries and consequently there may be capital movement from one country to the other. But, being the same across all industries within each country the profit rate cannot be a determinant of which industry will be investing at home or abroad.

The third problem with the correspondence principle is that it is a symmetric relationship between a pair of countries. Since the relationship between the two is specified only in terms of comparative advantage and comparative profitability with no reference to absolute profit rates, it follows that the flow of DFI is bilateral. One country's comparatively disadvantaged industry with a comparatively low profit rate is the other country's comparatively advantaged industry with a comparatively high profit rate, and conversely. Consequently, if one country's outward DFI is from its comparatively disadvantaged industry, it receives at the same time DFI in its comparatively advantaged industry from the other country's comparatively
disadvantaged industry.

Clearly, whether this happens or not will depend on absolute profit rates. Thus, in the numerical example given by Kojima \((x_f = 12\%, y_f = 5\%, x_d = y_d = 10\%)\), firms in the home country's x industry would invest in the foreign country's x industry earning 12\% instead of 10\% while firms in the foreign country's y industry would invest in the home country's y industry earning 10\% instead of 5\%. This certainly was not the case for Japan which invested in developing Asian countries but did not receive DFI from them in its capital- and knowledge-intensive industries in return. Furthermore, one must wonder why every firm, in whichever industry it is currently, would not want to invest in the foreign country's x industry which has the highest profit rate. Also, as demonstrated above, one could easily select a set of profit rates which would lead DFI in only one direction.

Even though the preceding discussion demonstrates that the correspondence principle has serious problems, empirical evidence shows that Kojima's observation of the patterns of Japanese and U.S. DFI is by and large correct (e.g., Lee 1980). Furthermore, in the light of recent outflows of DFI from Korea and Taiwan we believe that his valuable insight into the difference between Japanese and U.S. DFI and his macroeconomic theory of DFI can be a fruitful starting point for further research in the relationship between DFI and comparative advantage.

III. A Dynamic Macroeconomic Theory of Direct Foreign Investment

Changing Comparative Advantage

The preceding discussion of Kojima's macroeconomic theory of direct
foreign investment suggests that it needs to be formulated in a dynamic, disequilibrium framework. Profit rates can be then different between industries, and furthermore it can be assumed that firms in an industry losing a comparative advantage experience a low or falling profit rate whereas those in an industry gaining a comparative advantage experience a high or rising profit rate. Then, the correspondence is between absolute profit rates and changing comparative advantage, and firms in the industry losing a comparative advantage invest abroad whereas those in the industry gaining a comparative advantage invest at home. The theory must be formulated, however, in a three-country world to avoid the problem of symmetry mentioned above.

In such a world there are a developed country, a developing country, and a country in transition (transition country) from the developing to the developed status. This country is undergoing a structural change from a manufacturer of primarily labor-intensive products to a manufacturer of capital- and knowledge-intensive products. Thus, it is losing a comparative advantage in labor-intensive industries while gaining a comparative advantage in capital- and knowledge-intensive industries.

This reformulated correspondence principle then states that firms in labor-intensive industries which are losing a comparative advantage in the transition country will invest in the developing country as they experience falling or low profit rates at home whereas those in capital- and knowledge-intensive industries which are gaining a comparative advantage will invest at home as they experience rising or high profit rates. The latter industries will also receive DFI from the developed country which is in turn losing a comparative advantage in some of its capital- and technology-intensive industries. The developing country is of course gaining a comparative
advantage in the labor-intensive industries in which the transition country is now investing. In fact, the stages of development and adjustment that these countries are going through can be labeled picturesquely as a "flying geese" pattern: with the developed country at the head of the flock, the transition country in the middle, and the developing country bringing up the rear.

**Industry-Specific Capital**

The reformulated correspondence principle does not, however, explain why firms in an industry losing a comparative advantage would invest abroad instead of moving into a domestic industry in which the country is gaining a comparative advantage and where there is a high or rising profit rate. If the profit rate is all that matters to a firm's decision to invest abroad or at home, then the correspondence principle, even as reformulated, has little to say about the direction of investment.

What are then the factors besides the profit rate that a firm considers in deciding either to invest abroad or to move into another industry at home? Implicit in the correspondence principle is the assumption that the value of capital does not change whether it is invested at home or abroad. But it cannot be so if some of the capital is industry-specific, and the firm will thus consider, besides the profit rate, the effect of its decision on the value of capital.

If it decides to invest abroad, the firm can produce and market the same product, utilizing its present industry- and firm-specific intangible capital and some industry-specific physical capital transferred from the home country. If it decides to move into another industry at home, the firm will have only its general capital to work with, its industry-specific intangible and
physical capital being of no use in that industry. That is, because of the industry-specificity of some of the capital that the firm owns there can be an important difference in the value of capital between investing abroad—inter-country intra-industry movement of intangible and tangible capital—and moving into another industry at home—intra-country inter-industry movement. In the first case the value of the firm's total capital will change little whereas in the second case the value of the capital will diminish by the value of its industry-specific capital. This loss in value is due to the fact that industry-specific capital has little or zero value in other than its own industry, and it could be regarded as the cost of intra-country inter-industry movement. Thus, other things being equal the firm will be inclined to invest abroad instead of at home.

An example of industry-specific intangible capital is marketing knowhow. Whether the market for the product is in the investing country or in a third country, the firm investing abroad will be utilizing already established marketing channels and will thus save on the cost of finding new markets and new marketing channels which would be necessary if it moved into another industry at home.

In investing abroad there is the cost of moving capital to a foreign country and the cost of doing business in an alien setting. In making its decision to invest abroad or at home the firm will thus compare these costs with the cost of intra-country inter-industry movement. The modern systems of telecommunications and transportation have, however, reduced the cost of investing abroad. This must be more so especially when DFI is, for instance, from Japan to countries such as Korea and Taiwan, which are geographically close to Japan and which were once colonies of Japan. Thus, when Japan was
losing its comparative advantage in labor-intensive industries, even small and medium-sized firms in these industries would have found it advantageous to invest abroad instead of establishing itself in another industry at home.

So far we have compared only two alternative courses of action for the firm in an industry losing a comparative advantage—investing abroad or moving into another industry at home. There is, however, a third alternative—that of selling industry-specific capital to foreign firms. These firms, which are in an industry gaining a comparative advantage in their country, would be interested in purchasing the capital. There are, however, two reasons why such market transactions would seldom take place. The first is that the firms in the home country would find it advantageous to internalize the use of firm-specific (also industry-specific) intangible capital as this has the characteristic of a public good and thus the market for arm’s-length transactions is not well developed (Rugman 1980). The second reason is that the market for second-hand industry-specific tangible capital is not well developed either. For these reasons the internalized use of both industry-specific intangible and tangible capital, which is accomplished through DFI, would allow the firm to maximize the value of its capital.

There is nothing in the preceding analysis that is uniquely Japanese. Furthermore, although the focus of the analysis is on the transition country, it could be easily applied to the developed country which is also facing a change in its comparative advantage position. As the transition country gains a comparative advantage in certain capital- and knowledge-intensive industries, the developed country is losing its comparative advantage in the same industries. There is then no reason why firms in the latter industries would not find it advantageous to invest in the transition country for the
reasons mentioned above. Clearly, some of U.S. DFI fits this category although there are others that do not.

Adjustments to changing comparative advantage do not have be made only by transferring an entire industry. Lipsey (1989) has pointed out that in the case of the United States what is being transferred abroad is the production of more labor-intensive and lower-tech segments of the high-tech industries while the higher-tech segments are being retained in the country. As evidence of this process Lipsey found that during the 1970-86 period U.S. exports were at a higher technology level than U.S. imports but both exports and imports moved toward higher technology classes over the period. He also found that U.S. exports and imports embody an increasing amount of R & D although the former embody considerably more than the latter.

Labor-Market Conditions

So far the labor market was assumed to be competitive such that workers could be easily hired and laid off. Consequently, only the effect of the decision either to invest abroad or to invest at home on the value of industry-specific capital was considered. But, clearly such labor-market conditions cannot be assumed for all countries. As labor is largely immobile between countries, it cannot preserve the value of its industry-specific skill by moving abroad and has therefore a greater incentive to protect it through other measures. The labor union is certainly one of these but government regulations preventing immediate layoff are also a part of protective measures for labor. Such regulations impose an additional cost to inter-country intra-industry movement, and the firm will thus consider it in deciding whether to invest abroad or to invest at home.
If the firm makes intra-country inter-industry movement, it may not have to bear the layoff cost especially if the skills of the currently employed workers are not industry-specific. Even if they are industry-specific the workers may be still employed in the new industry. This can happen as, although their marginal product of labor in the new industry may be less than the wage rate, the cost of wage overpayment could be less than the layoff cost. In any case, because of the layoff cost the balance of advantage for the firm may shift to intra-country inter-industry movement. If workers' skills are predominantly industry-specific and if they are well organized, there would be a strong common interest between the firms and the union in forming a "distributional coalition" and lobbying the government to protect the industry from foreign competition. Clearly, such a distributional coalition is more likely to develop in an industry which has been established for some time but now is losing a comparative advantage than a new industry gaining a comparative advantage (Olson). Besides a low or falling profit rate the firms and workers in the former would tend to have more industry-specific capital than those in the latter and thus more to gain from protection from foreign competition.

In the case of the Japan of the late 1960s and early 1970s there was a shortage of labor in unskilled labor-intensive industries and unemployment was not an issue for neither labor unions nor the government. There was therefore no need to protect the workers in these industries and labor-market conditions could not have been a hindrance to investment abroad. In contrast, different labor-market conditions in the U.S. could have made laying-off costly, thus hindering foreign investment. In explaining the difference between U.S. and Japanese investment one should, therefore, look into the difference in labor-
market conditions between the two countries.

The theory of DFI proposed in this paper is not inconsistent with other theories of DFI such as the transactions-cost approach or the internalization theory. In these approaches the firm-specific intangible asset or capital and its internalized use are the key reasons for investing abroad. Being microeconomic in approach neither theory considers the industry-specificity of capital and thus the possibility and cost of investing in another industry. Furthermore, because U.S. DFI is not by and large from industries losing a comparative advantage it has been taken for granted that there is no motive for firms in these industries to invest abroad. That is why most of the analysis of U.S. DFI regards it a characteristic of oligopolistic firms as only they are presumed to possess firm-specific intangible capital (e.g., Caves 1971, Hymer 1960, and Kindleberger 1969). There is, however, no reason why even in a monopolistically competitive market firms would not possess some firm-specific intangible capital (Lee 1984). Since firms compare the costs and benefits in making the decision to invest abroad and since non-wage costs such as the layoff cost affect this decision, firms even in non-oligopolistic markets may invest abroad if the cost of investing abroad is sufficiently low. Thus, the fact that under the present labor-market condition U.S. DFI is largely by oligopolistic firms should not be taken to mean that under an alternative labor-market condition it would not be carried out by firms in non-oligopolistic markets.

IV. Conclusion

A country's comparative advantage changes over time as technologies change and factors of production accumulate at different speeds and as the
world prices of traded goods change. If capital and skills are fully
depreciated at the normal rate of return when a change occurs in the country's
comparative advantage, there is no loss in the value of capital and the value
of skills and there will be no structural adjustment problem. Since this is
unlikely a change in comparative advantage imposes a private as well as social
cost as it affects the value of industry-specific capital and skills. Foreign
investment makes it possible for the affected firms to maintain the value of
the capital, thus facilitating the contraction of industries losing a
comparative advantage at a lesser cost than if foreign investment is not
possible. In the latter case structural adjustment will cost the country the
industry-specific capital. It thus follows that with foreign investment the
country gains as it can avoid this loss.

In comparison with capital, labor is not generally mobile between
countries and cannot thus avoid the loss in the value of industry-specific
skills. Consequently, the response of labor in an industry losing a
comparative advantage is different from that of the firm. It is generally seen
by labor groups that DFI displaces workers in the home country and is the
cause of their unemployment. What our analysis demonstrates is that the loss
of comparative advantage, and not DFI, is the cause of labor displacement. DFI
is a response to avoid the effect of that loss, and as such it makes the
owners of capital better off and workers no worse than if DFI is not allowed.

This point may be further elaborated. If workers' skills are entirely
general and if the labor market functions competitively, workers cannot be
worse off with DFI. Whether the firms invest abroad or at home, the domestic
stock of capital will be reduced by the amount of industry-specific capital
and consequently the marginal product of labor and GDP will be the same in
both cases. However, as industry-specific capital transferred abroad remains productive its repatriated earnings will be added to GDP, making GNP larger than GDP. If DFI is not allowed, GNP will be the same as GDP.

If workers have some industry-specific skills, again they would be no worse off with DFI. Since they are not mobile between countries, their industry-specific skills will be lost whether firms invest abroad or not. To the extent that the skills have no value now GDP is less than the GDP when skills are general. With DFI the country's GNP will be still larger than GDP.

As mentioned earlier, the Japanese government promoted foreign investment by small and medium-sized firms in industries losing a comparative advantage by establishing institutions such as the Japan Overseas Development Corporation, the Overseas Mineral Resource Development Corporation, and the Overseas Fishery Cooperative Foundation. This raises the question of whether such implicit subsidies were socially optimal as in their absence resources could have moved into other industries. Although such a move would have reduced the value of industry-specific capital, firms would have done so only if doing so was more profitable than investing abroad.

A case for subsidies can be made if firms know less about investment opportunities abroad than at home. With respect to proprietary information there is, however, no reason why there would be any difference between investing abroad and investing at home. But with respect to general information regarding the economic and political conditions of a foreign country, which takes on the characteristic of a public good, one could argue that it is better for a public agency to collect and disseminate the information than for private firms to do it individually.

If there are distortions in the labor market as in the case of the layoff
cost, a second-best policy may be subsidizing foreign investment. The layoff cost increases the cost of inter-country intra-industry movement and subsidies can be used to offset this cost. Workers will be then laid off and receive the layoff payment which the firm pays with subsidies from the government. Now the country's CNP will exceed its GDP provided the subsidies do not introduce other distortions in the economy.

Direct foreign investment facilitates structural adjustment in the country experiencing a change in its comparative advantage as it reduces the cost of adjustment for firms in the industries losing a comparative advantage. It also helps the development of the new industries gaining a comparative advantage as it brings into the country intangible and tangible capital from the more developed country. Clearly, for DFI to bring about these results it must be allowed to flow between countries with as few restrictions as possible. But, there must be also a liberal trade regime to accommodate trade flows resulting from such DFI. Thus, an argument for a liberal investment regime is an argument for a liberal trade regime.
References


Footnotes

1. It should be noted that Kojima's theory is based on his observation of the Japanese DFI in the 1960s and 1970s and thus with the structure of the Japanese economy of that period. There is some evidence that the Japanese DFI of more recent years differs from that of earlier years. Kojima's theory should be seen with this time-frame in mind.

2. It is assumed here that industry-specific intangible capital and general intangible capital are not separable. If separable, the firm does not have to make the either-or choice between investing abroad and moving into another industry at home. It can do both, taking industry-specific capital abroad while taking general capital to another industry at home.

3. This is not quite accurate as the value of capital would depend on the future stream of profits, and this would change whether the firm invests abroad or at home.