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MICRO- AND MACRO-ECONOMIC MODELS OF DIRECT FOREIGN INVESTMENT: TOWARD A SYNTHESIS

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I. *Introduction*

At the moment the theories of direct foreign investment (DFI) are of two major types: one is microeconomic-theoretic, the other macroeconomic-theoretic. The microeconomic-theoretic approach, which currently dominates the literature on multinational corporations, is exemplified by the industrial-organization theory [Hymer (1960), Kindleberger (1969), Caves (1971)], the product-cycle theory [Vernon (1966)], the appropriability theory [Magee (1977)], the risk-diversification theory [Grubel (1968), Agmon and Lessard (1977), Rugman (1979)], the intermediate-market-internalization theory [Buckley and Casson (1976), Casson (1979), Rugman (1980)] and the eclectic theory [Dunning (1977, 1981a)]. On the other hand, the macroeconomic-theoretic approach is represented by the currency-premium theory [Aliber (1970)], the development-stage theory [Dunning (1981b)], and the dynamic comparative-advantage theory [Kojima (1973, 1975)].[1] The first two macro-theoretic models look at macroeconomic variables or phenomena but are not concerned with the issue of how multinational investment activities affect the national welfare of the home and host countries. The Kojima model is the only one so far that has addressed the question of the impact of DFI on national welfare. For that matter, all the micro-theoretic models are concerned only with private cost and benefit analysis and are totally oblivious of social costs and benefits.

The compatibility issue between the private and social benefits of DFI is intrinsically a knotty one, for in many instances they are diametrically opposed to each other and cannot easily be reconciled. In the first place, multinational corporations by definition operate globally, while the nation, to which a criterion of social interest applies, has a much more limited arena of jurisdiction. Second, some factors of production are by nature immobile internationally, while others are made highly mobile internationally through the medium of multinational corporations, thereby enjoying a much higher degree of freedom in maximizing their returns. This difference in mobility inevitably affects the national income distribution in favor of mobile factors and against immobile ones; meanwhile, the national income may

* In writing this paper the authors have been mindful of the comment made by Buckley (1983) on the Kojima theory and also a number of comments received when Ozawa presented a brief outline of the present paper, basically drawn from Kojima's Japanese draft [Kojima (1984)], at a seminar at the University of Reading in May 1983. We are grateful to John Dunning, Mark Casson, George Norman, John Cantwell, Tom Pugel and other members of the seminar for their helpful suggestions.

[1] The distinction between micro and macro approaches can also be expressed in terms of the international business approach vs. the macroeconomic approach [Kojima (1982)]. For an excellent evaluation of the three macroeconomic approaches cited above see Gray (1982).

increase or decrease. Third, the existence of multinational corporations means the existence of monopolistic market elements (i.e., firm-specific advantages). In such circumstances, then, the pursuit of private interest does not necessarily lead—as it is held to do in the Smithian *laissez faire* system—to "social harmony"; the Invisible Hand is out of work. Given the serious discrepancies between social and private benefits (and costs), it is rather surprising that the majority of the theories of DFI remain unconcerned with social welfare; they are simply the extension of the theory of the firm (whose mission is to minimize private costs and maximize private benefits).

The purpose of this paper is to move a step farther to present a composite analytical framework of micro- and macro-orientation and to discuss the compatibility of the social and private interests of DFI.

II. *A Micro-Macro Composition Model of Trade and Investment*

The factor endowment framework

The Heckscher-Ohlin (H-O) factor-proportions theory emphasizes differences in the relative endowments of physical and internationally homogeneous (i.e., the factor-embodied knowledge is identical) factors of production, usually in a two-factor model involving labor, capital or land, as key determinants of trade; and industry-specific production functions are also assumed to be identical between trading countries (i.e., disembodied-technologies are identical, and by implication, no international difference exists in scientific and technological levels). These rather "peculiar" assumptions are made deliberately for the sake of emphasizing the importance of different factor proportions as trade determinants and presenting the theory as an alternative to the Ricardian trade model in explaining the basis of trade (i.e., as a pattern of comparative advantage).

Yet we know that world trade in manufactured goods in particular is based more on differences in industrial knowledge (production technologies and managerial and marketing skills) than no differences in factor endowments, especially as far as trade between industrialized countries is concerned. Moreover, industrial knowledge is created by highly monopolistic firms that are engaged in R&D and other firm-specific activities such as advertising, customer services, and quality controls (for example, the use of QC circles). Indeed, the importance of technological and organizational factors (i.e., intangible assets) over tangible primary factors of production continues to increase.

There is no doubt that the traditional H-O-theoretic framework, characterized by sheer simplicity of assumptions (homogeneous factors, identical industry-specific knowledge, and atomistically-insignificant firms—hence, no firm-specific organizational and technological differentiation) is inadequate as a model to explain international trade in modern manufactures, not to speak of DFI. In market economies, decisions to export,sell industrial knowledge, or set up production facilities abroad are made, furthermore, by individual firms in a non-identical manner, not by the central authority.

The E *model (a special case of the factor endowment theory)*

We might once again swing the pendulum back toward the Ricardian model and argue that even if factor proportions between two factors, say capital K and labor L, are identical

between two countries A and B—and hence that the ratio of wages and rentals, w/r, is the same between the two countries, there still is room, ample room indeed, for trade in manufactures to take place so long as firm-generated advantages (industrial knowledge) are different between the countries. This situation may be identified as the "entrepreneurial endowment" model (the E model). We can write as follows:

$$Q^i = q(L^i, K^i, E^i) = q^i(L^i, K^i)$$

where Q is output, L is labor, K is capital, and E is entrepreneurial endowment, which determines a production function q used by a representative firm i in a certain industry (hence "industry" i). E corresponds to ownership-specific advantages [Dunning (1977)], R&D outputs [Vernon (1966)], and intangible assets in production differentiation [Caves (1971)]. In our model, however, emphasis is placed on the concept of *comparative* entrepreneurial advantage rather than *absolute* entrepreneurial advantage.

Assuming two goods, X and Y,

(1) $X_A = x(L_{xA}, K_{xA}, E_{xA}) = x_A(L_{xA}, K_{xA})$

(2) $Y_A = y(L_{yA}, K_{yA}, E_{yA}) = y_A(L_{yA}, K_{yA})$

where x_A and y_A are specified by E_x and E_y, respectively, in country A.

Similarly, for country B,

(1′) $X_B = x(L_{xB}, K_{xB}, E_{xB}) = x_B(L_{xB}, K_{xB})$

(2′) $Y_B = y(L_{yB}, K_{yB}, E_{yB}) = y_B(L_{yB}, K_{yB})$

Assuming full employment for both countries,

(3) $L_{xA} + L_{yA} = \bar{L}_A$ (3′) $L_{xB} + L_{yB} = \bar{L}_B$

(4) $K_{xA} + K_{yA} = \bar{K}_A$ (4′) $K_{xB} + K_{yB} = \bar{K}_B$

Our entrepreneurial endowment model (E model) can now be presented as follows:

(5) $\bar{K}_A/\bar{L}_A = \bar{K}_B/\bar{L}_B$

(6) $w_A/r_A = w_B/r_B$ but

(7) $E_{yA}/E_{xA} > E_{yB}/E_{xB}$ or $y_A/x_A > y_B/x_B$

The larger the size of E, the higher the productivity and the more cost-effective—hence the smaller the production cost, C (i.e., we assume that technical change results only in a reduction in input coefficients); therefore,

(8) $C_{yA}/C_{xA} < C_{yB}/C_{xB}$

Thus country A has a comparative advantage in good Y, while country B has a comparative advantage in good X. The basis of trade is determined solely by differences in relative entrepreneurial endowments. This particular case illustrates trade in high-technology manufactures among industrialized countries whose factor endowments (hence factor price ratios) are nearly identical [Posner (1961) and Gray (1980)].

The H-O-E *model*

The "pure" entrepreneurial endowment model may be modified by differences in factor endowments (i.e., by the H-O conditions).[2] Assume the following H-O conditions:

(9) $\bar{K}_A/\bar{L}_A > \bar{K}_B/\bar{L}_B$

(10) $w_A/r_A > w_B/r_B$

(11) $x_A = x_B$, $y_A = y_B$

(12) $C_{yA}/C_{xA} < C_{yB}/C_{xB}$

[2] A similar model was presented mathematically by Jones (1970).

Thus country A has a comparative advantage in good Y, country B in good X. In this case, therefore, the H-O-determined pattern of comparative advantage will have a *reinforcing* effect on the E-determined pattern shown in (8). It is equally possible that the E-determined pattern may be swamped, either completely or partially, by the H-O determined pattern (i.e., a *swamping* effect).

The above composite model is illustrated in Figure 1, in which the unit isoquants of goods X and Y are shown. Good X is labor-intensive, while good Y is capital-intensive. The factor price ratio w/r of country A (say, a relatively capital-abundant industrialized country) is indicated by line MN, to which good Y's unit isoquant is tangent at B and good X's isoquant is tangent at A, respectively. The unit costs of both goods X and Y are OM when measured in terms of labor, and ON when measured in terms of capital. Since country A's overall factor-endowment ratio $(\bar{K}/\bar{L})$ line OF_a is located between points A and B, it produces both goods at the existing factor price ratio.

On the other hand, the factor price ratio of country B (say, a relatively labor-abundant developing country) is shown by line $M'N'$, to which the unit isoquant of good X is tangent at point a and that of good Y at point b. The fact that country B's isoquants are both farther away from the origin than country A's indicates less efficient production functions in country B. In other words, industrial knowledge in both industries is far superior in country A than in country B.

In addition, country B's isoquant for good Y is farther out than that for good X, meaning that country B is relatively far less efficient in good Y relative to good X in terms of the use of industrial knowledge.

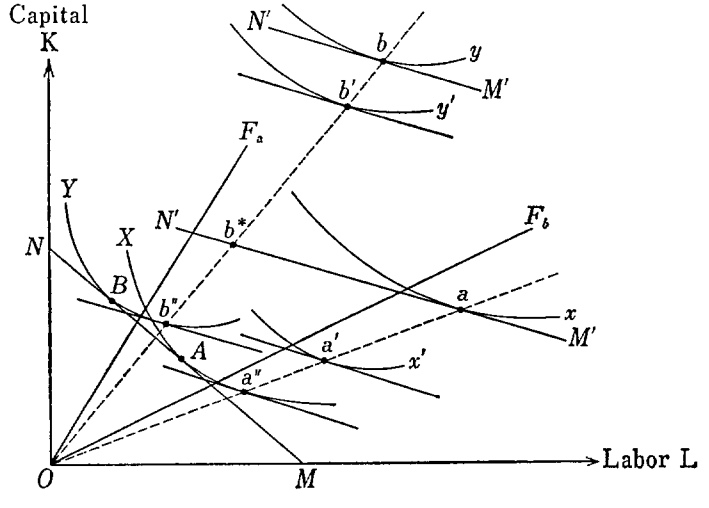
The above situation can be summarized as

(13) $E_{xA} > E_{xB}$ and $E_{yA} > E_{yB}$, but

(14) $(E_x/E_y)_A < (E_x/E_y)_B$

Thus the E-determined pattern of comparative advantage is, in this particular case, reinforced by the H-O-determined pattern (i.e., the reinforcing effect prevails). If, however,

FIGURE 1



country B's unit isoquant for good Y happens to be below point b^*, the H-O determined pattern of comparative advantage is overwhelmed and reversed by the E-determined pattern, and country B finds itself having a comparative advantage in good Y (i.e., *trade reversal* occurs as a result of the swamping effect of E-factors).

III. *Direct Foreign Investment and National Welfare (The North-to-South Model)*

In this section we will evaluate the welfare consequences of DFI within the framework of the H-O-E model described above.

As Mundell (1957) showed, if production functions are identical ($E_A = E_B$) in each industry between the two countries and in the absence of international trade and labor mobility, capital flows from country A to country B in search of a higher rate of return. And this type of capital movement destroys the basis for trade as it eliminates differences in factor proportions. Such movement of capital, however, does not represent the true characteristics of DFI activities of multinational corporations, for what these corporations transfer overseas is not so much capital as firm-specific corporate assets (i.e., E-assets) such as production technology and managerial and marketing skills. We will therefore concentrate on a case in which E-assets are transferred by multinationals but primary factors (capital and labor) are internationally immobile.

Under what circumstances, then, will the two countries' national welfare be maximized? Since the firms in country A have absolute E-advantages in both goods X and Y over their counterparts in country B, they will become multinational operating in country B. One extreme instance (which is not likely to happen for the reasons stated below) is that entrepreneurial endowments are completely equalized between the two countries as a result of the transfer of superior E-assets from country A to country B through the medium of multinationals. In this case, country B's isoquants for both goods shown in Figure 1 would shift inward and become completely identical with country A's. Since such transfer of E factors improves the competitiveness of country B's comparatively-disadvantaged good Y more than that of its comparatively-advantaged good X, the result would be *anti-trade-biased* (i.e., such transfer diminishes the strength of comparative advantage) and would base the post-investment trade only on differences in factor proportions—that is, we are back to the pure H-O world. Assuming that country A receives part (not all) of country B's increased output in payment for transferred E-assets (that is, country A's multinationals repatriate profits from country B), both countries are no doubt better off.

Yet this *complete* transfer of E-assets in both goods is not likely to materialize. In the first place, country B's absorptive (or learning) capacity may not be sufficient, especially in good Y, in which that country has a much greater knowledge gap and of which that country initially produces none or only a negligibly small amount very inefficiently. Country A's multinationals can set up local production of good Y on a limited scale under tariff protection, but such activities are apt to remain "enclaves" without any effective knowledge transfer to the local economy. Hence country B's isoquant for good Y actually does not shift inward in the manner described above. In fact, the initially-existing local firms, if any, may be driven out of business by the more efficient multinationals from country A.

On the other hand, country B is likely to perform better in learning from country A technologies for good X, a labor-intensive good, in which country B has a much smaller technology gap and a comparative advantage (hence more accumulated experience and an established industrial base that assist country B in absorbing advanced knowledge from country A). Therefore a more likely outcome is that country B's isoquant for good X shifts inward substantially, say, from x to x' (that is, efficiency improves considerably), whereas its isoquant for good Y shifts inward only slightly, say from y to y' (that is, efficiency improves only to a small extent) (Figure 1). The ratio of efficiency improvement is thus much greater for good X than for good Y, thereby strengthening the E-determined pattern of comparative advantage (equation 14). This type of E-asset transfers reinforces the H-O-determined pattern of comparative advantage; the net result is a much more expanded basis for trade, that is, a complementary case between DFI and trade. This may be called a *pro-trade-biased* DFI.[3]

A *more desirable* case from the viewpoint of trade expansion and welfare maximization is, however, one where country A invests in country B's X industry *alone*, thereby assisting the latter to improve efficiency and expand the basis for trade to its maximum. This represents an *ultra-pro-trade-biased* DFI, a case of *full* complementarity between DFI and trade. This case represents the *first-best* situation in which world welfare is maximized—for the simple reasons of the following basic propositions:

Proposition 1: Countries gain from trade and maximize their economic welfare when they export comparatively-advantaged goods and import comparatively-disadvantaged goods.

Proposition 2: Countries gain even more from expanded trade when superior entrepreneurial endowments are transferred through mutinational corporations from the home countries' comparatively-disadvantaged industries in such a way as to improve the efficiency of comparatively-advantaged industries in the host countries.

The impact of ultra-pro-trade-biased DFI on the host country is illustrated in Figure 2. Country B's product transformation curve is indicated by $t\,t$, with its production and consumption points at q and c, respectively, which are determined by an international price-ratio line $p\,p$. Country B has a comparative advantage in good X and a comparative disadvantage in good Y. With superior E-assets acquired by the good-X sector through DFI, country B's product transformation curve expands and becomes a new curve $t'\,t$. New production and consumption points are q' and c', respectively, resulting in an expanded basis for trade—hence an enlarged volume of trade.

An improvement in country B's welfare can be decomposed into two components: one is the *efficiency-improvement* effect, which can be measured by a comparison of indifference curves that go through production points q and q', respectively, and the *trade gain*, which can be measured by a comparison of indifference curves at production point q' and consumption point c'. These two effects are *complements* to each other.

As a result of improved efficiency and expanded output of good X, its price may de-

[3] For the classification of trade bias used here, see Johnson (1959).

FIGURE 2

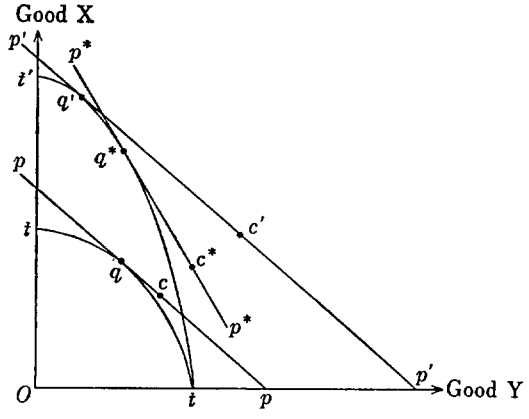
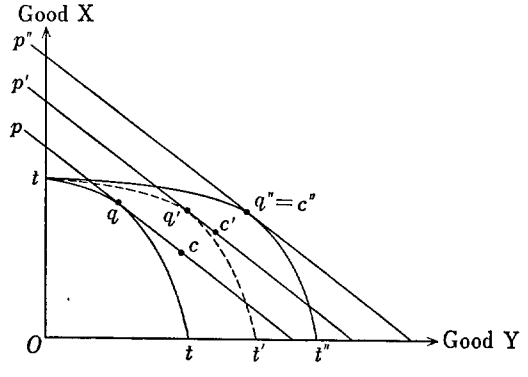


FIGURE 3



crease to some extent, as shown by a new price line $p^* p^*$. Here the Bhagwatian immiserizing growth [Bhagwati (1958)] is a possibility, particularly in extractive resources, but when multinational corporations are involved as equity investors in overseas projects, it is perhaps unlikely that DFI is carried out to such an extent that it immiserizes multinationals' own ventures by depressing prices with uncontrolled output and causing financial losses. A sharp deterioration in the terms of trade is essentially *a market phenomenon;* one of the very purposes of market internalization through the use of intra-company transactions is *to eliminate such market-caused instability in prices.* Hence the involvement of multinationals as equity investors in overseas ventures is most likely to serve as a *deterrent* to—rather than an instigator of—the immiserizing growth.

In contrast, *ultra-anti-trade-biased* DFI occurs when E-assets are transferred only for good Y, in which country B has a comparative disadvantage. Such a case is illustrated in Figure 3. Country B's initial production transformation curve is $t\,t$, and its production and consumption points are q and c. An inflow of E-assets into the good Y sector expands, thereby reducing the basis for trade (for example, when production and consumption points

are identical, that is, $q''=c''$, trade is completely eliminated).

This phenomenon can also be visualized as an inward shift of country B's unit isoquant for good Y in Figure 1. In this case, however, an outward expansion of country B's product transformation curve is relatively small compared to the case of ultra-pro-trade-biased DFI illustrated in Figure 2 because of country B's limited ability to absorb E-assets from country A. For example, country B's transformation curve may expand outward only to $t\,t'$, as shown in Figure 3. Improvement in country B's welfare is limited mostly to the efficiency-improvement effect and only negligibly to the trade effect (in this case these two effects are actually *substitutes*). Here the Johnsonian immiserizing protection [Johnson (1967)] (as illustrated in Figure 4) is a real possibility—perhaps a *much stronger* possibility than the Bhagwatian immiserizing growth. For multinationals are often induced to set up inefficient local production in the comparatively disadvantaged industries of developing host countries under heavy trade protection as well as subsidy (i.e., import-substitution policy at any cost). Thus the host country's product transformation curve shifts from $t\,t$ to $t\,t'$, with its production point moving from q to q' and its consumption point from c to c' under tariff protection indicated by a tariff-distorted price line $p\,(=p')$. In this instance, the efficiency-improvement effect is completely overwhelmed by a negative trade effect (a decline in the host country's dependence on imports as a result of import substitution at home). The fragmentalized investments often made by multinationals in the automobile industry of some developing countries, involving diseconomies of scale-down, are the prime example.

These contrasting cases (ultra-pro-trade vs. ultra-anti-trade-biased DFI) can also be looked at from the home country's point of view, as shown in Figure 5. Country A's product-transformation curve is indicated by $T\,T$, and its initial production and consumption points are Q and C, respectively, exporting good Y and importing good X. Because of the "public goods" characteristics of E-assets, their transfers do not affect country A's transformation curve. When the ultra-pro-trade-biased DFI takes place, resulting in a change in the terms of trade in favor of good Y, production point moves to Q^* and consumption point to C^*, with an obvious improvement in welfare as a result of the reallocative efficiency effect and the expanded trade effect brought about by an improvement in the terms of trade. On the other hand, when the ultra-anti-trade-biased DFI occurs, country A's welfare declines with a contraction of trade and a possible unemployment in the good-Y sector as a result

FIGURE 4

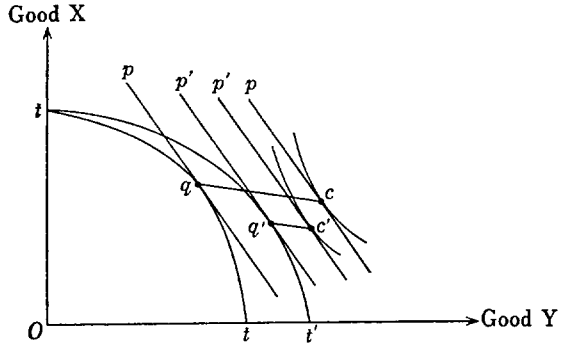
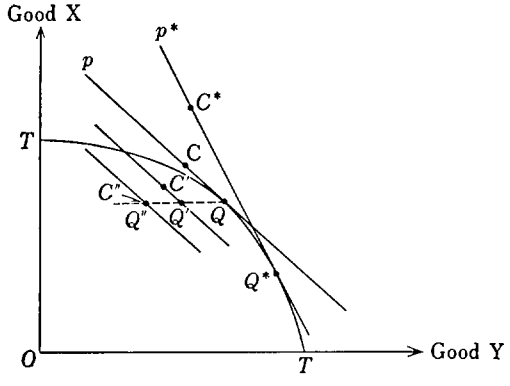


FIGURE 5



of the export-replacing nature of DFI (i.e., "job exports" or "runaway factories"). For example, production point may shift to Q' or even to Q'', a point of complete trade elimination.

It should be emphasized here that the above North-to-South model of DFI presented for manufactures applies *equally* to DFI in resource-extractive industries when we simply modify the factor endowments from a combination of capital and labor to that of capital (or labor) and land (resource-extractable). In fact, a strong case does exist for ultra-pro-trade-biased DFI in resource-extractive industries, for industrialized but resource-scarce countries are strongly motivated to secure the supply sources of industrial materials through DFI, and at the same time, many resource-rich developing countries are eager to develop resources with the help of foreign multinationals.[4]

Actual performances

An interesting and important question is why the actual pattern of multinational corporations' investment activities differs with the home countries: it may represent the first-best case, i.e., ultra-pro-trade-biased DFI, for some home countries, whereas it may deviate from such a pattern for others. It has been observed, for example, that the American type of DFI is, on the whole, anti-trade-biased, while the Japanese type of DFI is largely pro-trade-biased [Kojima (1975)]. What follows will explore what factors have been responsible for *inducing* these two countries to pursue the polar types of DFI.

We can think of many possible explanations, all having to do with the different structural and institutional characteristics of the United States and Japan as the home countries.

1. *Relative sizes of comparative advantage and disadvantage in a three-country framework*

In the context of the North-to-South pattern of DFI, we must have a three-country relationship as our frame of reference: the most-advanced country, the United States, an intermediately-advanced country, Japan, and a developing host country (or developing

[4] In resource extraction, nonequity, contractual arrangements such as loans, technical assistance, managerial and marketing contracts, product sharing and the like are more frequently used than the wholly- or majority-owned operations of DFI, and such arrangements are on the increase.

countries as a whole). Their entrepreneurial-endowment proportions can be expressed as

$(E_y/E_x)_{\text{U.S.}} > (E_y/E_x)_{\text{Japan}} > (E_y/E_x)_{\text{Developing country}}$

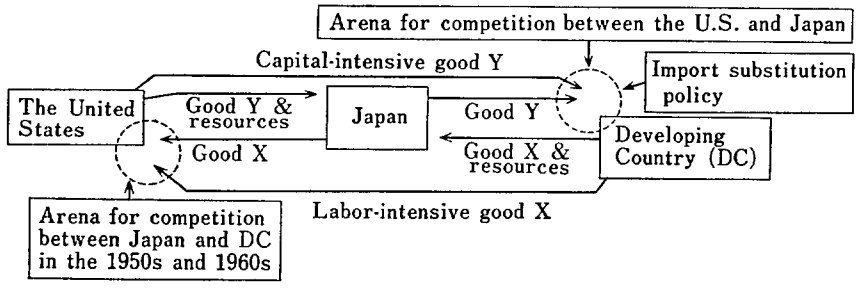
So far as the manufacturing sector is concerned, throughout the 1950s, the 1960s, and the early 1970s the U.S. had a much greater, both absolutely and relatively, comparatively-advantaged (i.e., capital-intensive) sector Y in its trade relation with developing countries than Japan did; yet it had a relatively small comparatively-disadvantaged (i.e., labor-intensive) sector X as a result of import liberalization, with a much larger proportion of that sector's goods imported from developing countries (and in fact, from Japan itself in the early postwar period). In other words, the American position of comparative advantage vis-à-vis developing countries was *much more pronounced* than the Japanese position of comparative advantage.

The flows of trade among the three-countries are schematically illustrated in Figure 6. The U.S. initially exported capital-intensive goods to both Japan and developing countries and imported labor-intensive goods from them. Japan exported capital-intensive goods to developing countries and imported labor-intensive goods (but in reality mostly natural resources) from them. Interestingly, Japan as an intermediately advanced economy thus enjoyed a comparative advantage in labor-intensive goods relative to the U.S., but *simultaneously* in capital-intensive goods relative to developing countries. Developing countries in turn exported labor-intensive goods (and natural resources or both) to the U.S.

Changes occurred, however, in these basic flows of trade. In the first place, many developing countries resorted to an import-substitution policy in relatively capital-intensive industries (i.e., the "modern" sector) and encouraged DFI from overseas. Here the U.S. had a *much stronger* competitive advantage (E-assets) in investing in developing countries' modern sector than did Japan, which was in fact still in the midst of developing capital-intensive industries at home. In the early postwar period Japanese industry was struggling to export to developing countries whatever standardized modern products they were able to produce for the sake of earning what was at that time extremely precious foreign exchange and was hardly in a position, financially or technologically, to set up local production in competition with American multinationals.

In the meantime, the U.S. producers of labor-intensive goods, whose domestic output had already been reduced to a relatively small size, were preoccupied with defending what domestic markets they had and were not much interested in going overseas. Some of them, however, managed to switch to offshore production and procurement by turning themselves

FIGURE 6. BASIC TRADE FLOWS IN THE EARLY POSTWAR PERIOD



into merchandisers, but such activities were insignificant as compared to the overseas investment activities of the producers of capital-intensive goods. The net result was a much greater incidence of DFI in capital-intensive industries (i.e., a comparatively-advantaged good-Y sector) than in labor-intensive ones (i.e., a comparatively-disadvantaged good-X sector), that is, the appearance of an overall anti-trade-biased pattern of DFI.

Japan, on the other hand, initially had less competitiveness in investing in the good-Y sector of developing countries because Japan's E-assets were much weaker than its U.S. counterpart in that sector. But, since the U.S. producers of labor-intensive good X were not as much interested as Japan in producing in developing countries, much more room was actually left for the Japanese producers of good X to set up local production than for the Japanese producers of good Y. Besides, Japan's E-assets in the good-X sector were nearly comparable to those of the U.S. (or perhaps superior in some instances—say, managerial skills in running small-scale, labor-intensive operations). So when some developing countries also stressed export-led industrialization by opening export-processing zones, Japan's good-X sector responded more enthusiastically than its U.S. counterpart. (In addition to this pull-effect, another important and *more decisive* inducement was provided through Japan's rapid economic growth—i.e., a push-effect, a topic to be discussed below.) Therefore, Japan's overall pattern of DFI resulted in pro-trade-bias. The net outcome of all these developments was that the U.S. as an investor had an absolute (and comparative) advantage in operating in the relatively capital-intensive sector of developing countries, whereas Japan had the advantage in the relatively labor-intensive sector.

2. *Rate of economic growth and supply of labor (and resources)*

Japan's economic growth up until the first oil crisis of 1973 had been phenomenal, registering about 10 per cent per annum. Wages increased sharply; in fact a severe shortage of young factory workers appeared in the early 1960s. This tightening labor market put Japan's labor-intensive good-X sector at greater disadvantage than its capital-intensive good-Y sector. Hence the good-X sector rapidly lost export competitiveness, particularly in the U.S. market (cf. the arena of competition between Japan and developing countries in Figure 6). To escape from the rising labor costs at home, the Japanese producers of good X moved to developing countries where labor supply was more abundant and where comparative advantage in good X could be fully developed. In other words, Japanese investments were encouraged in the comparatively-advantaged (existing as well as potential) sector of developing countries.

A rapid economic growth of resource-scarce Japan also meant a quickly rising dependence of Japanese industry on overseas resources (that is, Japan's comparatively-disadvantaged sector). In order to secure vital supplies of overseas resources Japanese industry began to make investments in overseas resource development ventures.

Both these types of Japanese overseas investments (one labor-resource-oriented, the other natural-resource-oriented) are designed to reduce production costs with the help of foreign factor endowments and for the purpose of surviving in highly competitive markets in which Japanese firms operate largely as price-takers (that is, Japan's comparatively-disadvantaged activities vis-à-vis developing countries)—rather than for the sake of exploiting (or appropriating) monopolistic firm-specific advantages by expanding and controlling overseas markets as price-setters [Kojima (1978) and Ozawa (1979)]. This distinction be-

tween the *cost-minimizing behavior* (motivated by a deterioration in factor endowments at home) and the *sales-maximizing behavior* (motivated by the possession of certain monopolistic firm-specific assets, such as patents and know-how) is important.

On the other side of the Pacific, the U.S. wage rate increased more slowly than the Japanese wage rate. Yet its absolute level was much higher than that in Japan. The use of labor-saving devices (automated production facilities) was therefore fairly extensive in labor-intensive industries—certainly more widespread than in Japan throughout the 1960s. The relatively high wage rate in the U.S., however, attracted an inflow of immigrant workers, both legal and illegal—illegal, in particular, for semi-skilled and unskilled labor services.

Thus slowly-rising wages in the U.S., coupled with an inflow of foreign workers, did not generate as *much* pressure on its labor-intensive (comparatively-disadvantaged) sector as that experienced by Japanese industry; the incentive to seek low-cost labor abroad was not as strong.

On the other hand, a high wage rate and a high income level in the U.S. stimulated the introduction of high-income products and labor-saving processes, as explained in the product-cycle theory of trade. Thus, though the capital-intensive, research-active (i.e., comparatively-advantaged) sector continued to expand, it was quickly motivated to make investments overseas in search of high monopolistic profits by internalizing the appropriating mechanism for firm-specific assets (i.e., the sales-maximizing behavior). The result was a heightened anti-trade-bias in U.S. overseas investments.

3. *Industrial and trade policies*

There have been sharply contrasting differences in the two countries' attitudes toward industrial restructuring and trade. The U.S., as a bastion of the free market economy, loathes having any effective industrial and trade policies coordinated at the national level (though it does have a string of *ad hoc* measures adopted in response to variegated pressures of interest groups), whereas Japan is more strongly oriented to adopting and implementing an industrial restructuring policy (and to a national consensus approach) to keep abreast of an evolving pattern of dynamic comparative advantage [Ozawa (1983)]. Japan fosters and expands its comparatively-advantaged industries at home by *discarding* its comparatively-disadvantaged industries. In contrast, the U.S. has been protecting its comparatively-disadvantaged industries mostly for short-run political considerations, and no conscious effort is made at the national level to foster new growth industries other than letting its defense and space programs spin off technologies haphazardly to the private sector.

Japan, on the other hand, has many institutional arrangements and measures designed specifically to assist Japanese firms in comparatively-disadvantaged industries (i.e., labor-intensive manufacturing as well as natural-resource-based industries) to relocate corporate production overseas. There are, for example, many government agencies (such as the Japan Overseas Development Corporation, the Overseas Mineral Resource Development Corporation and the Overseas Fishery Cooperative Foundation) that provide a variety of support for the private sector's overseas investments in Japan's comparatively-disadvantaged industries. Japan's general trading companies (*sogo shosha*) are another important institution that helps its industry invest overseas in an evolving pattern of dynamic comparative advantage [Kojima and Ozawa (1984)].

All in all, the Japanese system of governance has been more national-welfare conscious

than its American counterpart [Vernon (1983)]. Strongly private-interest conscious and unable to reconcile diverse interests, the U.S. has been persistent in its attitude that "what is good for General Motors is good for the U.S." an attitude reflected also in the micro-economic theories of DFI dominant in the West.

4. *Overvalued vs. undervalued currency*

Until the early 1970s, the U.S. dollar had become increasingly overvalued, while the Japanese yen was undervalued, as a result of "fundamental disequilibrium" caused by shifts in the relative industrial strengths of the two countries operating under the fixed-exchange system.

An overvalued dollar penalized U.S. exports but subsidized its overseas investment, while an undervalued yen had exactly the opposite set of effects. The U.S. firms in comparatively-advantaged export industries were thus strongly induced to choose local production through DFI, rather than exporting, as a way of exploiting their E-assets. The currency-premium theory therefore does point up a currency-related, macroeconomic inducement for DFI in addition to a microeconomic inducement emphasized in the internalization theory of DFI.

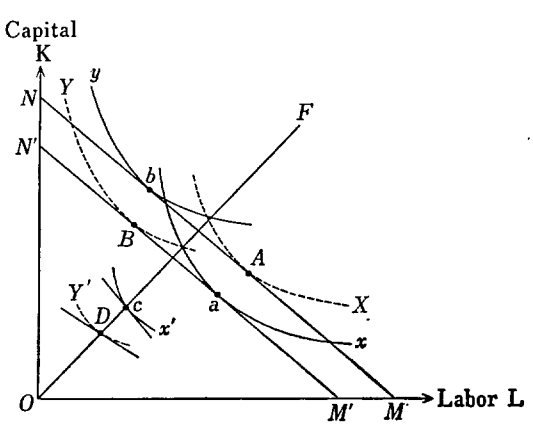
IV. *A North-to-North Model of Trade and Investment*

In the preceding sections we have concentrated on North-to-South investment activities. But DFI occurs more frequently and in larger amounts between industrialized countries than between industrialized and developing countries, a pattern analogous to that for world trade in manufactures.

North-to-North economic engagements are characterized by—and based on—intricate differences in E-assets rather than broad differences in H-O factors.

We can modify Figure 1 so as to present a model of trade and DFI between those advanced countries whose factor-endowment proportions—hence factor price ratios—are

FIGURE 7



nearly identical. Such a model is illustrated in Figure 7.

We assume an identical factor endowment for two advanced economies, A and B. Hence the overall factor-endowment ratio line *OF* and unit iso-cost lines *MN* and *M'N'* apply equally to both countries. We denote country A's unit isoquants by capital letters, country B's by lower-case letters. We also assume that country A has slightly superior E-assets in good Y, while country B has slightly superior in good X, and that these countries' initial equilibrium production points for goods X and Y are indicated by points *A* and *B* for country A and *a* and *b* for country B, respectively. The basis for trade is thus created only by a difference in the two countries' E-assets proportions. Both countries produce both goods, but country A exports good Y, while country B exports good X.

We further assume that if country A specializes completely in good Y and country B in good X, these two goods' unit isoquants will shift down toward the origin to such positions as *Y'* and *x'*, respectively, as a result of *dynamic* economies of scale (economies that derive from learning-by-doing, qualitative improvements in productive facilities, and reduced procurement costs of inputs). If this type of specialization is realized, the basis for trade will, of course, be much greater, a phenomenon equivalent in effect to that produced by an acquisition of superior E-assets through DFI.

This pattern of mutual specialization illustrates the idea of "mutually agreed-upon international division of labor" [Kojima (1970)] and applies equally to a case of "intra-industry division of labor" if goods X and Y are interpreted to be those belonging to a given industry (say, subcompact cars vs. large cars). Indeed, this type of specialization-enhanced basis of trade (if not derived from complete specialization) is highly descriptive of trade in modern manufactures.

An important question here is under what conditions this *ideal* type of mutual specialization can be achieved. To some extent, specialization may be *automatically* promoted as the further result of the initial possession of superior E-assets: capacity-expanding investment [Posner (1961)] and production experiences [Jones (1970)] themselves may serve as catalysts for further technological progress and specialization. Yet another important stimulant can be found in the trade-augmenting type of DFI: country A invests in the good-X sector of country B, which in turn invests in the good-Y sector of country A. In other words, each country makes an overseas investment in its comparatively- (and absolutely-, in this particular case) disadvantaged sector. The direction of DFI thus complements trade.

One may naturally question how it will be possible for country A's producers of good X (or country B's producers of good Y) who have inferior E-assets to ever successfully set up shop in country B (or country A). In fact, it is out of the question for an inferior firm to set up its own overseas plant in competition against the superior local firms.

Yet alternatively, each country's competitively disadvantaged producers can participate either as a co-investor in a new joint venture or as a stockholder of an existing firm in the other country, thereby contributing to increased specialization and an expansion of scale economies. Besides, even though the overall level of E-assets, say, in country A's good-X sector is inferior, it does not necessarily mean that each single E-asset is inferior; some may indeed be superior, and such assets may be transferred to country B, say, under licensing agreements. Sales contracts (or long-term procurement agreements such as "original-equipment-manufacturer" contracts) are another possibility, since the good-X sector of country A (or the good-Y sector of country B) still may be able to control the importing and

distributing activities at home. All these arrangements can lead to what may be called "intra-industry mutual investments" [Kojima (1981)]. This phenomenon matches what J. Bhagwati calls "mutual equity inter-penetration" or "mutual investment by the competing firms in one another's R&D-induced advantages" [Bhagwati (1972, 1982)].

Actual performances in intra-industry investment

In this section, by citing the American and Japanese automobile industries as an example we can discuss to what extent intra-industry mutual investments may actually proceed, and we can also evaluate what sort of impediments may exist.

The United States has a competitive advantage in large-size cars (identified, say, as model Y), Japan in subcompact cars (identified as model X).[5] Both countries have so far greatly benefited from economies of scale as a result of expanded markets: the U.S. automobile industry by producing mainly for its vast domestic market, its Japanese counterpart by producing for both domestic and export markets (i.e., autonomous specialization).

According to our theoretical model, the U.S. automobile industry should stop producing subcompact cars and instead invest in the Japanese automobile industry specialized in such cars; similarly, the Japanese automobile industry should not attempt to produce large-size cars and instead invest in the U.S. automobile industry in such a way to assist it to further specialize in large-size models (i.e., mutually-coordinated specialization).

A hitch in this scheme is the fact that while U.S. consumers are eager to buy the Japanese subcompact cars imported mainly for reasons of fuel economy and relatively low maintenance costs, Japanese consumers have no complementary preference for large-size U.S. cars because of the narrow streets, the limited parking space, and the expensive gasoline in Japan. The net result is a huge trade gap in the automobile industry. Although international trade needs not—and ought not be expected to—be balanced on an industry-by-industry basis, successful automobile imports became a hot political issue, aggravated by a high level of recession-caused unemployment in the U.S.

In 1981 the U.S. and Japanese governments made a three-year agreement under which Japan would "voluntarily" restrict the number of passenger car exports to the U.S. (1.68 million cars per year). In November 1983 this agreement was extended for another year with an increase in the quota to 1.85 million cars. This voluntary export restraint is designed to give a temporary respite to the U.S. automobile industry, a time needed to redesign and retool its factories to produce competitive subcompact cars also (an intention, in fact, contrary to our model).

Yet the U.S. automobile industry is reportedly not serious about making efforts to become competitive in subcompact cars; all the U.S. car makers are more interested in concentrating on large-size cars, which are more profitable to produce and market, and they are apparently willing to yield to Japanese competition in the market for subcompact cars (a move, interestingly enough, consistent with our model).

The U.S. Congress and the automobile workers' union, however, are putting pressure on the Japanese industry to make direct investment in the U.S. to produce small cars locally by threatening to legislate a local content bill, which, if passed, would require the use of American labor and parts and components to be as high as 90 per cent in imported Japanese

[5] Mutual specialization may also occur in particular auto parts; the U.S., say, in part Y, Japan in part X [Erdilek (1982)].

cars, a bill intended practically to prohibit car imports from Japan. Honda has already begun operating a car plant in Ohio, and Nissan a light truck plant in Tennessee, while Toyota is currently at the stage of setting up a joint venture with General Motors to produce small cars in California. In all these operations production costs are inevitably higher than in Japan.

In the meantime, Japanese auto makers are being induced to upgrade, from subcompact to medium-size, the car models they ship to the U.S. under the voluntary export restraint so that higher value-added (more profits) could be realized with each unit (an effort contrary to our model).

Interestingly, American auto makers have actively made equity investments in their Japanese counterparts: Chrysler in Mitsubishi, General Motors in Izusu, and Ford in Toyo Kogyo—all in the desirable *pro-trade* direction as envisaged in our model. But Japanese auto makers, on their part, have not made similar moves yet, partly because they have been induced to take *anti-trade* investment approaches under political pressures from the United States.

V. *Myopia of Micro-business Approach*

The most serious weakness of the micro-theoretic approach to DFI is a total disregard of social costs and benefits. In fact, all the prevailing theories of this genre are in essence nothing but theories of private benefit maximization (or private cost minimization), which is often achieved at the sacrifice of social benefits (or at social costs). Discrepancies between private and social interests are the inevitable result of the economic activities associated with foreign direct investment, activities based primarily on firm-specific advantages. The micro-economic theories basically start out with the assumption that (or the recognition of the real world where) DFI does not occur under perfect competition, a state in which atomistically small firms have no exclusive asset that gives them a special competitive advantage over others; rather, DFI is a manifestation of individual firm's effort of exploit (appropriate returns from) corporate assets or firm-specific advantages through their *internal organization* and under their *control* when arms-length market transactions (exporting or sales of such corporate assets under licenses) themselves are not a sufficient means of maximizing monopolistic profits. These firm-specific advantages envisaged in the prevailing microeconomic theories, then, have to do essentially with the profit-maximizing efforts devoted to *exportables* (which are thus alternatively transformed into *overseas-investibles*, so to speak).

It is no doubt important to recognize the existence of firm-specific assets, a significant source of market imperfection, created out of investments in R&D and many years' experiences with production, transactions, and organization. Equally important is to realize that these corporate resources often can not be fully exploited through the market mechanism (i.e., via externalized transactions); hierarchical coordination (i.e., an internalization of transactions) may be needed to maximize profits. In other words, the market is inadequate or fails from the point of view of the possessors of monopolistic advantages. At the moment, the micro-theoretic models have not gone much beyond recognizing these two types of market imperfection and explaining how individual firms can minimize transaction costs and thereby maximize profits (i.e., private benefits) through internalization.

Although it is basically micro-theoretic in explaining the motives of DFI, the eclectic theory expounded by John H. Dunning includes a nearly exhaustive list of macroeconomic and business-environmental factors or what he calls "location-specific advantages." Yet these macroeconomic factors remain either the objects of exploitation by monopolistic firms as complementary inputs or the objects of circumvention in their efforts to internalize "ownership-specific advantages." It is a model of private benefit maximization, after all; its focus is far from being upon social welfare.

At the conceptual level we can further dissect "ownership-specific advantages" into two types: one is the production-related, firm-specific advantages that together with macroeconomic factors affect production costs, C, and the other is the internalized-transaction-related, firm-specific advantages that differentiate individual firms' transaction costs, T, and market-manipulated monopolistic revenues, M. Admittedly, these two types of advantages are closely interrelated with each other. We can summarize as follows:

$C_{ij}=f(E^p{}_{ij}) \quad f<0,$

$T_{ij}=g(E^t{}_{ij}) \quad g<0, \qquad$ and $\qquad M_{ij}=k(E^t{}_{ij}) \quad k>0$

where i denotes a particular country and j a particular product manufactured by a given firm. E^p represents production-related corporate assets created by R&D and through the accumulation of production know-how, sikills, and experiences (the fruits of learning-by-doing). They are compatible with, produced mostly by, and tend to reinforce the H-O-determined pattern of comparative advantage at home. E^t indicates internalized-transaction-related corporate resources such as goodwill (associated with brand names), the capacity to administer prices, managerial and organizational capacities to control and benefit from a trans-national hierarchy and market (including the capacity to manipulate transfer prices), and the business privileges created by certain special relationships with home or local government officials and politicians. E^p may be regarded as *socially-compatible*, whereas many of E^t *socially-incompatible*.

It is in many cases E^t that induces firms to give up an externalized way (exporting or licensing) of exploiting E^p and instead to internalize the entire trans-national operations (i.e., to set up wholly-owned subsidiaries abroad) because E^t gives them an opportunity to extract *additional* monopoly profits, M, which itself may be exploited through the externalized forms of transaction. Thus the greater the strength of E^t, the more frequent the incidence of internalization, whether E^t is socially-compatible or not. But here lies the very source of conflict between private and social interests. The individual firms may become more profitable and more prosperous at the cost of eroding home-based production.

A similar move to discard home-based production also often takes place when the host countries impose trade restrictions, forcing foreign exporters to set up local production facilities, even if home-based production costs are lower than foreign-based production costs. Such production is necessarily second-best, from the viewpoint of the individual firms as well as from the viewpoint of social welfare, since inefficient resource allocation is involved. This case may indeed be identified as *DFI dumping*, an activity analogous to *trade dumping*, for both involve price discrimination between the home and the foreign market, although the price charged in the foreign market is actually higher than that charged at home—hence it is dumping in reverse. It clearly entails misallocation of resources and a loss of consumer welfare. Yet this type of activity is recommended in micro-theoretic models as a *rational* way of maximizing private profits.

Thus, all in all, the "what-is-good-for-GM-is-good-for-the-U.S." mentality persists in the micro-theoretic models of DFI. One may wonder why this type of private-benefit-centered theory is dominant in the West, particularly in the United States and the United Kingdom. As pointed out earlier, it may have something to do with the fact that both these countries have been wary of formulating industrial and trade policies to cope with structural changes in a long-term pattern of dynamic comparative advantage as Japan has consciously done. The role of DFI as a crucial catalyst to this end has therefore not yet been fully brought to the conscious level of American and British economists.

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