

June 24, 2007

**Professor Kiyoshi Kojima's Contributions to FDI Theory:
Trade, Structural Transformation, Growth, and Integration in East Asia**

Terutomo Ozawa

Professor of Economics
Colorado State University
Fort Collins, CO. 80525

This paper is based on an invited talk given at a special symposium in honor of Prof. Kiyoshi Kojima at the 2006 Annual Conference of the Japan Society of International Economics (JSIE), at Nagoya University, Japan, October 14-15, 2006, when the newly established Kojima Prize in International Economics were given to young Japanese scholars for the first time.

Abstract

Professor Kojima of Hitotsubashi University is a leading Japanese economist in international economics. Two of his major ideas are reviewed: a theory of pro-trade FDI and an extended “flying-geese” theory of industrial development. Kojima’s pro-trade FDI (which rests on the doctrine of comparative advantage) leads to a surprising discovery of David Ricardo’s failure to see that the doctrine applies as equally to FDI flows as to trade flows. The recent phenomenon of production fragmentation is also built on the mechanism of pro-trade FDI. In Kojima’s extended flying-geese theory of industrial development the sequence of imports-domestic production-exports further expands to the next phase of exports-outward FDI-imports, thereby completing a full circle from imports to imports. Its theoretical and policy implications are discussed against the backdrop of the rapid catch-up of Japan’s neighboring countries that capitalize initially on inward FDI—and subsequently on outward FDI--as an engine of growth.

1. Introduction

Professor Kiyoshi Kojima, emeritus professor of Hitotsubashi University in Tokyo, is unarguably a major Japanese international economist. He has made a number of original and significant theoretical contributions to international economics. This study, however, focuses on only two of his seminal ideas related to foreign direct investment (FDI) by multinational corporations (MNC), especially Japanese. FDI, along with trade, is the main engine of economic growth and integration in East Asia. More specifically, a theory of pro-trade FDI (a complements case) and an extended “flying-geese” theory will be discussed, and their various theoretical implications will be explored. These two ideas are closely interrelated.

2. Pro-Trade vs. Anti-Trade FDI

2.1. Mundell (Substitutes) vs. Kojima (Complements)

The Heckscher-Ohlin theory of international trade (Ohlin, 1933) describes the pattern of trade between countries in terms of relative differences in their factor endowments. Rybczynski (1955) first extended this analytical framework to a change in factor endowments and the effect of that change on the composition of domestic industrial outputs. This compositional change came to be known as the Rybczynski theorem. Soon afterward, Mundell (1957) applied it to a study of a tariff-induced capital movement between two countries that initially were engaged in free trade but without any factor movement. Capital movement occurs from a capital-abundant country to a capital-scarce country in search of a higher marginal rate of return when the latter impedes the importation of capital-intensive goods from the former. In the capital-receiving country, the capital inflow causes its equilibrium production point to shift in such a direction that a capital-intensive industry (i.e., that country’s comparatively disadvantaged industry) expands, while a less capital-intensive industry (i.e., that country’s comparatively advantaged industry)

contracts--as posited in the Rybczynski theorem. In the capital-transferring country exactly the opposite phenomenon is observed. As a consequence, the basis for trade (i.e., the existing pattern of comparative advantage between the two countries) is in the end eliminated by capital movement (a case of substitution).

Mundell was the first to show this substitution case of trade and factor movement, and his analysis anticipated (hence, remarkably predicted) the massive pouring of U.S. FDI into Europe that took place in response to the establishment of the European Economic Community in 1958, a common market that set up the discriminatory tariffs inducing American investments.

Mundell's substitution case was further theoretically elaborated on in a string of AER articles.¹ Some also tried to make a case for complements-relationship.

One complements case was presented by Schmitz and Helmberger in another AER article that examined FDI in extractive industries (1970). Their model was, however, a partial-equilibrium analysis involving one particular industry. They assume that one country with a large domestic demand for a particular natural resource is also a capital-surplus country. The other country is assumed to be more favorably endowed with that resource but unable to extract it because of a lack of capital and adequate technology. Under this set of assumptions, it is obvious to see how FDI made by the capital-surplus country in the resource-rich country leads to the *creation* of new trade in the extracted resource with an export of that resource from the latter to the former (i.e., a complements case).² It was then still necessary to search for an appropriate theory to explain also manufacturing FDI with a general equilibrium approach.

Kojima (1973, 1975) presented such a complements case within the general equilibrium framework of the Heckscher-Ohlin theory and against the backdrop of postwar Japanese

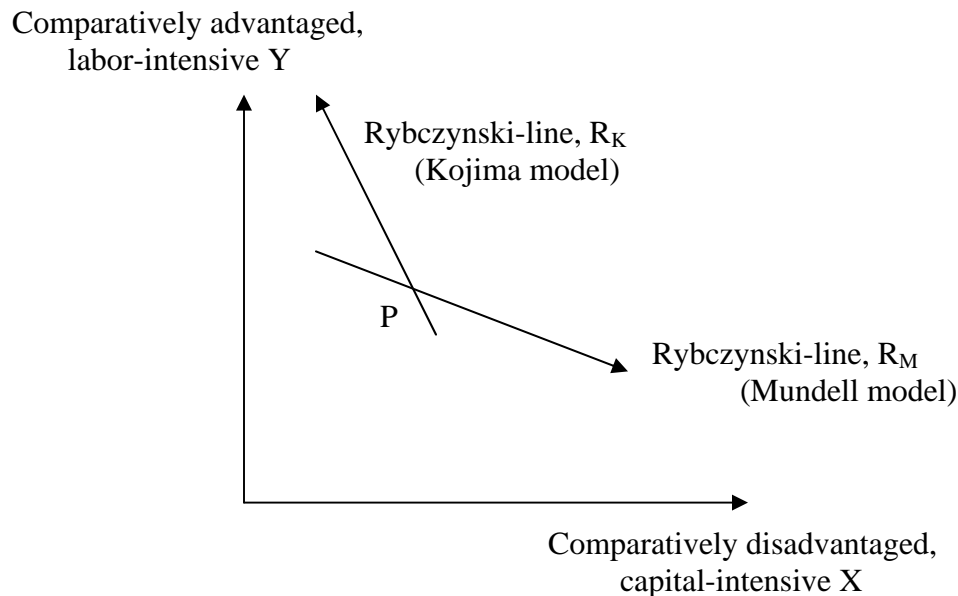
¹ See Flatters (1972); Krauss (1974, 1976); Ozawa (1976).

² The Schmitz and Helmberger model does fit very nicely to Japan's earlier—and China's current—"develop-and-import" investment in overseas natural resources. Any export-driven and fast catching-up economy usually accumulates excess reserves quickly, which it can invest overseas to secure the natural resources needed.

experiences. Kojima first offered what he called “a macroeconomic approach to FDI” by contrasting an essential difference in trade orientation between the overseas investments of Japan and the United States. Other than commerce-oriented investments, Japan’s overseas investments were initially (i.e., in the late 1950s and the 1960s) aimed mostly at exploiting natural resources in resource-rich countries or manufacturing labor-intensive products in labor-abundant developing countries. Most outputs from the first type of FDI were shipped back to Japan, while the manufactures from the second type were similarly exported back to Japan or to third-country markets. In sharp contrast, American manufacturing investments abroad were designed mostly to produce relatively sophisticated, technology-based, and capital-intensive products for local markets, as envisaged in the monopolistic theories of industrial organization (Hymer, 1966/1976; Kindleberger, 1969; Caves, 1971; Galbraith, 1973; Williamson, 1985) and the product-cycle theory (Vernon, 1966; Hirsch, 1967). Consequently, Kojima (1977) characterized the Japanese type as “pro-trade FDI” (complements), the American type as “anti-trade FDI” (substitutes).

Later Kojima proceeded to give his observation a theoretical underpinning by presenting a complements model exactly opposite to the Mundell substitutes model—that is, with the inflow of capital the host country’s production frontier expands in such a direction that the less-capital-intensive industry (namely, that country’s comparatively advantaged industry), expands, while the capital-intensive industry, contracts; the result is an enhancement of the basis for trade. As shown in Figure 1 (below), in technical terms, this complements case is shown by Kojima for the host country in terms of the Rybczynski line that slopes in quite an opposite direction to the one used in the Mundell model. It slopes in such a direction that with the inflow of capital the labor-intensive industry expands and the capital-intensive industry declines—in a direction diametrical to that predicted by the original Rybczynski theorem.

Figure 1. The Mundell vs. the Kojima model: Directions for capital flows



Why is this difference between the Mundell and the Kojima models? Here, Mundell assumed homogenous, fungible, and instantly movable *financial capital* applicable to any industries (nonsector-specific) in the best tradition of neoclassical economics--that is to say, capital always flows from locations with a low marginal capital productivity of capital to those with a higher marginal productivity in search of allocative efficiency. In contrast, Kojima defined capital movement in the form of FDI by MNCs by adopting Harry Johnson's (1972) definition: "the essence of direct foreign investment is the transmission to the 'host' country of a 'package' of capital, managerial skill, and technical knowledge." Kojima clearly recognized that the essence of FDI is not really so much financial capital movement per se in the neoclassical sense as knowledge transplantation (knowledge mostly sector-specific):

The main role of foreign direct investment is to transplant superior production technology through training of labor, management and marketing, from the advanced industrial country to lesser developed countries, or, in brief, it is the transfer of superior production functions which replace inferior ones in the host country. [FDI] is to be a starter and a tutor of industrialization in less developed countries... (Kojima, 1975:6-7).

The knowledge to be transplanted by MNCs onto developing countries' comparatively advantaged industries is normally expected to be superior to the one prevailing in the host industries, though it may be a standardized—or even outdated—knowledge in the advanced countries. Here Kojima assumed that “the *smaller* the technological difference between the investing and host country industry is, the *easier* it is to transfer and improve the technology in the latter” (1975: 7, emphasis added).³

In addition, Kojima reasoned that the relatively small technological gap between Japan and the developing countries constitutes an advantage for Japan to invest in the comparatively advantaged industry of a developing country (a complements case). It is a view quite contrary to the “rent-yielding advantage” characteristic emphasized in the Western monopolistic theory of FDI: the *larger* the technological difference between the investing country and the host country, the *more* profitable (hence the more motivated) to make overseas investments. The monopolistic theory stresses a technological superiority that is either aggressively capitalized on by Galbraith's “technostructure” firms and Williamson's “M-form” firms or defended by Vernon/Hirsch's “product-cycle” firms, mostly through their wholly- or majority-owned foreign subsidiaries with the inevitable result of an “enclave” type of technology transfers.

³ In developing this proposition and his theory of comparative-advantage-dictated FDI, he cited Ozawa's (1971) UNITAR report on Japan's technology transfers to developing countries, which pointed out that Japan was active in transferring to nearby developing countries the industrial knowledge of labor-intensive, small-scale manufacturing operations in those early days of Japan's catch-up growth (i.e., in the 1960s) as it began to lose its comparative advantage in those manufactures due to a rapid rise in wages. Kojima makes extensive quotations of Ozawa's work in Kojima (1977a, 1977b).

On the other hand, what Kojima emphasized was the successful transplant of a particular industry in which Japan was losing competitiveness in the wake of a rapid change in its factor endowments, but in which the developing host country, if assisted or “tutored,” would be capable of developing or reinforcing a comparative advantage. The upshot of this type of trade-augmentation through FDI is that *both* home and host countries can enjoy faster structural upgrading and economic growth.⁴

Clearly behind the notion of pro-trade FDI is the joint role of trade and FDI in economic development (i.e., an outward shift of a country’s product transformation curve)⁵. Hence, Kojima’s pro-trade FDI is a theory of economic development assisted by pro-trade FDI (factor movement)—hence, different from Mundell’s theory of factor movement as a perfect substitute for trade. Kojima focused on trade expansion and economic growth induced by FDI.

Here it should be noted in passing that James Markusen (1983) is normally credited and cited for theorizing the “complements” case. Apparently unfamiliar with the Kojima model that had preceded as many as ten years, however, Markusen rebuilt a case of complements, similarly in terms of the Rybczynski theorem--and observed: “...factor mobility must lead to an inflow of the factor used intensively in the production of the export good [in the host country]” (1983: 343). What Markusen said is exactly an inflow of factors into a host country’s comparatively advantaged industry, which is necessarily of Kojima’s pro-trade type of factor mobility.

⁴ It can be geometrically demonstrated that the substitutes case keeps the world production transformation curve unchanged as free trade is replaced by factor movement, whereas the complements case results in an outward shift in the world production transformation curve (Ozawa, 1996; Kojima, 2003).

⁵ For elaboration, see Kojima and Ozawa (1984, 1985).

2.2. *Pro-trade FDI and David Ricardo's Error*

One interesting implication of Kojima's pro-trade FDI theory is that David Ricardo, the originator of the doctrine of comparative advantage, strangely enough, failed to apply the same logic to overseas investment. Pro-trade FDI is actually nothing but an extended application of the comparative advantage doctrine to investment flows. As is well known, Ricardo explicitly introduced a technology gap into his trade theory, as reflected in the assumption of different levels of labor productivity (different unit labor requirements) between England and Portugal and the assumption of no cross-border knowledge transfer. The doctrine of comparative advantage being built on the technology gap, he reasoned that knowledge transfers (a factor movement) would destroy the basis for trade and cause a hollowing-out in an *absolutely* disadvantaged country (England) in *both* industries:

It would undoubtedly be advantageous to the capitalists of England, and to the consumers in both countries, that under [the circumstances of higher labor productivity in Portugal] the wine and the cloth should *both* be made in Portugal, and therefore that *the capital and labour of England employed in making cloth should be removed to Portugal for that purpose* (Ricardo, 1817/1888: 77, emphasis added).

According to Ricardo, once these cross-border factor movements occur, there will be no basis for trade. Portugal alone flourishes, whereas England is hollowed out and languishes. Ricardo clearly had in mind a substitutes (anti-trade) case. Surprisingly, therefore, it did not dawn on Ricardo that if, instead of moving to Portugal "the capital and labour of England employed in making cloth," the Portugal's superior knowledge of cloth making is transferred to England (say, through FDI or licensing), not only is England spared the hollowing out but both nations can also prosper *even* more, since England's comparative advantage in cloth is *enhanced* by such technology transfer. It is indeed puzzling that Ricardo failed to recognize this possibility. He did not apply to FDI flows the same doctrine of comparative advantage he developed for trade flows.

The reason for Ricardo's failure was probably because he had no chance to study overseas investments in his day (which did not exist much) and hence dismissed outright the issue of capital movement by arguing that overseas investment would entail high psychological ("transactional" in our modern parlance) costs:

Experience, however, shows that the fancied or real insecurity of capital, when not under the immediate control of its owner, together with the natural disinclination which every man has to quit the country of his birth and connections and entrust himself, with all his habits fixed, in *a strange government and new laws*, check the emigration of capital (Ricardo, 1817/1888:77, emphasis added).

Hence, capital remains home. In any event, Ricardo failed to see the possibility that Portuguese entrepreneurs with superior technology and prospects for a higher profit would transplant their cloth manufacturing (comparatively disadvantaged) onto England--so long as the Portuguese technological advantage was sufficiently large enough to overcome the transactional "alien" costs of overseas investment. In the first place, after all, "the capital and labour of England" does not need to be removed to Portugal.

In short, we now know that contrary to Ricardo's belief, the basis for trade will not necessarily be destroyed through knowledge transfers; on the contrary, it will be enhanced when superior knowledge is transplanted from a comparatively disadvantaged (hence contracting) industry in an advanced country to a comparatively advantaged (hence expanding) industry in a developing country. In this process, *both* countries will gain from an *expanded* basis for trade. It was *not* absolutely necessary for Ricardo to assume no factor mobility across the borders for his model to work. On the contrary, a comparative-advantage-guided mobility of factors would have *reinforced* the basis of trade and *magnified* the gains from trade in his model. We can claim that pro-trade FDI (a complements case) is,

indeed, another important “cause of the wealth of East Asian nations” (to paraphrase Adam Smith’s main tome).⁶

2.3. Intraindustry Trade and Pro-trade FDI

There are two basic types of intraindustry trade. One type is trade within a given finished good that is slightly differentiated in design, price, quality, and other attributes. This type of intraindustry trade is exemplified by two-way trade in nearly identical goods, such as pharmaceuticals and automobiles, and can be classified as *horizontal* intraindustry trade. The second type is trade within the same industry, involving both final and intermediate goods. For example, one country exports finished cars, while importing car parts.

The first type of intraindustry trade is theorized by Helpman and Krugman (1985) as the monopolistic competition theory of trade and is often used as textbook material in international economics. The monopolistic competition theory of trade assumes the same overall capital-labor ratio between two countries (hence, no basis for comparative advantage). Yet trade occurs in a given finished good such as cars because of *economies of scale*, which can be an independent source of international trade other than comparative advantage. This new cause of trade is stressed in Krugman and Obstfeld’s textbook:

Interindustry (cloth for food) trade reflects comparative advantage... *Intraindustry* trade (cloth for cloth) does *not* reflect comparative advantage. ... It is economies of scale that keep each country from producing the full range of products for itself; thus economies of scale can be an independent source of international trade (Krugman and Obstfeld, 2005: 127).

The Krugman and Obstfeld model thus defines intraindustry trade very *narrowly* and confines its analysis to only *finished* products. If FDI occurs under such circumstances,

⁶ This section draws on Ozawa (2005).

trade will be replaced by local production in host countries. Anti-trade FDI or a substitutes case will be the outcome.

There is, however, the *vertical* type of intraindustry trade that is perhaps much more prevalent and dominant, notably in Asia, in this age of global outsourcing. MNCs are actively relocating production of low-end products, parts and components, and other intermediate goods to low-wage overseas locations for reverse imports. This phenomenon is known as *production fragmentation* and has been theorized (e.g., Arndt and Kierzkowski, 2001; Cheng and Kierzkowski, 2001). Here, trade occurs within a given firm (between the home office and overseas suppliers), hence an *intrafirm* transaction. And the doctrine of comparative advantage (both neofactor and neotechnology types) still applies.

This new division of labor is brought about by *intra-firm* (as opposed to inter-country) factor movements. Vertical trade is thus created by FDI, and is *necessarily* of Kojima's pro-trade type. And such trade is based on comparative advantage—and economies of scale as well (since trade necessarily promotes specialization). The Krugman and Obstfeld textbook gives an erroneous impression that intraindustry trade is necessarily based *solely* on scale economies (increasingly returns) and has *nothing* to do with comparative advantage. In their model, moreover, the notion of product differentiation is ambiguous. It obviously does *not* allow any *qualitative* differentials (i.e., high-end vs. low-end varieties) that are caused by different skill (technology) levels of trading countries, which necessarily reflect Ricardian comparative advantages—and that are quite preponderant in today's intraindustry trade. Furthermore, Krugman and Obstfeld's notion of price-based product differentiation is limited. It is limited only to the price (cost) differentials caused *solely* by scale economies alone—and neither by factor endowments (or skills) nor by drastic changes in exchange rates, frequent occurrences in today's world of

flexible rates that strongly influence FDI decisions for product fragmentation. Besides, intraindustry trade in finished goods itself may be flourishing *precisely* because of efficiently outsourced parts and components that go into those finished goods.

In short, their intraindustry model is thus a very special case, merely one genre, dealing with only finished goods (that are apparently manufactured without any imported inputs) and with the limited nature of product differentiation (perhaps only in designs and appeals?) and resulting *necessarily* in a substitutes case if FDI occurs. In fact, the second (vertical) type of intraindustry trade, which is based on Kojima's doctrine of pro-trade FDI (complements), is probably becoming more and more prevalent, especially in the context of rapid growth of intraindustry trade involving East Asia.

3. Kojima's Extension of the "Flying-Geese" Theory

3.1. Akamatsu's "Flying-Geese" Theory.

It is first necessary to make a quick review of what is called the "flying-geese (FG)" theory of economic development, which Kojima elaborated on and empirically tested as seen below. Kaname Akamatsu (inter alia, 1935) originated the FG theory against the backdrop of Japan's catch-up experience mostly in the pre-Second-World-War period. He introduced *three* patterns of FG formation: (i) a sequence of importing->domestic production->exporting (M->P->X), (ii) a sequence of product and industrial development not only in the order of "capital goods following consumer goods" but also "in the progress of from crude and simple goods to complex and refined goods," and (iii) an "alignment of nations along the different stages of development" (Akamatsu, 1961). The first pattern is basically *import substitution-cum-export promotion (IS-EP)*, the second a process of *structural upgrading* at both product and industry levels, and the third *a hierarchy of countries* at different stages of growth. How are these three patterns

interrelated to each other? Akamatsu did not provide any clear causal links as a formulated theory. Simply put, however, *a catching-up country resorts to the IS-EP strategy at each rung of the ladder of development so as to upgrade its industrial structure by absorbing advanced industrial knowledge from, and exporting manufactures to, more advanced countries (within a hierarchy of countries).*

In this interactive/derived process of industrialization, only the IS-EP process is the nationally controllable activity on the part of a catching-up country, whereas the other two (features of structural upgrading and a hierarchy of countries) are parametrically given and predetermined for latecomers, who follow the paths of more advanced countries. Hence it is worth detailing the IS-EP process, which can be strategically managed by a catching-up country. In essence, it represents the *new* infant-industry protection approach—new in the sense that it uses exporting as the ultimate criterion of successful protection. Previously, Mill (1848/1909) and Bastable (1887) both defended the IS strategy and considered a successful execution of protection if the domestic production cost declines to the import price level (Mill’s criterion) or if the future gains from the new industry outweighs the protection costs (investment in protection) (Bastable’s criterion). It is worth emphasizing, therefore, that Akamatsu’s criterion went beyond the M->P phase (i.e., the establishment of a new domestic industry via import substitution) to the X phase—that is, the new industry also must develop into a competitive export industry. In this regard, it should also be mentioned in passing that exactly the same M->P->X pattern was reproduced by Krugman (1984), who identified it as “import protection as export promotion,” though without reference to Akamatsu’s original work.

In Akamatsu’s IS-EP model, therefore, initial imports will eventually beget exports in an evolutionary fashion. Imports are sort of “seeds” for the spurt of a domestic industry, which soon grows into an exporter so long as such an industry is a *potentially* comparatively-

advantaged industry at home. Imports serve to awaken and foster local markets, which local entrepreneurs will then be able to exploit once a protective import restriction is imposed. This market-creating role of imports was similarly stressed by Hirschman (1958) in his well-known theory of unbalanced growth. He based the process of import substitution (i.e., $M \rightarrow P$) on the notion of a *backward linkage* in demand, since domestic production is induced by imports (consumption that induces production). “We have stressed here the ‘creative’ role imports can play in the development process, a role that has been almost entirely overlooked” (1958:124-5). Here, however, he was unaware of Akamatsu’s original work published in Japanese as early as the 1930s. Furthermore, Hirschman was concerned only with the process of import substitution and did not consider how exports would be sparked from such domestic production.

3.2. Kojima’s Extension

Kojima has been expanding on Akamatsu’s FG theory, both directly and indirectly in many of his writings.⁷ Most recently, Kojima published a trilogy of FG theory, *Ganko-kei Keizai Hattenron* [FG-style Economic Development Theory]: vol. 1. *Nihon Keizai, Azia Keizai, Sekai Keizai* [Japanese Economy, Asian Economy, World Economy] (2003); vol. 2. *Azia to Sekai no ShinChitsujo* [Asia and the World in a New Order] (2004); and vol. 3. *Kokusaikeizai to Kinyukiko* [International Economy and Monetary System] (2006). These tomes integrate and summarize Kojima’s lifetime work on trade, FDI, economic development, and regional integration--within the framework of FG theory. Kojima’s theory of pro-trade FDI is one of the

⁷ It should be noted, however, that Kojima is not the only one who has contributed to the further conceptual explorations of Akamatsu’s FG model. Just to cite only a few, Rapp (1967, 1975), Shinohara (1972, 1982), Yamazawa (1990), Ishikawa (1992), Korhonen (1998), Ozawa (2005), and Cutler and Ozawa (2007). There are also a large number of empirical tests of Akamatsu’s ideas, a survey of which is, however, beyond the scope of this paper.

key mechanisms that promote and drive Asian exports, flying-geese style, thereby sparking economic growth in individual Asian countries over time in a staggered fashion.

Akamatsu's FG sequence of $M \rightarrow P \rightarrow X$ was further expanded by Kojima in terms of its subsequent entailing activities, namely trade (X)-induced outward FDI (i.e., relocation of production overseas), which in turn leads to imports (M') in the home country. FDI needs to be defined in a broad sense, inclusive of direct investment, licensing, subcontracting, and others through which knowledge can be transferred (as meant by Kojima's notion of "capital" movement). Thus, a full circle of $M \rightarrow P \rightarrow X \rightarrow \text{outFDI} \rightarrow M'$ (that is, M to M' in full circle) is traced out. To paraphrase Krugman, the full circle can be paradoxically described as "import protection as import promotion." This is a dynamic evolutionary and dialectic chain of causalities stemming from a rapid structural transformation of a new industry introduced in a catching-up economy.

The initial import, M, is obviously different from the last import, M' , in their roles of stimulating economic growth, though exactly the same product may be involved. The former serves to develop a domestic market for a particular manufacture, which enables local producers to initiate a new industry at home. On the other hand, M' occurs later on as the home country now transplants that same industry abroad as it loses a comparative advantage. In other words, the country moves up the ladder of economic development, importing the very goods it once exported.

The $P \rightarrow X$ phase becomes increasingly two-way-interactive as exports stimulate domestic output, which in turn supports exports by way of economies of scale and learning. Here, the Smithian economies of agglomeration (cumulative causation) thus take effect. But the good times do not last long; domestic production cannot be retained at home for long. The very success of export-driven industrial growth results in higher wages at home, weakening

competitiveness. Also, successful exports lead to currency appreciation that ironically works against exports. The upshot is an inevitable transition to the X->outFDI phase. The X->outFDI phase may thus be triggered (i) by the fact that overseas production becomes more cost-effective due to rising wages at home and currency appreciation, (ii) by the commoditization (standardization) of an export product that was once new and innovative, making it easier for low-wage developing countries to start the production of their own, or (iii) by protectionism in export markets where local production is induced to be set up as “a tariff factory.” And the final outFDI->M' phase means *reverse* imports (M') of finished or intermediate goods, especially those that are low-end and labor-intensive in nature.

Why is this full-circle (M to M') model important? Although Kojima himself did not fully explore its theoretical implications, it can be argued that the model zeroes in on the dynamics of intra-Asian (i.e., regionalized) economic integration and growth and serves to link up Akamatsu's three patterns of FG formation causally and more clearly as a *unitized* (systemic) analytical framework.

3.3. Theoretical Implications of the Full-Circle Model

The initial IS-EP (M->P->X) phase looks only at a catching-up industry/country, as it is basically a dynamic version of infant-industry protection. It describes the *nationalistic* protectionist strategy of building up a domestic industry--instead of depending on imports. Hence the M->P->X sequence tells us only *how a new industry is introduced under protection and develops at home*. But it does not tell us *how such an industry, once fully developed at home, is destined to eventually become comparatively disadvantaged, hence be shed, and spread--from one successfully catching-up country to those others that are still at lower stages of development*. For the latter phenomenon, therefore, the rest (X->outFDI->M') of the full-circle model is

needed. Without it, lower-echelon developing countries within a hierarchy of countries are supposed to pursue the M->P->X strategy *separately* and without FDI from more advanced countries.

The full circle model is an evolutionary story of *catching-up* in, and then *shedding* of, an industry as a given developing country successfully scales the ladder of development--from low value-added to higher value-added production. That is to say, the full circle is repeated at different stages of industrial development: from the labor-driven stage of manufacturing (e.g., apparel and textiles) to scale-driven stage (e.g., machinery and chemicals) to knowledge-driven stage (e.g., electronics). On the part of the host countries, moreover, the X->outFDI->M' sequence means M->inFDI->X (where inFDI indicates inward FDI), namely, inward-FDI-assisted industrial development and exports. One can easily understand how China is currently capitalizing on, and benefiting from, this chain of events. In fact, the M->inFDI->X sequence is a more open-economy approach than the nationalistic protective process of M->P->X once most actively pursued by Japan—as well as by the NIEs, though to a lesser extent. It is well known that postwar Japan depended on technological absorption mostly via licensing agreements and until recently avoided inward FDI. In contrast, Korea and Taiwan have been comparatively more receptive to inward FDI, where local businesses often served as “apprentices” for foreign MNCs (Amsden, 1989). The M->inFDI->X model, however, has become almost a widely accepted development strategy for catching-up countries due to the recent trend of stepped-up market liberalization. In short, whether viewed from a home or host country perspective, trade and FDI/knowledge transfer are thus the critical catalysts of industrial upgrading, promoting the structural metabolism of any successfully catching-up country—and of the entire cohort of countries involved in interactive/derived economic development. And this is clearly the case

with the East Asian countries. One can thus witness the power of global capitalism that, once accepted and harnessed by a host country, drives the engine of economic growth.

It should be further noted that the M->inFDI->X sequence is highly *time-compressed* and may occur instantaneously. In fact, the initial M event may be completely bypassed if foreign MNCs set up local production, whose output is then sold both locally (i.e., “surrogate imports”) and overseas (i.e., exports). It is an *instant* build-up of an export industry at the hands of foreign MNCs. This is in a sharp contrast to the self-reliant and time-consuming process of M->P->X, which is probably no longer likely to be replicated in any developing countries in this fast-globalizing era. Practically all the developing countries are eagerly inviting foreign MNCs’ investments.

In this regard, a *new* full-circle model, M->inFDI->X->outFDI->M’, is in the making. What drives this chain of events? The new full-circle sequence occurs ideally in a highly market-liberalized, open-economy environment where inward and outward FDIs are both unrestricted and where the free enterprise system thrives. In essence the market plays the role of coordinator in directing economic activities and resource allocation. This contrasts sharply with the “old” full-circle model, in which infant industry protection is given to foster *nationally* owned industries. The old model is a semi-closed/open-economy model--closed inwardly (restrictions on imports and inward FDI) but open only outwardly (export and outward FDI promotion).

Indeed, China is spearheading in the global race of catch-up economic growth by adopting the new full-circle model so pragmatically and effectively, though the “visible” hand of government is always lurking in the background. Because of rapid wage increases in China’s export-driven coastal manufacturing regions, both foreign MNCs and Chinese enterprises themselves have recently begun to shift labor-intensive production *outwardly* to Vietnam and

Africa—as well as *inwardly* to China’s vast interior regions—where wages are still lower.

Industrial development, along with the benefits of economic prosperity, is thus spreading to China’s hinterlands, flying-geese style.

Here it is interesting to note that the full-circle sequence of industrial development means that economic prosperity cannot be confined and retained in a particular location once developed; it will *inevitably* spread to underdeveloped locations. In other words, the initial phase of building up a domestic industry, whether autonomously under protection (the old model) or with the help of foreign MNCs (the new model) will eventually lead to the weakening or even the loss of that industry as a result of the very success of such a catch-up strategy and to its eventual shedding. Even Japan’s rather nationalistic initial attempt to confine industrial activities at home ended up with the necessity to transplant those exactly same activities abroad (even stoking fears of hollowing-out at home). Ironically, however, this is an ineluctable denouement, which may be called the paradox of “inward dependence (nationalism) as outward dependence (globalism).”

4. Kojima’s Early Advocacy for an Integrated Asian Pacific Region

Reflective of the destiny of the Asian countries to integrate into each other as the consequence of trade-cum-FDI-driven growth, there has emerged a need for preparing all the necessary institutional arrangements and policy coordinations for regional economic integration. Kojima was among the first economists who foresaw such a need. In the early postwar period he had the prescience to advocate the establishment of an open free trade region in the Asian Pacific. Kojima is the founder and creator of the Pacific Asian Free Trade and Development (PAFTAD) that came into successful existence. He was early on joined in and assisted by Hugh Patrick, Peter Drysdale, Saburo Ohkita, Frank Holmes, Edward English, Lim Chong Yah, and others

(Patrick, 1989, 1996; Drysdale, 1984; Korhonen, 1994). PAFTAD has soon evolved into the Pacific Economic Co-operation Conference (PECC) and eventually into the present Asia-Pacific Economic Co-operation (APEC). In his homage to Kojima, Hugh Patrick concludes:

This economic growth and the economic strength of the APEC region mean that Kojima's initial concept of a Pacific free trade area has been overtaken by events. In a real sense a global approach has continued to win the day... And the mantle of a global approach to trade policy is now worn at least as much by Japan as the United States. We all can be thankful for Professor Kojima's seminal intellectual and institutional roles in helping bringing this about (Patrick, 1996: 208).

5. Concluding Remarks

Economics has evolved in analytical methodology from conceptual exploration first to mathematical specification and more recently to empirical analysis with econometrics. All in all, induction has gained on deduction—thanks to the recent technological advance in data collection and computation. The older generations of economics were by and large more policy-focused. In contrast, the latest generation is increasingly more technically (econometrics) oriented in analysis—sometimes, as a recent IMF study points out, even at the risk of creating a gap/tensions between “the logics of academic interest [mathematical model-building and ‘rigorous’ econometric testing for ‘robust’ results] and the needs of the policy practitioners” (Pritchett, 2006: 18). As emphasized by Edward Leamer (1993), any useful economic study needs to include policy-related issues, theory, and testing in a well-balanced way. He even argues that “The central issue of international economics is: How, if at all, should governments intervene in international commerce?” (1993: 437). In other words, policy matters. After all, the critical distinction between international economy and regional one is the existence of different sovereign nations and divergent nation-specific institutional setups for the former.

No doubt, there have been many important empirical studies on the roles of trade, FDI, knowledge transfer, and structural transformation in the dynamic growth of East Asia (*inter alia*,

Yamazawa, et.al., 1983; Ramstetter, 1991, 1999; Tran, 1993; Wakasugi, 1994a, 1994b, 1995; APEC, 1995; Kawai and Urata, 1998; Kawai, 2005; Urata, 2001, 2005; Kimura, 2003, 2006). Although most of them do not explicitly refer to Kojima's pro-trade FDI theory (a complements case) or his extended FG theory of industrial development, they often implicitly and tangentially touch on many of those hypotheses derivable from his original ideas. The new generation of Japanese economists will discover, and benefit from, the rich veins of testable policy-related propositions in such uniquely Japan-born theories as Akamatsu's and Kojima's, though these theories still need to be further refined theoretically and in terms of policy issue analysis. East Asia is full of critical issues in need of appropriate policy responses both at an individual country and at the regional level.

References

Akamatsu, Kaname (1935), "Wagakuni Yomo Kogyohim no Boeki Suisei 'The Trend of Japan's Trade in Woolen Manufactures]", *Shogyo Keizai Ronso* [Journal of Nagoya Higher Commercial School], Vol. unknown, 129 ff.

Akamatsu, Kaname (1961), "A Theory of Unbalanced Growth in the World Economy," *Weltwirtschaftliches Archiv* 86: 196-215.

Amsden, Alice H. (1989), *Asia's Next Giant: South Korea and Late Industrialization*, Oxford: Oxford University Press.

APEC Economic Committee (1995), *Foreign Direct Investment and APEC Economic Integration*, Singapore: APEC Secretariat.

Arndt, Sven W, and Henryk Kierzkowski, eds. (2001), *Fragmentation: New Production Patterns in the World Economy*: Oxford, U.K.: Oxford University Press.

Bastable, Charles F. (1887), *The Theory of International Trade*, Dublin: Hodges, Figgis.

Caves, Richard E. (1971), "International Corporations: The Industrial Economics of Foreign Investment," *Economica* 38: 1-27.

Cheng, Leonard K, and Henryk Kierzkowski, eds. (2001), *Global Production and Trade in East Asia*, Boston: Kluwer.

Cutler, Harvey and Terutomo Ozawa (2007), "The Dynamics of the 'Mature' Product Cycle and Market Recycling, Flying-Geese Style: An Empirical Examination and Policy Implications," *Contemporary Economic Policy* 25 (1): 67-78.

Drysdale, Peter (1984), "The Pacific Trade and Development Conference: A Brief History," Canberra: Australia-Japan Research Centre, ANU, Research Paper No. 112.

Drysdale, Peter and Hugh Patrick (1979), "Evaluation of a Proposed Asian-Pacific Regional Economic Organization," in Congressional Research Service, *An Asia Pacific Regional Economic Organization: An Exploratory Concept Paper, for the Committee on Foreign Relations, U.S. Senate*, Washington, D.C.

Flatters, Frank (1972), "Commodity Price Equalization: A Note on Factor Mobility and Trade," *American Economic Review* 62: 473-476.

Galbraith, John K. (1973), *Economics and the Public Purposes*. Boston: Houghton Mifflin.

Helpman, Elhanan and Paul Krugman, *Market Structure and Foreign Trade*, Cambridge: MIT Press.

- Hirsch, Seev (1967), *Location of Industry and International Competitiveness*, Oxford: Oxford University Press.
- Hirschman, Albert O. (1958), *The Strategy of Economic Development*, New Haven: Yale University Press.
- Hymer, Stephen H. (1960/1976), *The International Operations of National Firms: A Study of Direct Investment*. Ph.D. thesis, MIT, also published by MIT Press.
- Ishikawa, Jota (1992), "Learning by Doing, Changes in Industrial Structure and Trade Patterns, and Economic Growth in a Small Open Economy," *Journal of International Economics* 33 (3-4): 221-244.
- Johnson, Harry G. (1972), "Survey of Issues," in Peter Drysdale (ed.), *Direct Foreign Investment in Asia and the Pacific*, Toronto: University of Toronto Press.
- Kawai, Masahiro (2005), "Trade and Investment Integration and Cooperation in East Asia: Empirical Evidence and Issues," in Asian Development Bank (ed.), *Asian Economic Cooperation and Integration: Progress, Prospects, and Challenges*, Manila: ADB.
- Kawai, Masahiro, and Shujiro Urata (1998), "Are Trade and Direct Investment Substitutes or Complements? An Analysis of the Japanese Manufacturing Industry," in Hiro Lee and David Roland-Holst (eds.), *Economic Development and Cooperation in the Pacific Basin: Trade, Investment, and Environmental Issues*, Cambridge: Cambridge University Press.
- Kimura, Fukunari (2003), "Fragmentation and Agglomeration Matter: Japanese Multinationals in Latin America and East Asia," *North American Journal of Economics and Finance* 14 (3): 287-317.
- Kimura, Fukunari (2006), "International Production and Distribution Networks in East Asia: 18 Facts, Mechanics, and Policy Implication," *Asian Economic Policy Review* 1 (2): 326-344.
- Kindleberger, Charles P. (1969), *American Business Abroad: Six Lectures on Direct Investment*, New Haven, Conn.: Yale University Press.
- Krauss, Melvyn B. (1974), "Commodity Trade and Factor Mobility," *American Economic Review* 64: 797-802.
- Krauss, Melvyn B. (1976), "Commodity Trade and Factor Mobility," *American Economic Review* 66: 669-670.
- Kojima, Kiyoshi (1973), "A Macroeconomic Approach to Foreign Direct Investment," *Hitotsubashi Journal of Economics* 14: 1-20.
- Kojima Kiyoshi (1975), "International Trade and Foreign Direct Investment: Substitutes or Complements," *Hitotsubashi Journal of Economics* 16: 1-12.

Kojima Kiyoshi (1977a), "Transfer of Technology to Developing Countries—Japanese Type versus American Type," *Hitotsubashi Journal of Economics* 17: 1-14.

Kojima Kiyoshi (1977b), *Kaigai Chokusetsu Toshi Ron* [Theory of Foreign Direct Investment], Tokyo: Diamond.

Kojima, Kiyoshi (2003, 2005, 2006), *Ganko-kei Keizai Hattenron* [Flying-Geese-Style Economic Growth], vol. 1: *Nihonkeizai, Aziakeizai, Sekai keizai* [Japanese Economy, Asian Economy, World Economy]; vol. 2: *Azia to Sekai no Shinchitsujo* [Asia and World in a New Order]; and vol. 3: *Kokusaikeizai to Kinyukiko* [International Economy and Monetary System], Tokyo: Bunshindo.

Kojima, Kiyoshi and Terutomo Ozawa (1984), "Micro- and Macro-Economic Models of Direct Foreign Investment: Toward a Synthesis," *Hitotsubashi Journal of Economics* 25 (1): 1-20.

Kojima, Kiyoshi and Terutomo Ozawa (1985), "Toward a Theory of Industrial Restructuring and Dynamic Comparative Advantage," *Hitotsubashi Journal of Economics* 26 (2): 135-145.

Korhonen, Pekka (1994), *Japan and the Pacific Free Trade Area*, London: Routledge.

Krugman, Paul R. (1984), "Import Protection as Export Promotion: International Competition in the Presence of Oligopoly and Economies of Scale," in Henryk Kierzkowski (ed.), *Monopolistic Competition and International Trade*, Oxford: Clarendon Press.

Krugman, Paul R. and Maurice Obstfeld (2005), *International Economics: Theory & Policy*, 7th edition, Boston: Pearson/Addison-Wesley.

Leamer, Edward E. (1993), "Factor-Supply Differences as a Source of Comparative Advantage," *American Economic Review* 83 (2): 436-439.

Markusen, James R. (1983), "Factor Movements and Commodity Trade as Complements," *Journal of International Economics* 14: 341-356.

Mill, John Stuart (1909), *Principles of Political Economy*, London: Macmillan.

Mundell, Robert A. (1957), "International Trade and Factor Mobility," *American Economic Review* 47: 321-335.

Ohlin, Bertile (1933), *Interregional and International Trade*, Cambridge, Mass.: Harvard University Press.

Ozawa, Terutomo (1971), *Transfer of Technology from Japan to Developing Countries*, New York: United Nations Institute for Training and Research.

Ozawa, Terutomo (1976), "Commodity Trade and Factor Movement: Comment," *American Economic Review* 66, Sept.:

- Ozawa, Terutomo (1996), "Professor Kojima's 'Trade Augmentation' Principle and the 'Flying-Geese' Paradigm of Tandem Growth," *Surugadai Keizaigakuron [Surugadai Economic Studies]* 5 (2): 269-296.
- Ozawa, Terutomo (2005), *Institutions, Industrial Upgrading, and Economic Performance in Japan: The "Flying-Geese" Paradigm of Catch-Up Growth*, Cheltenham, Glos. UK: Elgar.
- Patrick, Hugh T. (1989), "Chairman's Opening Address," in *The Pacific Trade and Development Conference: The First Twenty Years*, Canberra: PAFTAD Secretariat, ANU.
- Patrick, Hugh T. (1996), "From PAFTAD to APEC: Homage to Professor Kiyoshi Kojima," *Surugadai Keizaironshu [Surugadai Economic Studies]* 5 (2): 183-216.
- Pritchett, Lant (2006), "The Question Continues," *F&D: Finance and Development* 43 (1): 18-22.
- Ramstetter, Eric D. (1991), *Direct Foreign Investment in Asia's Developing Economies and Structural Change in the Asia-Pacific Region*, Boulder, CO.: Westview Press.
- Ramstetter, Eric D. (1999), "Comparisons of Foreign Multinationals and Local Firms in Asian Manufacturing over Time," *Asian Economic Journal* 13 (2): 163-203.
- Rapp, William V. (1967), "A Theory of Changing Trade Patterns under Economic Growth: Tested for Japan," *Yale Economic Essays*, Fall: 69-135.
- Rapp, William V. (1975), "The Many Possible Extensions of Product Cycle Analysis," *Hitotsubashi Journal of Economics* 16 (1): 22-29.
- Rybczynski, T.M. (1955), "Factor Endowment and Relative Commodity Prices," *Economica* 22: 336-341.
- Schmitz, Andrew and Peter Helmberger (1970), "Factor Mobility and International Trade: The Case of Complementarity," *American Economic Review* 60: 791-797.
- Shinohara, Myohei (1972), *Growth and Cycles in the Japanese Economy*, Tokyo: Institute of Economic Research, Hitotsubashi University.
- Shinohara, Myohei (1982), *Industrial Growth, Trade, and Dynamic Patterns in the Japanese Economy*, Tokyo: University of Tokyo Press.
- Tran, Van Tho (1993), "Technology Transfer in the Asian Pacific Region: Implications of Trends since the Mid-1980s," in Takatoshi Ito and Anne Krueger (eds.), *Trade and Protectionism*, Chicago: University of Chicago Press.
- Urata, Shujiro (2001), "Emergence of an FDI-Trade Nexus and Economic Growth in East Asia," in Joseph Stiglitz and Shahid Yusuf (eds.), *Rethinking the East Asian Miracle*, New York: Oxford University Press.

Urata, Shujiro (2005), "East Asia's Multi-Layered Development Process: The Trade-FDI Nexus, in K. Fukasaku, et. al. (eds), *Policy Coherence Towards East Asia: Development Challenges for OECD countries*, Paris: OECD.

Urata, Shujiro, and Hiroki Kawai (2000), "Intrafirm Technology Transfer by Japanese Manufacturing Firms in Asia, in Takatoshi Ito and Anne Krueger (eds.), *The Role of Foreign Direct Investment in East Asian Economic Development*, Chicago: University of Chicago Press.

Vernon, Raymond (1966), "International Trade and International Investment in the Product Cycle," *Quarterly Journal of Economics*, 80: 190-207.

Wakasugi, Rhuhei (1994a), "Is Japanese FDI a Substitute for International Trade?" *Japan and the World Economy* 6 (1): 45-52.

Wakasugi, Rhuhei (1994b), "On the Determinants of Recent Japanese FDI," *Asian Journal of Economics and Social Studies* 13 (4): 361-374.

Wakasugi, Rhuhei (1995), "On the causes of low levels of FDI in Japan," in Edward K.Y. Chen and Peter Drysdale (eds.), *Corporate Links and Foreign Direct Investment in Asia and the Pacific*, Pymble, Australia: HarperEducation.

Williamson, Oliver E. (1985), *The Economic Institutions of Capitalism*, New York: Free Press.

Yamazawa, Ippei (1990), *Economic Development and International Trade: The Japanese Model*, Honolulu: East-West Center.

Yamazawa, Ippei, A. Hirata, and K. Taniguchi (1983), "Trade and Industrial Adjustment in Pacific Asia," *Developing Economies* 21 (4): 281-312.