

# 1. Why Akamatsu's original theory needs reformulation

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## 1.1 AKAMATSU'S THEORY IN THE LIGHT OF GLOBALIZATION

The 'flying-geese' (FG) theory of economic development originally introduced by Kaname Akamatsu (1897–1974) of Hitotsubashi University is the only Japan-born economic theory that has so far come to be widely recognized outside Japan in the discipline of development economics. In a *Foreign Affairs* article, Radelet and Sachs (1997), for example, considered it a major doctrine of development strategy, along with the 'big-push' theory and the 'import substitution' approach, by identifying East Asia's strong export orientation as the core strategy of catch-up industrialization. Also, the idea of FG formation is quite popular, especially among journalists, in describing emerging economies' successes in economic development across East Asia.

However, Akamatsu's original theory is conceptually in the rough (Ozawa, 2009) and needs polishing and restatement. First of all, it is outdated and needs new conceptualization and analysis. After all, he set forth the theory as far back as the 1930s. And it was based on his statistical studies of the trends of Japan's trade in manufactures over a long period from the late nineteenth to the early twentieth century, during which Japan's catch-up industrialization proceeded. As expected, therefore, some of his core concepts are naturally outdated in the light of rapid changes in technology, commercial knowledge, industrial structures, institutions, and international relations in the global economy. His original framework of analysis thus requires extensive updating and reformulation in order to remain relevant in a dramatically altered and ever-increasingly fast-changing world under the relentless forces of globalization.

## 1.2 BASIC FG PATTERN: IMPORT SUBSTITUTION-CUM-EXPORT PROMOTION

A mention of FG formation nowadays conjures up an image of a group of economies advancing together in leader–follower relations. This image has been popularized by the media in particular. This pattern of FG formation is, however, just one of three different patterns Akamatsu identified. Besides, it is in fact not the pattern Akamatsu considered, in his own words, ‘basic/fundamental form (*kihonkei*)’, but actually is ‘auxiliary/secondary form (*fukujikei*)’:

The wild-geese-flying pattern ... includes three [patterns]. The first *basic* pattern is the sequence of import–domestic production–export. The second pattern is the sequence from consumer goods to capital goods and from crude and simple articles to complex and refined articles. The third pattern is the alignment from advanced nations to backward nations according to their stages of growth. (Akamatsu, 1961, p. 208, emphasis added)

Thus, he introduced three different patterns of FG formation: (1) a sequence of importing (M), domestic production (P), and exporting (X) – MPX; (2) a sequence of product and industrial development not only in the order of ‘capital goods following consumer goods’ but also in the progress ‘from crude and simple goods to complex and refined goods’; and (3) an ‘alignment of nations along the different stages of development’. The first MPX pattern is basically import substitution (IS) cum export promotion (EP) in contemporary parlance, 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? Simply put, 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). The Akamatsu model thus can be reinterpreted as the theory of an export-oriented emulative catch-up on the part of late industrializers through learning from the more advanced economies; and sooner or later coming up with their own innovations in terms of adaptation.

In such a dynamic interactive process of industrialization, only the MPX (or 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. Furthermore, worth noting is that the MPX pattern is actually not Akamatsu's own idea. It is exactly the sequential stages of industrialization presented by Friedrich List. And Akamatsu himself, in fact, explicitly gave credit to List (as will be detailed in Chapter 2).

Although there is no clear explanation of why he called List's MPX pattern 'basic', we can surmise that it is the very pattern he empirically discovered in the development histories of many Japanese manufacturing industries over the period of 1870–1939 (such as woolen goods, cotton yarn, cotton cloth, spinning and weaving machines, general machinery, bicycles, and industrial tools), for which he made inter-temporal statistical analyses. It should be noted that these industries are, by today's standards, low-end manufacturing or light industries. Akamatsu plotted the time-series trend lines of imports, domestic production, and exports for each industry (Akamatsu, 1935). These lines showed a consistent wave-like pattern of three orderly sequential steps of industrial development, in which imports first rise and then decline, while domestic production begins to take over, gradually substituting for imports, and finally exports emerge successfully. His discovery, therefore, confirmed List's original idea in empirical terms. He then dubbed this pattern 'flying-geese formation' because 'wild geese fly in orderly ranks forming an inverse V, just as airplanes fly in formation' (Akamatsu, 1962, p. 9). In other words, the MPX mechanism served as the powerful engine of development for each Japanese manufacturing industry, kick-starting and enabling initially protected industries eventually to produce domestic substitutes for imports and develop into export-competitive industries. This development process clearly reflects a national strategy of catch-up through what is known as 'infant-industry protection'.

Such progress in each manufacturing industry, one after another, gave a strong and continual impetus to Japan's entire economy for moving up the ladder of growth, tracing out a sequence of industrial restructuring, upgrading, and diversification. And Japan's catch-up, in turn, impacted and altered the 'alignment of countries' (the third pattern) along the way. In other words, industrial upgrading and diversification (the second pattern) were the outcome of trade-driven industrial development, while the third one was the parametric conditions under which Japan initiated industrialization and which its catch-up itself altered in the end. Thus, the MPX progression was the main driver, although the three patterns functionally interacted with each other in propelling catch-up growth. In this sense, Akamatsu correctly identified the MPX progression as basic or fundamental. As seen below, nevertheless, it is no longer so basic or relevant in today's world. (For other salient features of Akamatsu's FG theory, see Ozawa, 2009.)

### 1.3 THE RISE OF MULTINATIONALS

As clearly evidenced in Akamatsu's conceptualization of the MPX progression as the core of his entire theory, trade was the only driver of catch-up industrialization in his original theory. This perspective was adequate when he conceptualized the FG theory in terms of Japanese industry's historical data of 1870–1937. In those days, trade was then the dominant mode of international business. Western multinationals' overseas production was still nascent, though it had started to become active. Since then – particularly since the end of World War II (WWII) – however, the world has dramatically changed. In today's world, multinational corporations (MNCs) are ubiquitous and dominate the global economy, setting up factories and engaging in outsourcing activities around the globe. Their production abroad (that is, 'international production') has overtaken the conventional type of arm's-length 'international trade' in value. MNCs represent cosmopolitanism and globalism, whereas conventional trade (as seen in the MPX sequence under infant-industry protection) exhibits economic nationalism. They are innovators, disseminators of commercial knowledge, and prompters of structural change in home and host countries alike (Chapters 3 and 5). Their activities are far more dynamic than trade in impacting on the world economy. MNCs are a puissant agent of structural change and growth across the global landscape. By nature, their operations are far more externalities-causing in many ways in both their home and host economies than international trade. In short, we must recognize such a role – and such an impact – when we reformulate Akamatsu's original theory.

In Akamatsu's day, however, MNCs were still inchoate, particularly in Asia, and their presence could not be adequately taken into consideration. Prior to his death in 1974, Akamatsu had only begun to see the beginning of MNCs' meteoric rise, and was unable to fully comprehend and take account of their activities in his analysis. As a consequence, his model of the MPX progression is driven solely by the conventional strategy of infant-industry protection that is designed to nurture locally owned, national industries at home by fending off any incursion of foreign interests as business investors or owners. Nowadays, however, the three-step sequence of MPX can be time-compressed and carried out simultaneously by foreign MNCs which can set up both import-substituting and export-oriented production in emerging markets instantly, all at once. Instead of closing off domestic industries, many emerging economies are now willingly opening up and interacting with the outside world. That is

to say, nationalism is yielding to globalism; at least in the initial phase of catch-up (more on this in Chapter 3).

Indeed, this is the new strategy of foreign direct investment (FDI)-fueled industrial take-off which is a more expedient alternative to the conventional, old strategy of infant-industry protection. And such an inclusive (open-economy) approach is increasingly adopted by emerging economies in kick-starting industrial take-off (Ozawa, 2011). In fact, many emerging markets are eagerly courting the favor of foreign MNCs as investors and business partners. In other words, the FDI-fueled strategy for industrial take-off is replacing the conventional protectionist (closed-economy) strategy as an initiator for catch-up growth (see Appendix 3A to Chapter 3). From MNCs' point of view, this means that their initial exports (X) are quickly replaced by outward FDI in their overseas markets (that is, export-substituting outward FDI). And simultaneously, these MNCs often end up importing their own offshore-produced goods back home, thereby creating new exports from their host economies. In other words, the three activities of MPX can be all at once carried out at the hands of MNCs; that is, inward FDI-driven process of MPX from the perspective of emerging host economies. The upshot is that the M curve is either nonexistent or cut short, while the X curve may immediately begin and grow *pari passu* with foreign-owned local production (P by MNCs), so MNCs internalize the whole MPX sequence. That is to say, they can have the IS-EP process achieved all at once for the host countries, especially in labor-intensive low-end manufacturing. At the global level, this means that international production (overseas output by MNCs) is becoming larger and larger in value and ever more important as an engine of industrialization in emerging host economies than the conventional type of arm's-length trade.

In addition, intra-industry trade has grown more rapidly than conventional inter-industry trade. In this connection, cross-border supply chains have become ubiquitous, combining overseas production and intra-company trade under the management and governance of MNCs (Chapter 3). This is the latest global business model adopted by MNCs, a phenomenon that was hardly discernible in Akamatsu's day. Emerging markets have increasingly been opening up and joining the global community of freer trade and investment that can help trigger and boost their industrial take-off. Given these recent developments in globally connected production, moreover, there is no longer much room left for infant-industry protectionism as a motivational trigger to spark an initial take-off, though economic nationalism still can play a role in higher-level industrial development of emerging economies – but not necessarily

excluding foreign MNCs' participation. In fact, emerging economies are nurturing their own MNCs as an instrument of catch-up (Chapter 5).

#### 1.4 WHAT COMES AFTER THE MPX PROCESS?

Another important issue remains unexplored in the dynamics of Akamatsu's growth model: what will happen beyond the MPX progression? Are there no more stages after it? No country can retain export competitiveness forever in any particular product or industry. Will X, then, eventually decline and be replaced by something else? Indeed, this question is very critical, since it touches on the mechanism of structural upgrading both at home and in follower goose economies. Some export industries in more advanced countries are likely transplanted onto and handed over to the emerging world by way of multinationals' FDI and other cross-border business activities. After all, industrial migration from the more advanced to the less advanced is the key to the evolving structural transformation of the world economy.

In List's stages model, the establishment of export-competitive industry is the final stage in which an economy emerges as an advanced one, joining the ranks of imperial powers that export manufactures to their colonies in exchange for primary goods; and that is the end of the catch-up growth story (Chapter 2). Such a perspective was perhaps appropriate in List's day, since only a handful of developing countries of Western heritage were capable of joining the ranks of industrial powers. In those days there were no immediate prospects for any underdeveloped and colonized economies to quickly industrialize and challenge the advanced world.

Then, how about the Akamatsu model? Was he merely reproducing List's model? Why did he not go further beyond X? In fact, as is well known, Akamatsu was very much influenced by Hegelian dialectics that posits that one event, however dominant it may be at a given point of time, will necessarily be challenged and replaced by another emerging event. Hence, X is not expected to remain unchanged.

In this regard, Akamatsu did set forth a long-term growth model in which two periods alternate: the period of 'homogenization/uniformization' followed by that of the 'heterogenization/differentiation', and vice versa, as explained in detail in Ozawa (2009). When all manufacturing industries reach the export-competitive stage in the course of industrial development, a catching-up economy finally joins the ranks of advanced economies and its industrial structure becomes homogenized with the advanced world. However, another round of heterogenization (or

'high-degree or advanced differentiation' as Akamatsu puts it) will soon begin, and reverse the process of homogenization, ushering in a new period of heterogenization. These continually renewed forms of differentiation are caused by innovation in some leading economies. As a consequence, the world economy again is divided by yet another round of differentiation in industrial structure, a differentiation that provides a basis for trade. Therefore, Akamatsu did consider how the export stage evolves 'from consumer goods to capital goods and from simple articles to complex and refined articles' (Akamatsu, 1962); that is to say, a country's (if not an industry's or a particular product's) export competitiveness can be maintained through the continuation of capital intensification and technological advance, both inter-industrially and intra-industrially (as will be elaborated on and reformulated in Chapter 3). Yet, he left unexplored how such capital intensification and technological advance can be accomplished. He merely assumed that such processes would occur automatically to ensure that the drama of heterogenization replacing homogenization will be played out over and over again. This way of reasoning is implicitly in the line of the long-run automatic outcomes of Hegelian dialectics: whatever the causes of dynamics, any economic event or activity, however dominant it may be for a given period of time, would eventually be replaced by a new one – since a thesis always invites an antithesis, and a chain of events is driven by contradictions and compromises or syntheses in a dialectic fashion (Ozawa, 2009). The world always evolves and changes. Yet, we need to delve into the causes of such evolution.

#### **1.4.1 The Role of MNCs as the Major Industrial Transplantor and Knowledge Disseminator in the Full-circle Sequence**

The MPX progression does not end with X as a process. Export competitiveness in a given industry, especially of the labor-intensive, low-wage-based type, cannot last long in a rapidly catching-up economy. Wages are destined to rise, national currency is headed for appreciation, thereby eroding the country's comparative advantage (Chapter 6). The producers in that industry then have to: (1) reduce production costs by raising productivity; (2) switch to higher-value-added lines of goods; and/or (3) relocate production via MNCs' FDI and other overseas operations to low-wage emerging economies. Labor immigration (that is, imported labor) is an option, but not certainly a perfect substitute for outward FDI for a variety of reasons. As examined in Chapter 5, East Asian economies, starting with Japan, then followed by the NIEs, and now China, have begun earnestly to shed off some low-wage production

abroad via FDI and move onto higher-value-added activities worthy of rising wages at home. Aside from wage pressure, furthermore, many consumer-focused MNCs are eager to go beyond exporting and set up shop in other countries in order to secure larger market shares (Chapter 3).

Akamatsu's FG sequence of MPX thus needs to be further expanded to include its subsequent entailing activities, namely export (X)-substituting outward FDI (that is, relocating production to an export market and importing back), which in turn creates new imports ( $M^*$ ) in the home country. Thus, a full-circle of  $M \rightarrow P \rightarrow X \rightarrow \text{outward FDI} \rightarrow M^*$  (that is,  $M$  to  $M^*$  in full-circle) is traced out. To paraphrase Krugman (1984), this 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 successfully catching-up economy. And in this progression, MNCs serve as the major industrial transplantor and knowledge disseminator.

The initial import,  $M$ , is obviously different from the newly created import,  $M^*$ , in their roles of stimulating economic growth, though exactly the same type of product may be involved.  $M$  initially serves to develop a domestic market for a particular manufacture by promoting demand, which enables local producers to build an import-substituting industry at home. On the other hand,  $M^*$  occurs only after the home industry transplants production of that same product abroad. Particularly when such production transplantation is motivated by the loss of comparative advantage in that product, the home country is prompted to move up the ladder of economic development, importing the very product it once used to export.

Also, 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 dynamic Smithian economies of scale and agglomeration (cumulative causation) thus take effect. But 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 ' $X \rightarrow \text{outward FDI}$ ' phase. This transitional phase may thus be triggered: (1) by the fact that overseas production becomes more cost-effective due to rising wages at home and currency appreciation; (2) 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 (3) by protectionism in export markets where local production is induced to be set up as 'a tariff factory' in the host economy. And the final 'outward FDI  $\rightarrow$  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? As explained below, the above model zeroes in on the dynamics of intra-Asian (that is, regionalized) economic integration and agglomeration and serves to link up Akamatsu's three different patterns of FG formation (discussed above in section 1.2) causally and more clearly as a *unitized* (systemic) analytical framework. (Chapter 4 further introduces the theory of pro-trade FDI that *magnifies* the dynamics of FDI-assisted take-off.)

#### 1.4.2 Theoretical Implications of the Full-circle Model

The initial IS-EP (M  $\rightarrow$  P  $\rightarrow$  X) phase looks only at a catching-up industry or country, as it is basically a strategy of infant-industry protection. It describes the *nationalistic* protectionist approach to build up a domestic industry, instead of depending on imports. Hence the M  $\rightarrow$  P  $\rightarrow$  X sequence tells us only *how a new industry is introduced under protection and develops into a successful exporter at home*. But it does not tell us *how such an industry, once fully developed at home, is destined to eventually become comparatively disadvantaged, and 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  $\rightarrow$  outward FDI  $\rightarrow$  M\*) of the full-circle model is needed. Without foreign multinationals' FDI and other types of involvement, lower-echelon developing countries within a hierarchy of countries are supposed to pursue the M  $\rightarrow$  P  $\rightarrow$  X strategy independently and autonomously, an alternative approach that is most unlikely to succeed.

The full-circle model is an evolutionary story of *catching-up* in, and then *shedding* of, a particular (especially low-end) manufacturing activity as an emerging host economy itself successfully moves up the ladder of development, from low-value-added to next-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 (for example, apparel and textiles), to the scale-driven stage (for example, machinery and chemicals), to the knowledge-driven stage (for example, electronics). On the part of the host countries, moreover, the progression of X  $\rightarrow$  outward FDI  $\rightarrow$  M\* necessarily means M  $\rightarrow$  inward FDI  $\rightarrow$  X; that is, inward-FDI-assisted industrial development and exports on the

part of the emerging host economy involved. One can easily understand how China has capitalized on, and benefited from, FDI-driven catch-up. In fact, the process of  $M \rightarrow \text{inward FDI} \rightarrow X$  in low-end manufacturing (at the hands of foreign MNCs) is a more open-economy approach than the nationalistic protective (time-consuming) process of  $M \rightarrow P \rightarrow X$  that was once most actively pursued by Japan, as well as by the NIEs, though to a lesser extent (Chapter 3). It is well known that early postwar Japan was capable of absorbing advanced foreign technology (often not yet commercialized) mostly via licensing agreements in the early postwar period, and until recently avoided inward FDI, since Japan was already at a fairly advanced technological level of development (Ozawa, 1974). In contrast, Korea and Taiwan have been comparatively more receptive to inward FDI, where local businesses and workers often served as ‘apprentices’ for foreign MNCs (Amsden, 1989). The ‘ $M \rightarrow \text{inward FDI} \rightarrow X$ ’ model of take-off (that is, a model of FDI-led, export-driven growth), 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-cum-knowledge transfer is thus the critical catalyst of industrial upgrading, promoting the *structural metabolism* of any successfully catching-up country; and of the entire cohort of countries involved in interactive (and derived) economic development. And this is clearly the case with the East Asian economies (except Japan). One can thus witness the power of global capitalism that, once accepted and harnessed by an emerging host economy, drives the engine of industrial take-off.

It should be further noted that the ‘ $M \rightarrow \text{inward FDI} \rightarrow X$ ’ sequence is highly *time-compressed* and may occur instantaneously. In fact, the initial M phase may be completely bypassed if foreign MNCs set up local production for a ‘new’ product (new to consumers in the host economy), the output of which is then immediately sold both locally (that is, ‘surrogate imports’) and overseas (that is, exports). It is the *instant* birth 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  $M \rightarrow P \rightarrow X$  for industrial take-off, which is probably no longer likely to be replicated in any developing countries in this era of fast globalization. Practically all the developing countries are eagerly inviting foreign MNCs’ investments instead of pursuing the old-style infant-industry protection (more on this in Chapter 3).

Thus, the new take-off model of  $M \rightarrow \text{inward FDI} \rightarrow X$  (from a viewpoint of an emerging economy) has come into existence. What drives this chain of events? The new 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. The market is allowed to play the role of coordinator in directing economic activities and resource allocation, though the host economy needs to formulate an appropriate strategy to host and govern foreign MNCs, along with a long-term development plan. This contrasts sharply with the 'old' model of infant-industry protection designed to foster *nationally* owned industries. The old model is a semi-closed, semi-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 clearly seen or 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 *outward* (notably to their neighboring countries), as well as *inward* 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 (Chapter 6).

In sum, the full-circle sequence of industrial development ( $M \rightarrow M^*$ ) means that economic prosperity cannot be confined and retained in a particular location once developed. It will eventually 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 sooner or later lead to the weakening or even the loss of that industry as a result (the price increase due to rising wages and appreciating home currency) of the very success of such a catch-up strategy and to eventual industrial shedding. This mechanism may be named 'the price-industry-flow' theory *à la* David Hume (Ozawa, 1996a). Even Japan's rather nationalistic initial attempt to confine industrial activities at home ended up with the necessity to transplant those same activities abroad (to such an extent as to even stoke fears of industrial hollowing-out at home). Ironically, however, this is an ineluctable denouement, the paradox of 'inward dependence (nationalism) as outward dependence (globalism)'.

## 1.5 STRUCTURAL CHANGE

Akamatsu also left the key notion of structural change rather vague. He merely stated, in a rough manner, that production structure evolves ‘from consumer goods to capital goods, and from crude and simple articles to refined and complex articles’. From a structuralist point of view, structural change is the crux of economic development. Since his theory is a theory of economic development, it ought to specify a process of structural change in detail. Yet, he was only *implicitly presenting two-stages models of structural change*. In his statement, two different types of industrial activity are touched upon, each implying technological advance: (1) the first part of the statement (that is, ‘from consumer goods to capital goods’) means an inter-industry shift from a final good (say, apparel) toward higher-value-added, upstream, more capital-intensive (different, though related) goods (say, textile machinery); and (2) the second part of the statement (that is, ‘from crude and simple articles to refined and complex articles’) basically indicates an intra-industry shift from low-end goods toward more sophisticated, higher-end goods in a given industry. These inter- and intra-industry transformations result in industrial deepening and diversification. In this regard, as will be shown in Chapter 3, what is called ‘the leading-sector stages model of growth *à la* Schumpeter’ presents a clearly specified model that is built on both the inter- and intra-industry progression of structural change in an integrative manner.

## 1.6 SUMMING UP

Kaname Akamatsu gave us a very broad outline of a process of economic development. For him, what drives the main engine of catch-up industrialization was the basic pattern of the MPX sequence under infant-industry protection, the sequence originally conceptualized by Friedrich List. Since Akamatsu’s theory was built on the 1870–1939 experiences of Japan’s industrial development, it has become outdated in the face of rapid globalization that has occurred ever since the end of WWII. In particular, the rise of MNCs has brought about a drastic sea change in the global economy. Their international production has replaced international trade as the fundamental catalyst and agent of change in industrial structure across the world in general, and as the facilitator of industrialization in emerging economies in particular (Chapters 3 and 5).

MNCs' cross-border operations mean that Akamatsu's MPX mechanism needs a further expanded analysis and reformulation of the vital causal sequence of industrial activities beyond the X stage. Consequently, the  $M \rightarrow P \rightarrow X$  sequence has been extended to the full-circle of  $M \rightarrow P \rightarrow X \rightarrow$  outward FDI  $\rightarrow M^*$  by bringing in the role of MNCs as a cross-border disseminator of industrial knowledge. On the part of emerging host economies, this expanded part of the progression is inward FDI  $\rightarrow P \rightarrow X$  (three activities accomplished simultaneously by foreign MNCs all at once), thereby sparking an FDI-led, export-driven take-off.

There are a number of other developments in our fast-evolving global economy that were not clearly discernible in Akamatsu's day and that, therefore, need to be brought into the analytical framework of our reformulated FG theory of economic development. These include the dimensions of mass consumption and massive financial flows in the present-day world. Above all, now that the US is in relative decline (especially vis-à-vis a rising China), a potential change of hegemons, and its implications for the viability of FG-style growth in particular, needs to be analyzed (Chapter 7). In fact, different versions of Akamatsu's analytical framework have been introduced by many scholars over time ever since, along with criticisms of the FG theory (for a survey, see Kasahara, 2004; Schröppel and Nakajima, 2002, though both are unfortunately outdated due to the passage of time).

Indeed, Akamatsu's original model looks only at the supply side of an economy. It concerns how individual industries are developed as a result of the MPX process. It does not take account of demand-side (consumption) factors. Nor does it address the critical issue of industrial development finance. Yet, we know that the process of economic development, especially catch-up development, heavily hinges on how demand, not only at home but more importantly overseas, is created and captured as a critical joint input in national production. Similarly, the availability of industrial development finance at home and from abroad is a key determinant of industrialization (and deindustrialization). This book touches on the demand-side issues, introducing 'the ladder of consumption' in Chapter 3. And some major aspects of the financial dimension of FG-style growth are explored elsewhere (Ozawa, 2009, 2011).