

Chapter I China's Economic Development and the Flying Geese Pattern Theory —Is China Still the Last Goose Today?

NAKAGANE Katsuji

1. Introduction

China's rapid economic development has attracted considerable attention from various circles. It is often praised as being a "miracle." If the Chinese official statistics are correct, a quarter century of high growth rate in the long run is definitely unprecedented in world history. From an academic viewpoint, the question of how it should be explained as an economic development trajectory is one of keen interest. Chow emphasizes that the Chinese economic transformation can be understood by broadening our standard economic theory (Chow, 2002). In other words, it adds new knowledge to our existing stock of economics literature. Then, what is "new" in China's economic development history and performance vis-à-vis our standard theoretical framework? We challenge this issue by considering the flying geese pattern theory as our frame of reference.

This paper is organized as follows. First, we review the recent debate in Japan regarding this theory's applicability to China (section 1). We then revisit the theory and summarize the main hypotheses derived from this theory (section 2). Subsequently, we judge the relevance of this theory to the course of economic development in China based on several criteria (section 3). Our judgment of this theory leads us to the discussion of its merits and limitations (section 4). Finally, the conclusion is presented.

2. Contrasting Views on the Relevancy of the Flying Geese Pattern Theory in Light of China's Economic Development

It has been highlighted that Asian countries have followed a sequential race of development in the post-war period: Japan began to develop first in the mid-1950s, followed by the Asian NIEs or four tigers, i.e., Korea, Taiwan, Hong Kong, and Singapore since the early 1970s, which are now closely followed by ASEAN4, i.e., Thailand, Malaysia, Indonesia, and the Philippines. This is often referred to as the "flying geese pattern" (hereafter FGP) of development, with Japan as the first goose

flying over the Asian economic development sky. Where is China placed in this sequential order? Is it the last goose, immediately behind ASEAN4? If development is measured simply by per capita GDP, it certainly is the least developed among these Asian economic groups.¹

However, the white paper by the Ministry of Economy, Trade and Industry (METI) on the Japanese international trade for the year 2001 cast doubt on this “conventional wisdom,” offering a rather different viewpoint. It reports that China has rapidly improved its international competitiveness not only with regard to the labor-intensive industries since the late 1980s, such as the textile industry but also in relatively technology-intensive industries since the mid 1990s, such as the machinery industry. It argues that this indicates a new development pattern that is different from “the old FGP of development trajectory” (METI, 2001). In that case, at present, China is not the last goose in Asia. After three years of research in China, Kuroda, a METI official, concluded that the FGP theory had to be revised at least with regard to China in light of its recent economic development path (Kuroda, 2001). A new situation, which is inexplicable by this theory, seems to have arisen in the course of its development; this will be specifically illustrated later in this paper.

On the other hand, Kiyoshi Kojima, a student of Prof. Akamatsu at Hitotsubashi University, founder of the FGP theory, stresses that this theory is still applicable not only to Asian economies in general but also to the case of China, referring to the above-mentioned METI report. He does not find China’s dual track development pattern to be peculiar since the country has two regions—a relatively developed coastal area and an underdeveloped interior area; this was the case even for Japan between 1960 and 1974 (Kojima, 2003, p. 289).

C. H. Kuan, as well, advocates the relevancy of this theory to the case of contemporary China (Kuan, 2002). He calculates the trade specialization indexes by country for American imports from Asia and finds that the Asian exporters can be ranked generally in order of their levels of comparative advantage, namely, the less developed countries generally export less capital-intensive goods to the United States. His finding reveals that the nature of China’s exports to the United States is basically very labor-intensive, implying that it is still a part of the “flying with the last geese group” among major American importers from Asia.

Thus, there are two divergent views on the FGP theory with regard to its relevance to the scene of economic development in China. One view is that China has grown rapidly to an extent that it has surpassed some of its forerunners in Asia, i.e., ASEAN4. Therefore, the conventional FGP will now become irrelevant, at least to a certain extent, as far as China is concerned. This view appears to doubt the effectiveness of this theory when applied to the case of economic development in East Asia. Another view assumed that this theory is still relevant in the sense that the less developed countries replicate the path of their forerunners; although the catch-

ing-up process has certainly become more rapid. This view admits that China is no exception to this rule either. It insists that the basic trend of development in the East Asian economies can be explained by this theory.

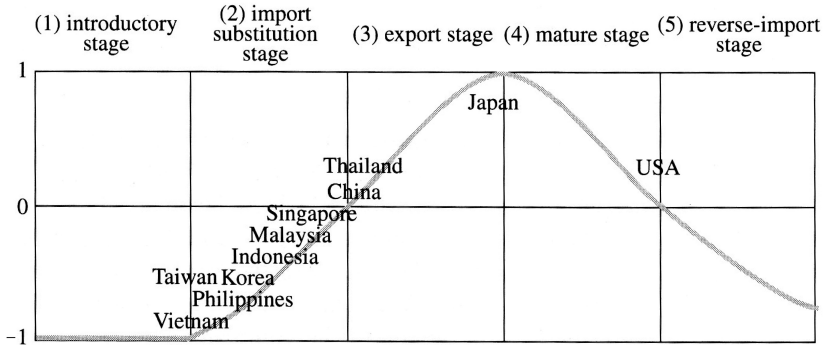
Which view is more persuasive and relevant in the context of China's development experiences? Is the FGP theory applicable precisely to the East Asian development trajectory at all?

3. Flying Geese Pattern Theory Revisited

As is well known, Kaname Akamatsu presented this theory as early as in the 1930s on the basis of his findings with regard to industrial development in Japan since the Meiji era. He finds that industrial products undergo three stages: import, domestic production, and export. For example, in Japan, manufactured cotton yarn was not produced in the early stage of economic development. Japan began to import cheap and high quality cotton yarn from abroad as soon as it was forced by the United States to open several ports. As Japan increased such imports it introduced industrial technology for the product by importing machinery and began domestic production as well. Fei, Ohkawa, and Ranis termed this phase as "first import substitution" (Fei, Ohkawa, and Ranis, 1986). When Japan attained the stage where it could produce sufficient cotton yarn for domestic markets, it reduced the volume of cotton yarn imports and began to export a part of its product (Fei *et al.* named this phase "first export substitution," since it began to substitute its exports of traditional primary goods such as silk for manufactured light industrial products such as cotton yarn). Thus, the three stages of industrial development were completed. Kojima refers to this type of industrial development process as "the basic type of FGP theory" (Kojima, 2003). If we combine this type of FGP theory with Vernon's product cycle theory, the model can be extended to include the mature and re-import stages of a product or industry as depicted in Figure 1. As the economy develops in the long run, every product or industry is assumed to have a trajectory of such stages or phases.

Products that are diverse and technologically more advanced follow such a process successively; fabric machinery is an example. At first, Japan was unable to produce cotton yarn machines and was completely dependent on their import from developed countries. As its production of cotton yarn accelerated, it began to gradually introduce machine building technology and embarked on the establishment of new machinery enterprises, initially producing for the domestic market ("second import substitution phase" *à la* Fei *et al.*). Finally, Japan became self-sufficient in the production of fabric machinery and subsequently, began to export a part of the products replacing the previous export goods such as cotton yarn ("second export substitution phase" as designated by Fei *et al.*). This sort of dynamic evolutionary

Figure 1 China's Position of International Competitiveness: Precision Apparatus



Source: Hiratsuka (2003), p. 286.

Note: the vertical axis represents the ICC (international competitiveness coefficient)

industrial trajectory, namely a transition from the less to the more advanced, and from the more labor-intensive to the more capital-intensive products, is referred to as the “secondary type of FGP” of development *à la* Kojima.

According to the standard theory of international economics, this process takes place in keeping with the changing factor proportions as well as comparative advantage. The historical Meiji Restoration in Japan can be considered as an example once more. When Japan was in the first import substitution phase, it was still abundant in cheap labor and lacking in capital and technology, with the result that its capital intensity, i.e., capital/labor, was very low. As it moved into the second export substitution phase, it succeeded in accumulating capital while its labor resources became relatively scarce; in other words, its capital intensity increased. The Heckscher-Ohlin theorem states that factor endowment of a country determines the structure of its comparative advantage, and therefore, the pattern of foreign trade. For example, when labor is redundant in a country its comparative advantage lies in labor-intensive products. On the other hand, as economic development advances, a country's capital intensity rises through capital accumulation and the pendulum of comparative advantage moves from the more labor-intensive to the more capital-intensive industries, for example, from cotton yarn to fabric machinery. Thus, the secondary type of FGP reflects this evolutionary process of comparative advantage. In other words, it indicates the process of capital and technology accumulation in an industrializing country.

If every country experiences such a type of economic development, and if every country differs in terms of factor proportions depending on its development stage, then countries can be ranked in the order of their years and level of development. Thus, forerunners and latecomers in the development race can be delin-

eated quite clearly. This is a corollary of the two types of the FGP model. We may refer to it as the "tertiary type of FGP." It is easy to show that such a sequential development at the country level can be logically derived from the above-mentioned two types of FGP theories. Moreover, as long as this pattern continues there can be no leapfrogging in essence between two consecutive developing countries because a forerunner climbs one step up in the industrial and technological ladder each time the latecomers reach the same level.

Kojima extends the original model of FGP by incorporating foreign direct investment (FDI). He differentiates between the two types of FDI: pro-trade oriented vs. anti-trade oriented. The first type of FDI, which he recommends for developing economies, is one that involves the transplant of labor-intensive technologies as well as industries from the more advanced countries to the less advanced countries, whereby the latter countries can increase their exports to the former countries. This type of FDI reflects the difference in the structure of comparative advantage between developed and developing countries. Kojima critically indicates that if the FDI flows are directed toward capital-intensive industries in developing countries, such flows do not promote their export, since it is not based on the comparative advantage of these countries.

Bruce Cummings, also, seems to have contributed to the spread of this theory (Cummings, 1984). He insists that if we observe the economic development in East Asia, we have to take into account a historical legacy of cooperation toward "the fundamental unity and integrity of the regional effort," which stems from Japanese colonialism prior to the year 1945. He applies the FGP model as well as Vernon's product cycle theory to this area. Thus, he finds that Korea and Taiwan have followed the development path that Japan has adopted thus far.

However, this theory of economic development has been severely criticized from various viewpoints. Some doubt the validity of this theory, for East Asia in particular, as well as Vernon's product cycle theory as a theoretical framework in the present day. M. L. Shrestha, for example, insists that these theories do not take into account the new situation that has emerged in Asia, particularly since the 1980s; Asian countries have formed a close but complicated industrial network between Japanese multi-national corporations (MNCs) and their subsidiaries in Asia (Shrestha, 1996). Even high-tech products and their parts are now manufactured in developing Asian countries; typically, in industries such as electronics and electric appliances, some or most of these products and their parts are exported to the developed world. He stresses that these theories disregard the new aspects of international business strategy. The MNCs of today do not necessarily transfer only their matured technology to developing countries, as predicted by the product cycle theory. Even the more advanced and therefore more capital/technology-intensive industries are often transferred to these countries, like for e.g., semi-conductors in Malaysia and automobiles in Thailand. Global enterprises are considered to be car-

rying out fragmentation of their products leading to industrial arrangement worldwide. Their factories are dispersed in various parts of the world, including developing countries; however, all these enterprises are organically linked with each other, whereby the parts and components of a technologically advanced product are accommodated within such an industrial link. Moreover, the process of intra-industrial division of labor develops, i.e., developed countries import from developing countries even such products that they should have manufactured themselves in terms of comparative advantage. Shrestha argues that in this world system the original FGP model can no longer be applied, at least at the country level.

Bernard and Ravenhill, also criticize these theories from similar viewpoints; however, from a slightly different angle (Bernard and Ravenhill, 1995). In their view, productive activities are not transferred to other countries in a uniform manner. The production structure of each economy differs according to its relative power arrangement, historical path, and dominant technology in the particular age. Thus, if we interpret their argument literally, the FGP theory, which assumes a sequential, catching-up pattern of industrial structure by followers, cannot essentially hold in any country and at any time. Further, they doubt that the second Asian geese, Korea and Taiwan, have replicated the Japanese experiences in the development process. They conclude that an observation of the technological gap between the first and second geese reveals a great disparity in the technological level. Needless to say, the gap between the first and third geese is much wider. However, unlike their forerunner, i.e. Japan, these Asian latecomers have actively introduced advanced foreign technologies without developing their own technologies by themselves, either through OEM production, through FDI by MNCs, or often through illegal imitation or reverse engineering. In our opinion, it would not be an exaggeration to state that these countries, ASEAN countries in particular, do not possess a stock of accumulated R&D to an extent that is comparable to Japan.

Edward Chen, also doubts the full adaptability of this theory to East Asia in the present day (Chen, 1996). He states that given the increasing importance of new technologies as the determinants of industrial development and specialization, the FGP hypothesis, which may be relevant for development pattern in the Asian Pacific region, can be out of mode or insufficient to describe the present and future industrialization pattern in this region. Instead, he proposes a new framework referred to as the “stunt flying” pattern of development. He observes that in some new technologies, there is no definite forerunner-latecomer relationship, with rapid changes in the “flying ordering.” According to his reasoning, this theory must be more irrelevant in the case of contemporary China since this goose is very big as compared with the other Asian geese, with a wide variety of industries ranging from the extremely low-tech and labor-intensive to the very high-tech and capital-intensive ones. Such an industrial assortment cannot be accommodated, at least in the original FGP theory, which assumes that the industrial structure as well as the

development ordering shifts of countries according to their changing factor endowment. How the theory should be revised to accommodate the Chinese context will be referred to below.

It is evident that theory is different from reality. Theory cannot tell everything about reality. However, it reflects some essential parts of the real world. In order to determine whether the FGP theory can reflect a country's development experience, it would have to satisfy all or at least some of the following criteria, although the judgment with regard to how it reflects the reality would not necessarily be an easy one.

Trade criterion: If a country's trade is generally led by the comparative advantage principle, then this country may follow the FGP in the course of economic development. This can usually be tested by simple measures such as the specialization index or the revealed comparative advantage (RCA) index, although these measures do not completely represent the country's relative costs.

Substitution criterion: If every industry in a country passes three consecutive stages of development as predicted by Akamatsu's basic type of FGP model, namely, import, domestic production and export; or as his secondary type of FGP model assumes, i.e. first import and export substitution, followed by second import and export substitution (in Fei and others' terminology), then the country can be said to have followed the FGP in its development process. This may test how the country replicates Japan's industrialization in its development process.

Technology criterion: The forerunner geese must be technologically more advanced than the latecomer geese. There must be a technological ordering among the groups of geese according to their development level.

FDI criterion: The FDI that is implemented in the more labor-abundant country must be of a more labor-intensive nature, probably with the natural resources exploitation industry being the only exception. At the same time, such FDI must also be provided by the more capital/technology rich countries. In other words, there must be no reverse flows of foreign investment funds, namely from labor-rich to capital-rich countries.

Undoubtedly, these criteria are not sufficient conditions for the FGP-type of development; however, they must be satisfied as necessary conditions only if a country is "flying as a goose" in the strict sense of the propositions put forth by Akamatsu and Kojima.

4. China's Production and Trade vis-à-vis the FGP Theory

We question whether China has followed the FGP type of development and is it now in line with the FGP of economic development? If so, to what extent? If not, why? Moreover, is it now flying as the last goose in the Asian development sky?

As mentioned above, these questions have been recently addressed in Japan without any conclusive answers thus far. However, such questions may be answered against the background of the above-mentioned four criteria.

First, let us examine the comparative advantage and its structure in China's trade. Daisuke Hiratsuka calculated the international competitiveness coefficient (ICC) indexes, which are equivalent to trade specialization indexes, of various commodities for several ASEAN countries, NIEs, as well as Japan and the United States for the years 1999 and 2000 (Hiratsuka, 2003). As a result, he discovered that the FGP has partly collapsed for some industries in Asia today because as compared to the forerunners, latecomers proceeded to the more advanced competitive stage. A typical example is precision apparatus, in the manufacture of which Thailand and China advanced to the "export stage," while Korea remained in the "import substitution stage" (Hiratsuka, 2003, p. 286) (see Figure 1). His explanation is that in the era of capital liberalization fuelled by FDI, the latest newcomer can climb up the technological ladder faster and overtake the forerunners. What he implies by "partly collapsed" is that the FGP can be observed for many other products; for example, China is still behind ASEAN4 in terms of the ICC index for items such as personal computers and peripheral equipment.

On the other hand, based on product-level U.S. import data, Peter Schott discovered that China is exporting "a more sophisticated set of products than would be expected from a country with such extreme labor abundance." He calculates the export similarity index for the trading partners of the United States, i.e., between China and other countries, and concludes that China's exports to the United States are most similar to those of the fast-growing East Asian countries and Mexico (Schott, 2006).

The second concern is regarding the sequential ordering of domestic production in China. Has it stepped up the technological ladder during economic development? The answer is no. Needless to say, China has already established a rather comprehensive industrial structure even in the Maoist era. It has built up a strong heavy industry base to an extent that is incomparable with the NIEs and ASEAN4. Its automobile industry, for example, has a longer history than that of Taiwan and Korea, let alone Thailand and Malaysia. Thus, China did not climb the industrial ladder from light to heavy industry or from labor-intensive to capital-intensive products. Justin Lin and others criticized China's previous development strategy as "leapfrogging" (*chaoyue*) against its comparative advantage (Lin, Cai, and Zhou, 1999). From their viewpoint, China should have first sought to develop the more labor-intensive and light industries, rather than its "socialist industrialization line." As noted above, the FGP theory is constructed on the (*dynamic*) comparative advantage principle; thus, the pattern cannot be literally applied to the Chinese situation of factor endowment, which was transformed to a great extent during the Maoist era. Since China employed opening-up and reform policies, its industrial structure

has become much more comprehensive. Moreover, many new commodities requiring a very high level of technology are now produced without the aid of imports, as typified by PDP (plasma display panel) production that is implemented by Panasonic. It is evident that this is a result facilitated by FDI, which seeks the world-wide fragmentation of product items.

Third, we focus on the issue of technological distance between China and its forerunners, including developed countries, for example Japan. It is difficult to accurately measure such a distance; however, there are several data that implicitly indicate a certain technological distance across countries. An example is the number of patents by countries officially accepted and registered by the United States (see Table 1). The statistics in Table 1 unequivocally demonstrate that initially, there exists a distinct technological gap among the four major groups of Asian countries (economies), namely, Japan, the NIEs, ASEAN4, and China; the ordering does not necessarily reflect the ranking of economic development measured by per capita income. Further, after the technological development of the NIEs, China has been rapidly enhancing its technological level. It may be safe to say that at least China has already surpassed ASEAN4 in terms of the level of technological development. China, which has experienced longer years of industrialization that began in 1949, has a greater amount of technological knowledge as compared to these countries.

Fourth, we focus on China's FDI structure. By the early 1990s FDI inflows to China were largely to light industrial sectors and for exports. Hong Kong and overseas Chinese capital, among other factors, played a major role in this respect. However, the situation changed after the early 1990s, when China geared to a market economy under Deng Xiaoping's strong leadership. Not only did the volume of FDI from industrialized countries increase but also investment in capital/technology-intensive industries increased and capital flows directed for China's domestic market expanded. Since the late 1990s, in particular when China became a huge

Table 1 Patents approved and registered by the United States government

	1978	1983	1988	1993	1998	2003
Japan	10,189	15,998	28,357	34,816	45,260	60,350
NIEs	328	663	1,644	4,757	13,474	25,697
ASEAN4	27	23	30	51	89	347
China	6	12	122	135	181	1034
China = 1						
Japan	1,698.17	1,333.17	232.43	257.90	250.06	58.37
NIEs	54.67	55.25	13.48	35.24	74.44	24.85
ASEAN4	4.50	1.92	0.25	0.38	0.49	0.34

Source: U.S. Patent and Trademark office (<http://www.uspto.gov/web/office/ac/ido/oeip/taf>)

absorber of foreign investment, certain factories even moved from ASEAN4 to China and many foreign investors intended to place much more emphasis on direct investment in China rather than in ASEAN4 and other developing countries. This trend obviously contradicts what Kojima's pro-trade FDI proposition assumes and expects. In addition, capital outflows from China are now increasing both in terms of the number of cases and value. A typical example of this is Haier that has made a huge amount of investment in developed countries, including the United States. Another example is Lianxiang or Renovo, the biggest PC company in China today, which has surprised the world by purchasing IBM's department of PC production. Such cases, where rich Chinese firms purchase Japanese small and medium enterprises (SMEs) that are ill performing but technologically advanced, are expected to increase in future. Cases where Thai or Malaysian firms have bought Japanese companies are hitherto unheard of.

Overall, based on the abovementioned observations and findings, it appears adequate to conclude that the FGP seems to be "partly collapsed" vis-à-vis the Chinese development experience; although the theory itself may be basically relevant to the Chinese industrialization scene. It appears to be more constructive for us to seek the mechanism inherent in this structural change, rather than to adhere to the old theory to explain a new situation. When viewed from today's vantage point, this theory appears to be lacking in certain aspects. There is something new that is emerging at present in China as well as in East Asia as a whole.

5. Contributions and Limitations of the FGP Theory

The FGP theory has attracted considerable attention from a fairly large number of Japanese economists as well as some non-Japanese scholars, in explaining developmental experiences in Asian countries.² Ohkawa and Kohama insist that every Asian economy is basically going along the same path as Japan had, based on the above-mentioned stage theory proposed by Fei *et al.*, which is nothing but an extension of the FGL theory (Ohkawa and Kohama, 1993). As we highlighted earlier, this theory is essentially derived from the principle of dynamic comparative advantage. If international trade is solely based on this principle, and if it develops as the international factor proportions change, then the FGL theory will never lose its relevance in determining a country's economic development in general, and international trade development pattern in particular. In keeping with this theory, we can derive a conventional development strategy as done by Lin, Cai, and Li as well as Kojima (Lin, Cai, and Li 1999; Kojima 2003). They are of the opinion that China in particular should not have relied on the "heavy industry first" strategy; rather, it should have adopted the traditional path based on the principle of comparative advantage. Likewise, it should have promoted "pro-trade oriented FDI" inflows. In

other words, it should have aimed at development in more labor-intensive sectors rather than seeking foreign investment in more technologically advanced sectors.

The political implication of this theory in the form of its contribution toward an idea of forming the Asian regional integration (Korhonen, 1994) is worth mentioning. It is no accident that Saburo Ohkita, ex-foreign minister of the Japanese Government and famous for his high evaluation of this theory, played a rather active role in the formation and development of the Pacific Economic Cooperation Conference (PECC). If the PECC members are developing according to the path of this theory, they can share the same dynamics in their development mechanism, which can lead to a common integrated economic community.

However, this theory appears to have excluded the situation that is prevalent in China since the early 1990s, as well as in Asia since the 1980s, not to mention some specific factors that have characterized China. By the same token, it does not completely take into account the new trade theories that have emerged since the 1970s.

Discussions regarding China's economic development require that at least the following factors are regarded as important.

(1) Initial conditions: When China initiated its reform and open-door policy, it inherited legacies, whether good or bad, from the Maoist era. In particular, if we examine the economic development pattern, we have to bear the following two legacies in mind. One is a comprehensive industrial structure built on the "heavy industry first" strategy, as referred to above, with a large number of technological personnel. China's huge population size and its long sustained educational policy enabled the country to create unparalleled technological expertise; although its average level was fairly low compared to their counterparts in industrial countries. Against the background of this legacy, China has produced a large number of graduates from the science and engineering departments since the late 1970s, when it reopened universities.

Second, it inherited regional disparities, which are essentially derived from the Maoist regional decentralization regime. Since Deng Xiaoping introduced a new income distribution policy, the regional gap in the country has been widened to such an extent in the long run that China can now be divided into two parts, namely the rich coast and the poor interior. Even the official statistics recognize that the average per capita GDP in coastal China has already surpassed the lower middle income level of the World Bank standard, whereas interior China still remains in the Bank's definition of the poor income group. Under circumstances akin to the existence of two distinct countries within one nation, non-FGP development is possible in the sense that both highly technology/capital-intensive and extremely labor-intensive industries coexist, or in the sense that a developed part of China transfers labor-intensive technology to developing Thailand. Portions of coastal regions in China, as typified by Shanghai, have already outperformed Thailand in terms of their aver-

age level of economic development. As Courant and Deardorff theoretically prove, the uneven internal distribution of factors within a country can induce it to export relatively capital/technology-intensive goods even though the country is poor and labor-abundant (Courant and Deardorff, 1992).

(2) Economies of scale: The sheer size of the Chinese market and its high growth rate appear to have strongly induced foreign investors to make direct investments in China. India, although it has a large market size like China, would not attract them because its growth rate is still lower than that of China. On the other hand, the foreign investors would not invest in Singapore, even if it would grow rapidly, since its market size is extremely small. Thus, they wish to transfer even the very advanced industries to China since it can provide them with the most attractive and expanding market. Moreover, China can provide them with “unlimited supply of labor” because of its huge population. Such labor is not only cheap, but also educated, which is a result of the Maoist legacy.

(3) Agglomeration effects: Remarkable industrial clusters have emerged particularly in the Pearl River delta in southern Guangdong, the lower Yangtze delta, and Beijing. In Dongguan, next to Shenzhen and south of Guangzhou, for example, a striking scale of computer-related industrial clusters have been formed since the 1980s, when a Taiwanese enterprise invested there initially. It is often stated that personal computers would no longer be produced without a rich supply chain of their spare parts industries agglomerated in this area. Once an industrial cluster for computer production appeared in Dongguan, an increasing number of related enterprises were established in the neighboring areas. It is no accident that several Japanese copying machine factories have been attracted to the area surrounding Guangzhou. What is notable is that once the agglomeration sets into motion, it has an increasingly self-reinforcing effect. An increasing number of related firms unite to enlarge the industrial cluster, which attracts more firms that have close industrial relations.

(4) Fragmentation effects: Neither the traditional trade theory nor the old FGL theory takes into account such dynamic effects brought about by the agglomeration and fragmentation process.³ Today, against the background of enlarged globalization, manufacturing firms, particularly MNCs in advanced countries, attempt to separate production processes into several fragments, which can be located in different countries. A country is not necessarily an efficient unit for the manufacturing process. Different types of division of labor are undertaken across countries. The entire production process is fragmented so that each part of a product becomes a “module.” In this new situation, even high-tech products and their parts can be manufactured and assembled in developing countries without special skills, as long as fragmentation costs are lower than their benefits. Given the above-mentioned favorable conditions, China could be one of the best sites for the fragmented production undertaken by MNCs.

Besides the transfer of manufacturing, certain R&D functions have now been transferred from advanced countries to China. MNCs that set up their research institutes in China are now growing in number because they can hire a sufficient number of technical personnel there.

6. Concluding Remarks

China's economic development appears to have posed many interesting questions. These questions are often addressed using well-known models and theories. What is new in the Chinese development process? For example, can it be fully explained by the Lewisian dualistic model? Or, can it be adequately interpreted as a typical process of the developmental autocracy? Moreover, is the labor mobility from rural to urban China a typical phenomenon depicted by the Harris-Todaro model? The FGL model is also one of such frames of reference that explain China's development experiences in terms of international comparison.

Our conclusion is twofold. On one hand, China is still a developing country on an average with a huge amount of surplus rural labor. Therefore, it still possesses a comparative advantage in labor-intensive industries and products. This is why the FGL model can basically be applied to the realities in China as a whole. On the other hand, China, unlike other countries, is a rapidly developing country with a huge population size and possesses special Maoist legacies. Moreover, it has succeeded in establishing various rich industrial clusters with foreign-owned firms at their cores. Therefore, it involves a wide variety of industrial sectors, both labor-intensive and capital/technology-intensive. This fact creates a new situation that is beyond the boundaries of the traditional FGP theory.

Masanori Moritani stresses the existence of a wide gap in the technological level and quality between Japan and other East Asian economies (Moritani, 2003). Why was Japan able to develop the automobile industry? Why could other Asian geese launch mass production in IT and electric appliance industries, in which their performance has now surpassed that of Japan in certain areas? He highlights that even high-tech electric appliances are easy to assemble and requires no special skills and know-how, while the automobile industry necessitates a high level of skill in research, design, and production. Thus, he presents a paradox: More advanced industrial countries have a stronger competitiveness than less industrial countries, not in the high-tech electric industry but in the technically matured automobile industry. China has an advantage and enjoys greater competitiveness over Japan in such industries.

Therefore, it seems inappropriate to rank a country simply by the level of economic development and technological advancement of the major products it manufactures. Products with the highest level of technology are not necessarily manu-

factured in the most advanced countries. Further, it appears inadequate to describe a country's development process merely through a single and simple theoretical framework. Every economy does not necessarily replicate the Japanese history of economic development, particularly when firms cross borders, attracted by agglomerated dynamic and fragmentation effects, which play a major role. It has to be borne in mind that when Akamatsu devised the FGP theory, neither globalization nor FDI existed. In our opinion, when a new globalized production system like OEM and EMS becomes very popular, an alternative framework that is different from the traditional trade theory, whether theoretical or analytical, deserves to be tested.

Notes

- 1 After the Asian financial crisis in 1997, Indonesia was excluded from this race and is now surpassed by China in terms of the level of per capita income.
- 2 Kojima (2003) provides a good review of the history regarding this theory.
- 3 Besides the traditional international economic theory, Fukunari Kimura points out three viewpoints in order to understand the new situation in East Asian international economies: agglomeration, fragmentation, and firms. See Kimura (2002).

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