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Regional Productive Integration in East Asia

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Introduction

In 2007, about 80% of the world GDP is concentrated in three regions: European Union accounts for 31.0%; NAFTA (USA+Canada+Mexico) 29.8%; and East Asia 18.7%¹. Countries in these three regions also dominate about 70% of the world trade in the same year². These figures show that production and trade are highly unevenly distributed at global level. Narrowing the focus into East Asian region, we can see some mega cities where economic activities connected to the world market dynamically prosper in contrast to a large part of rural areas where economic growth is slow and generate massive out-migration. In this dimension, geographical distribution of economic activity is also highly unequal.

Recently, World Bank published *World Development Report 2009* under the title of “Reshaping economic geography” (World Bank, 2008). The report emphasizes that one of driving forces of the current world economy is “density” of economic activities and distance from density influences the income of workers and productivity of firms. In locations with high density, firms are willing to pay higher wage for productive workers, whereas workers are eager to pay higher rents to enjoy the benefit of living in big cities. It is among those areas where firms are densely located that most international trade is taking place. In such routes, modernized transportation infrastructure together with efficient logistic service contributes to shorten economic distance. Modern economic activities open to the world market concentrate in large cities, and so do workers who migrate from the hinterland. The latter constitutes the growing class of middle class consumers, enlarging the home market size which attracts even more firms and specialized service providers. Thus, the self-reinforcing economies of agglomeration will help sustain the density.

It is not clear, however, how to create the density. How the lagged regions lacking density can escape from underdevelopment? Density is associated with economies of scale which requires large market. Importantly, market size of a particular location increases through reduction of trade costs that increase connectivity. Pathway of Singapore is illustrative. Becoming independent in 1965 surrounded by two poor countries, Indonesia and Malaysia, Singapore’s local market was very small. After becoming a free port at the strategic geographic position on the Strait of Malacca, Singapore could attract labor intensive industries and gather transshipment trade. Trade-related financial activities later evolved into one of principal financial centers of the world. The access to the finance, in turn, encourages innovation that transformed Singapore the most dense and richest place in the world today.

¹ These figures are calculated from World Bank, *World Development Indicators* 2008.

² Calculated from IMF, *Direction of Trade Statistics*.

The experience of Singapore substantiates the importance of the government's role in the initial stage. In a previous work (Hamaguchi 2008), I pointed out that successful performers among East Asian countries had effective coordination by the government at early stage of development in resource mobilization for industries with scale economies in production which were also export-oriented. Equally important role of the government is to connect the lagged country and area to rich market such that those places trapped in underdevelopment can take advantage of its local advantage – cheap resources (labor, land, natural resources, etc).

Then, there is another pathway that national and local government should notice. That is to connect itself to other production midpoints to share the productive process using the local advantage. That is productive integration. This opportunity is opened by the recent trend of regional integration which reduced transaction costs across different locations. The local advantage is not limited to cheap resources. It also stems from people's knowledge, local social capital and culture, research and education, specialized local service suppliers, and the like. Hence, the productive integration provide a solution also for courtiers and areas which already reached to middle income level and weakened competitiveness in terms of cost.

In this paper, we will discuss how the regional productive integration became a relevant concept to consider the development strategy in East Asia. We then explain some important determinants of the process of productive integration in East Asia, such as influential factors for intensification of productive integration, characteristics of industrial sectors, and involvement of important economic agents. We also discuss policies which supported the process. Finally, we draw some lessons and policy implications for Mercosur.

Geographical Dimension of East Asia in comparison with South America

To set the scene, let us define the geographical dimension of East Asia. In our discussion, East Asia is understood as the region which covers the following subregions: Northeast Asia consisting of China, Chinese Taipei (Taiwan), Hong Kong, Japan, and Republic of Korea (South Korea); and Southeast Asia consisting of Indonesia, the Philippines, Malaysia, Singapore, and Thailand. Although countries in Indochina Peninsula such as Cambodia, Lao PDR, Myanmar, and Vietnam have become members of the Association of the Southeast Asian of Southeast Asian Nations (ASEAN) and launched the process of integration into the regional economy, these are not fully taken into account in our analysis. Moreover, non-market economies such as Korea DPR (North Korea) and Mongolia are also not considered.

In terms of a distance, the distance between Tokyo and Jakarta is about 5,800 km, taking eight hours by a commercial flight. Comparing to Latin America, the distance is longer than that between Cartagena and Buenos Aires (5,300 km) across the South American continent. It suggests that we shall look at vastly extended geographical area.

Yet, the long distance does not necessarily set obstacle to trade for the countries divided by the ocean. It is worth recalling that between late 16th century and early 19th century the Spanish engaged in Manila-Acapulco Galleon trade which carried merchandises gathered from all over the East Asia such as spices from Maluku Islands (currently Indonesia), porcelain, lacquer-ware and silk from China and Japan, and ivory from Indochina peninsula. It suggests that at that time the region already had certain degree of trade integration. Currently, the region enjoys highly developed maritime mass transportation system.

Regarding the population size, the region holds more than 2.1 billion people corresponding to roughly one third of the world population, whereas South America is much less densely populated with less than 0.4 billion population. On the other hand, according to the *World Development Indicators*, the region produced 18.4% of the world nominal GDP in 2007, whereas South America's share was 4.0%. In the same year, East Asia exported about 25.0% of the world total compared to 3.4% from South America.

In summary, East Asia *vis à vis* South America has 5.6 times greater population, 4.6 times larger GDP, and 7.3 times larger exports. Thus, a simple calculation suggests that East Asia is relatively poorer and exports more than South America. The lower relative GDP in East Asia is partly explained by the large disparity of income levels among nations. In 2007, GDP per capita (at purchasing power parity) in Japan is 11.3 times as large as that of the Philippines, the poorest in the region, whereas in South America the difference between Chile (the richest) and Bolivia (the poorest) is about 3.3 times. It also owes to the substantial share of China whose population corresponding to 62% of the region's total has its per capita GDP level still relatively low. It turns out that the diversity in development stages of countries comprising East Asia and the existence of abundant low income labor in China have significant implication for a production integration in this region.

What does the regional productive integration mean?

The regional productive integration (RPI) is not a well-defined concept in both academic and

business literature. In this paper, we use this term as a phenomenon in which a regional economy is linked through the network of firms' productive activities. Imagine the processes of a business activity consisting of different stages: starting from the establishment of a business concept, followed by research and development, production, and commercialization. The production process, in turn, consists of production of various intermediate goods (parts and components) and final assembly. We may call "production integration" when the production process is physically divided into different units that are united through systematic logistic arrangement. Such division is also called *fragmentation* in the literature of the international trade (Jones and Kierzkowski 2000).

It may seem counter-productive to divide the production process because it increases administrative costs and logistic costs. Production integration is meaningful if the production process is composed of fractions with quite different resource intensity, because productivity of a firm should increase by allocating each fraction in the location where its most intensively used resource is abundant. The productivity gains from fragmentation are large if resource endowments are sufficiently different between countries; hence, a firm can locate labor intensive production process in unskilled labor abundant country whereas knowledge intensive process is in a country abundant in highly educated people.

In order to be profitable, the productivity gains from fragmentation must be larger than administrative and logistic costs. Assuming that these costs are related with distance, regional productive integration makes sense. However, productivity gains might be small in RPI because resource endowments tend to be similar across countries in the same region.

It should be also taken into account that since some of the costs are "sunk", average cost of fragmentation will be smaller as the size of the total operation gets larger because of scale economy. Thus, the region with either large consumer market in itself or strong export capacity to the outside market presents favorable condition for RPI.

In sum, in East Asia, development of RPI takes advantage of the following conditions:

- 1) Within the region, there is diversity of economic development status which created a long spectrum of countries with technological intensity allowing finer division of labor;
- 2) Transportation within the region is developed reasonably well;
- 3) Many of East Asian firms are related with exports to the outside market.

How much RPI has developed in East Asia?

Having understood some advantageous conditions for formation of RPI in East Asia, let us examine historical process of its development. For that purpose, we will discuss about agents who led this process and some indicators that illustrate the evolution.

Let me start from some remarks on agents. Undoubtedly, most regional economic integrations are promoted by political initiatives, needless to say the quest for permanent peace which founded the European integration. However, in East Asia to talk about regional politics is problematic because of the unique political balance in the region. In the first half of the 20th century, Japan militarily occupied a large part of East Asia keeping the people in the region in situation of terror. This memory, particularly in Korea and China, created uneasiness against Japanese ambition for regional leadership. Recently, skepticism regarding increasing armaments of China, especially in regards to the future of Taiwan, is worried by the rest of the region. The US government has shown keen interest in the security issue and the balance of power in this region, not to mention the threat given by North Korea's nuclear arming. The ASEAN countries, on the other hand, while strengthening economic cooperation, stick to the founding principle of non-interference in political internal affairs, which keep them way from any official statement about the human right violation issue in Myanmar.

Thus, in East Asia, there is neither clear political leadership nor concerted efforts toward the regional integration. Instead, we may find that market forces promote *de facto* economic integration (Fujita and Hamaguchi 2008). The first action was taken by the Japanese firms. After the World War II, some large manufacturing firms have emerged from Japan. They are strongly motivated by exports to the industrialized countries market, especially that of the United States. However, their competitiveness was threatened by the appreciation the Japanese yen after the G5 Plaza Accord in 1985. Then, foreign direct investment (FDI) intensified toward Southeast Asian countries. Initially, firms transferred there production of assembly stage in order to achieve labor cost saving. Production of parts and components was kept in Japan because their production requires skilled workers.

This structural change created two new trade flows: exports of parts and components from Japan to ASEAN and exports of final products from ASEAN to the industrialized countries market. **Figure 1** depicts the initial growth of intra-regional trade in East Asia during the second half of the 1980s. This trade pattern has been consolidated by two factors. So-called Newly Industrialized Economies (NIEs), including Korea, Taiwan, Singapore, and Hong Kong, followed the Japanese export-led development model. When firms from these economies lost competitiveness in labor-intensive production, they also sought low cost locations. On the other hand, there was an emergence of China which launched for economic opening up in the 1990s. FDIs concentrated to China which seemed to

provide unlimited cheap labor. Reinforced by such development, we can observe in **Figure 1**, the growth of intra-regional trade has continued vigorously since the 1990s despite of the brief setback in 1997-98 when the region was hit by serious emerging market financial crisis.

The expansion of intra-regional trade is accompanied by changes of direction of East Asian trade, as illustrated by **Figure 2**. In 1990, the biggest trade flow was that from Japan-Korea-Taiwan to the outside market (mainly the USA and Europe). Being technologically the most developed part of the region, they were still the most powerful export potential at that time. By 2007, intra-regional trade grew remarkably, most notably between Japan-Korea-Taiwan group and China, while more exports to the USA and Europe are sourced from China-Hong Kong than from Japan-Korea-Taiwan. Thus, the recent trade pattern can be seen *triangular*. Namely, added to the direct exports from Japan-Korea-Taiwan to the USA and Europe, goods are exported firstly to China and then to the industrialized countries. The same can be said about the relationship between Japan-Korea-Taiwan and ASEAN. We should also notice the substantial growth of the trade among ASEAN countries and those between China and ASEAN.

How the recent trade pattern is related to RPI? Since RPI involves the international fragmentation of firms' production process within a region, it naturally enlarges intra-regional trade of intermediate goods. Therefore, the intensity of intra-regional trade of intermediate goods serves as an indirect measure of the degree of RPI. In fact, the above mentioned growth of intra-regional trade resulted in the dominant share of intermediate goods as shown by **Figure 3**. In contrast to exports to the USA and EU in which final products consist of 65% (\$428.8 billion of \$661.5 billion) of the manufactured good exports, intermediate goods occupy 70% of the intra-regional trade.

To summarize, East Asia exports substantial final products of manufactured goods to the outside markets while exchanging intermediate products intensively within the region. This suggests that the triangular pattern of East Asia RPI can be seen as if it were a factory in which fragmented productive processes distributed in different locations regionally are integrated like a production line, sending off the products to the outside markets. The Factory Asia model is not designed and guided by a centralized supra-national organization or the like, but it was developed through the natural process of individual firm's seeking higher productivity using RPI. The competition in external market, especially those of North America and Europe, is principal market promoter of this process.

Which are the industrial sectors where RPI is most intense?

As explained earlier, RPI becomes profitable when the region is characterized by diversified factor

endowments and easy transportation. In order to take advantage of such conditions, production process should consist of separable multiple intermediate sub-processes whose technological intensities are distinct with each other. The separability requires the easiness of the interface between those separated sub-processes. It is typically the case where intermediate goods are modularized with standardized interfaces, where technology is self-contained in each module without much need for coordination with subsequent modules. For example, one can build his own desktop computer just like assembling Lego toy block, purchasing all necessary parts and components produced in all over the world and sold at a computer shop in his town. The cost would be prohibitively high if, for example, he must have ordered Intel to make individually customized CPU. But this is not the case because he could combine readily available electronic parts quite flexibly. RPI can be promoted also if intermediate goods have appropriate size and weight for transportation. Electronic parts also have this property.

Kimura and Ando (2005) found the following:

- 1) Transactions of Japanese foreign affiliates in East Asia are widely regionalized. That is, they trade not only between countries of the affiliate and Japan but also with other East Asian countries;
- 2) Japanese affiliates in East Asia tend to substitute arm's length transaction for intra-firm transactions;
- 3) The purchases from Japan tend to be replaced by the local arm's length purchases and/or the purchases from other East Asian countries;
- 4) The shares of intra-region for both sales and purchases in the electric machinery sector are much larger than those of the transport equipment sector.

Figure 4 reports the evolution of some sectors' shares in East Asian intra-regional trade. We can see that the share of electrical machinery sector is the largest and also increasing, followed by the general machinery sector. Given the observation in the previous paragraph, we can predict that RPI can be intense in industries whose intermediate goods are modularized with standardized interface. We can observe such characteristics most typically in the electronics sector as we illustrated for the case of computers. It should be also noted that production of some electronic parts are highly technology intensive while the assembly of final product is more labor intensive, hence the international fragmentation realizes significant cost saving. Moreover, electronic parts are easy to transport.

RPI of the Japanese electronics industry started from the disintegration of the production of parts and components and the assembly process, relocating the latter in Southeast Asia and China. Recently,

disintegration tends to occur at the parts and components production process, whereas the final production of parts and components is transferred to the foreign country and located together with the assembly process, as illustrated by **Figure 5**. Production of really technology intensive key devices used as inputs for electronic parts remains in Japan. This transformation is induced by the harsh competition in the final product market which requires local production of parts enabling cost reduction and just-in-time delivery in the procurement. In this process, foreign direct investment by parts producers expanded rapidly, resulting in higher value added because of the vertical production integration (clustering) in developing countries. Having established a number of such new industrial clusters, trade of parts and components among these clusters is growing, as we observed in **Figure 2** the increase of trade among ASEAN countries as well as between China and ASEAN. This kind of procurement behavior of the Japanese firms' plants in East Asia is shown by **Figure 6**. It is notable that in electronic machinery sector and also in information and communication equipment sector, the share of procurement from other East Asian countries other than Japan is significantly large.

To complete the picture, it is necessary to take into consideration firms from other East Asian countries to explain the high intensity of RPI in the electronic machinery sector. Korean big business groups, most notably Samsung and LG, develop vertically integrated RPI which is similar to that of Japan. In particular, Taiwanese electronics firms adapted different business model and gave strong impetus to increase intra-regional trade. Some Taiwanese firms have grown quite rapidly as electronic manufacturing service (EMS) providers. EMS providers offer outsourcing solutions to original brand companies by undertaking procurement of parts and mass production based on the product design given by the customers which, in turn, commercialize the products produced by EMS providers putting their own brand names. It is reported that the largest Taiwanese EMS company Hong Hai (also known as Foxconn) produces in its factories in China: iPod, iPhone, and MacBook Air for Apple; personal computers for Dell, Lenovo, and HP; videogame consoles for Nintendo, Sony, and Microsoft; cellular phones for Nokia and Motorola; and motherboards for Intel and AMD. Interestingly, products that are competing in the final good market actually could be produced by the same EMS. As EMS business expands, so does their purchasing power of parts and components. For the Japanese parts suppliers that had focused on the long-standing relationship of subcontracting, the transactions with EMS providers are increasing. Thus, the expansion of Taiwanese EMS is accompanied by the growth of intra-regional trade of parts and components and diffusion of technologies originated in Japan.

Another significant factor for RPI expansion is the emergence of the Chinese electronic machinery companies as strong contenders both in the Chinese domestic market and in the global market. The Chinese firms tend to emphasize on speed and cost saving in order to capture the market demand as

fast as any other firms. Thus, they have incentives to do without heavy investment in vertical integration, relying on procurement of components from the market. This business model takes advantage of the process of establishment of many parts suppliers in China, including the Japanese, Korean, and Taiwanese, accompanying the transfer of the final good assemblers and EMS providers from these countries.

While facing harsh competition in the final product market, Japanese electronics firms become highly specialized in parts and components with high technological contents. For example, as shown by Table 1, Japanese firms have the share of 10% in the world market of liquid crystal display and 20% of semiconductor. Although Japanese firms once had dominated the world market in these products, most of mass production of these products currently is lost to the firms from other Asian countries. However, in many key devices listed in **Table 1**, Japanese firms still own lion's share. All in all, Japanese firms benefit from the spread of industrialization through RPI, shedding uncompetitive products and production process to other countries in the region.

In 2007, Japanese automobile industry produced 4.52 million cars in Asia, growing from 1.67 million in 2000. In the same period, the domestic car production growth was much slower from 10.14 million to 11.60 million (JAMA, 2008). Despite of the rapid regionalization, **Figure 4** shows that the transport equipment sector's share in the intra-regional trade is low. This may be contrary to our expectation given the fact that the automobile industry is supported by a large number of parts suppliers. In fact, **Figure 6** shows that quite differently from the case of the electronics industry, the Japanese automobile industry's overseas plants procure up to about 70% locally where the plants are located. It is also notable that while the procurement from Japan in automobile industry is almost as large as in the other industries, purchase of parts from other Asian countries is quite limited. That is, when an automobile assembly maker is established in China and Thailand, for example, its parts suppliers also invest in both China and Thailand so that they can supply locally.

The tendency of strong localization of assemblers and suppliers can be partly explained by higher transport cost of autoparts because of larger size and heavier weight. At the same time, we can seek an explanation in the Japanese manufacturing culture in that industry characterized as an "integral architecture". When production has an integral architecture, parts and final products are concurrently designed through frequent feedback of information between assemblers and parts suppliers. As a result, autoparts are customized product-specific, which cannot be easily adapted to other products. For example, differently from the case of CPU for the computer industry, an automobile engine for particular type of car cannot be used for other types of cars because the combination is product-specific. Not only in the design stage but also during the production, assemblers and their

suppliers benefit from frequent contacts in person, in order to engage together in continuous improvements (known as *Kaizen* in Japanese word) and share responsibility in quality control.

Unlike the case of electronics industry that organizes RPI aiming at the external market, the rapidly increasing automobile production in Asia mainly targets the local market in each country, whereas most of exports to the external market are made in Japan. Recently, the Japanese automobile firms are changing this pattern in Southeast Asia. They have established intra-ASEAN specialization and trade of parts and components: such as, transmission and combined meters in the Philippines; power steering and condenser for air-conditioner in Malaysia; gasoline engine and clutch in Indonesia; diesel engine, self-starter and alternator in Thailand. Based on the productive integration, they invest in production of pick-up trucks in Thailand and that of sports utility vehicles (SUVs) in Indonesia for exports. The two countries were initially chosen because these markets have traditionally shown especially strong taste for these products. Taking advantage of low labor cost, the Japanese automobile firms define these production units as the development centers of these particular types of cars that are going to be strategic products for emerging economy markets where middle class consumers are growing. It is expected that not only final products will be exported but key parts and components will be provided from there to the assembly units of the same products located in other countries around the world. This is another example for international production integration based on the product standardization.

Who are the influential economic agents in the process of RPI?

As explained in the previous section, RPI in East Asia has been promoted by large firms in the region who seek appropriate location to achieve higher productivity. Multinational firms are decisive actors in the RPI process. For example, in China where RPI related investment is concentrated, foreign firms have highly significant share in exports. They represented 58% of total exports from China in 2006, scaling up from 32% in 1995. This tendency appears even more strongly in more industrialized provinces such as 80% in Tianjin, 67% in Shanghai, 77% in Jiangsu, and 65% in Guangdong. Foreign firms' share in China's total imports is also remarkably high, reaching to 60% in 2006.

It is worth recalling that economic integration in East Asia is not the fruit of political leadership of the governments in the region. However, market mechanism alone is not able to create effective RPI. We should not forget public policies at national level have been influential, giving fundamental support to private firms. From the viewpoint of investor country, the process involves a large number of parts suppliers that are mainly small and medium enterprises (SMEs) which do not

necessarily have enough resource to invest abroad. In the case of Japan, FDI by SMEs is supported by several government agencies. For example, Japan External Trade Organization (JETRO) provides such as provision of information on general economic condition to detailed legal matters and arrangement of the feasibility study trips. Public financial institutions provide loans at favorable conditions (with lower interest rate and exemption of collateral) to finance the foreign operation. They also support SMEs to have access to the credit line in the foreign countries offering credit guarantees. The support for FDI may seem to allow loss of employment in Japan. Yet, such policies are not controversial in Japan because such policies actually contribute to prevent the potential loss of business of SMEs whose main customers have already left Japan.

Market mechanism is not also always effective to create local capital supporting industry. However, government intervention aiming at import substitution implementing import restriction and enforcing local content requirement generally can not go very far because of the lack of technological capability of local firms. Thai automobile industry had been protective before the financial crisis in 1997 to foster the local industry. Ironically, it was after the liberalization following the crisis that investment of assemblers and parts suppliers increased together substantially. Another notable example is the Vendor Development Program (VDP) implemented in Malaysia. VDP was introduced by the Mahathir Administration (1981-2003) with political objective to favor firms of *bumiputra* (Malay people) that were economically dominated by ethnically minority overseas Chinese. VDP was partly successful to develop suppliers for the national automobile company Proton through its procurement policy, but not well accepted by multinational firms including the Japanese.

Since the technological capability is one of principal obstacles to development of parts suppliers, assemblers benefit from human capital development in the local society. Hence, there is a room for externality. In other words, if each assembler is let nurture its suppliers alone, it will pay less effort than adequate level.

A notable exception is the scheme developed by Penang Skill Development Corporation (PSDC) in Malaysia. Penang is one of the largest clusters of the semiconductor industry of the world, agglomerating major multinational companies. By an initiative taken by the state government of Penang, these multinational companies formed a consortium to establish a center for skill development local workers. Multinational firms compose the board of directors of PSDC, donate equipments for the training, offer training programs, and send instructors. It is a responsible of the local government to coordinate the associated members and administer the center. Workers who learned in PSDC can work for the multinationals and their suppliers. A similar project is carried out in the Thai automobile sector, in which Japanese assemblers and first-tier suppliers are working with

Thai Automotive Institute with the support of the Japanese government and the Japanese Chambers of Industry and Commerce in Bangkok. Public-Private-Partnership (PPP), led by the private side who is probably the biggest beneficiary of the human capital development, can be an effective vehicle for the development of suppliers.

On the other hand, the recipients of FDI compete with each other aiming at increasing employment both at national and local level. Such policy measures include fiscal incentives, exemption of import duties on intermediate goods and capital goods, provision of land and infrastructure at favorable condition. It is also worth mentioning that the Official Development Assistance (ODA) of the Japanese government historically supported economic development of East Asia, but it has also helped strategically FDI of the Japanese firms. Japanese ODA to East Asian countries has emphasized transport infrastructure such as seaport, airport, and highway that made substantial contribution to facilitate the integration of the regional economy and to gain access to the global market.

Prospects of RPI in East Asia?

After two decades of the RPI process starting from the outflow of Japanese FDI motivated by the appreciation of the yen in the late 1980s, as we can observe in **Figure 1**, the intensity of intra-regional trade reached the level of the European Union, despite of the absence of regional-level comprehensive free trade agreement. What will we expect for the future prospects for further deepening of RPI?

Recently, some documents have been published alerting high degree of concentration of investment in China on several grounds. First, the unskilled labor in costal cities is not as abundant as in the past and the wage level starts to rise. Combined to the effect of the appreciation of the currency Renmimbi, it is widely recognized that the cost advantage in China is diluted, or at least not unlimited.

Second, high degree of concentration may increase the systemic risk of the RPI against unpredictable natural disaster and political change which may disrupt the operation of regionally fragmented productive operation.

Third, as the technological capability of the Chinese manufacturing improved substantially, the violation of intellectual property rights has become more serious concern for the Japanese firms.

These environmental changes suggest that the investment boom stimulating firms' unconditional entry into China has come to a crossroad and East Asian RPI is being revised. We already witness the following reactions. Although the interest in expanding investment in China is still strong, many firms feel like wait and see whether they will invest more to expand the current level of operation. **Figure 7**, which summarizes the data obtained from the questionnaire survey on Japanese overseas affiliates, shows this tendency. The cost increase in China and the concern over the systemic risk, it has been widely argued that firms should start to seek to diversify production locations. This obviously does not imply a retreat from China but reduction of the dependence on China for cost-cutting operation is recommended. For example, Uniqlo, one of the largest apparel retail store chain in Japan that pioneered production in China in early 1990s, announced to transfer a part of its production to Vietnam. **Figure 7** reports keen interest in investing in "other Asia" including alternative low labor cost countries such as Vietnam. This new strategy denominated as "China-plus-one" may contribute expand RPI's geographical dimension.

A possible "plus-one" location may be even within China. Since the integration with RPI is concentrated in the costal areas, the western inland areas feel substantial income gap. Chinese government strengthens policy instruments to stimulate investment to the inland. However, poorer quality of infrastructure and less business-friendly local governments in the inland areas do not arouse the moral of investors. Workers, on the other hand, are attracted to highly paid jobs in the costal areas than to expectation of the coming low salary employment.

On the other hand, the problem with potential knowledge leakage restrains Japanese firms from FDI, especially in operations containing their core technological competence. Since RPI is related to organizational disintegration, strict control of intellectual property is strategically important challenge for the management in order to protect firm's most important asset while take advantage of the operational productivity gains. Another concern is the separation of production and R&D, which may weaken the capability of the latter. On these considerations, there is clear tendency for resuming investment within Japan.

In summary, we can see that RPI for Japanese firms has reached to certain maturity. Firms are evaluating the adequate level of the dependence on China. Some cost-cutting operations based on low cost labor are diverted to alternative locations such as Vietnam and may expand to other under-developed locations. Technology intensive operations are strengthened in Japan in order to protect from technological leakage and endangering competitive advantage of firms as well as to maintain R&D capability by maintaining interaction between production and research.

As argued above, although regional economic integration in East Asia has achieved remarkable progress, there is neither regional FTA, nor supra-national permanent organization. Baldwin (2006) alerted the *noodle syndrome* where increasing ad-hoc bilateral treaties are entangled without having a mechanism of risk management.

In fact, countries in the region already started to consider more seriously consolidating legal framework of the regional cooperation since the Asian financial crisis in 1997. At that time, regional trade was disordered by the lack of foreign exchange liquidity. Since ASEAN was already in the process of deepening integration based on the ASEAN Free Trade Agreement (AFTA), they found it more pragmatic to link ASEAN and three countries in the Northeast Asia (China, Japan, and Korea) than to create a new group by putting all together. Having set the framework of “ASEAN plus Three” as the official vehicle of the regional negotiation, summit meeting is held annually to discuss wide range of regional issues. ASEAN has signed bilateral FTA each of the three countries. This initiative is also politically convenient because complex negotiations among the northeastern three countries can be postponed.

For ASEAN countries which face competition against China for attracting investment, it is vital to enhance market accessibility. In this regard, ASEAN welcomes becoming the hub of regional integration. Additionally, ASEAN launched for further internal and external integration. Important steps were made by Singapore and Thailand signing FTAs with Australia and India. In this setting, FTAs with Japan and with China facilitate imports of intermediate goods that are used for the assembly in ASEAN and then exported to rapidly growing Indian market. ASEAN is trying to take advantage of the geographic advantage to be located between China and India – the most dynamic markets in the world.

Within ASEAN, internal integration with new member countries is particularly important challenge. Since these countries offer cheaper workforce, richer members can construct a subsystem of RPI which offers opportunity of fragmentation. For example, a factory in Thailand can be jointly managed with an affiliate in neighboring Lao PDR to which labor intensive works can be transferred. Although this type of intra-ASEAN production sharing is already widely seen between Singapore and Malaysia or Indonesia, the quality of transport infrastructure must be improved substantially in order to do the same with the underdeveloped countries in Indochina Peninsula. The ODA from Japan for the project of the construction of the trans-regional highway is already committed to contribute to open accessibility to the global market.

If ASEAN will succeed in making steps forward in external and internal integration, it can become

the major beneficiary of the “China-plus-one” strategy. Without having such progress, investment related to efficiency-seeking RPI in East Asia might reach to mature level in the foreseeable future if above mentioned problems related to the concentration in China would prevail.

Furthermore, it remains as a challenge for the East Asian RPI that the market within the region has not created sufficient driving force. That change must be foreseen as the income level of the large part of the people in the region, especially those in China, will grow. By that time, establishment of more comprehensive region-wide free trade agreement should be discussed.

Implication for the regional economic development

RPI mobilized FDI and created employment in late-industrialized countries like China and ASEAN member states. It induced rapid industrialization in these countries. The demand for unskilled labor grew and the income gap between the skilled and unskilled narrowed down. Such development concentrated geographically in limited areas that are connected to the regional and global economy. **Figure 8** illustrates such locations constitute a narrow band which might be called *East Asian industrial belt*. In these places, unskilled workers employed in the export manufacturing sector are entering the class of new middle-income consumers whose demand sustains vigorous economic growth. Since these places represent only a small fraction of each country, regional income disparity rose substantially, especially in China and Thailand as shown by **Figure 9**.

On the other hand, in early-industrialized countries, like Japan, the demand for unskilled labor fell and the income gap between the skilled and unskilled workers is rising. This is also reflected in regional income disparity because skilled workers are concentrated in big cities.

Should we worry the gap? The compactedness favors efficient work of RPI linking assemblers and suppliers and production processes among nations. Hence, agglomerations must be supported. For that, increases of congestion cost (e.g. traffic and pollution) in large industrial clusters must be mitigated through provision of necessary infrastructure. Good transportation between cities and rural areas will contribute to reduce the high living cost in the former by efficient provision of food, which in turn, will also increase income in the latter. It also enhances a transfer of labor-intensive industrial process to the rural hinterland, while inducing urban centers to specialize in more technology intensive activities. This is a necessary process for middle income countries already integrated to RPI to acquire higher income status.

We should also concern about possible rural-urban divide in terms of human capital. Because of the

agglomeration, the rate of return from education is higher in cities than in rural area. For this reason, incentive for higher level of education is weaker in rural area, consolidating the urban bias of human capital quality. In view of assuring equal opportunity, income transfer should be made from the tax levied on urban residents' agglomeration rent (factor income beyond its own productivity thanks to externality). At the same time, the government should design its tax policy to encourage research and development and assembler-supplier linkage in urban centers which propel productivity growth of the entire RPI.

The role of local government

For the government in the peripheral area, there are basically two ways to link their jurisdictions to global and regional production networks. One is to attract firms from elsewhere, in most cases subsidiaries of foreign firms. In this strategy, local governments need to play give-and-take with heavy sponsorship for firms while imposing some rules to obtain benefits for the local government. Another way is to adopt a non-interventionist style while the local government only engages in provision of local public goods and non-discriminatory credit services to local firms.

We can observe the two contrasting approaches taken by Jiangsu province and Zhejiang province in China. In terms of the per capita gross domestic products by province (2006), both provinces are ranked among the richest provinces: Zhejiang is the fourth (31,874RMB=US\$4,081) and Jiangsu the fifth (28,814RMB=US\$3,689). Geographically, both provinces are similarly located in the coastal area around Shanghai. Jiangsu is ranked as one of the top FDI destination among all provinces of China, competing with Guangdong. It is also one of the top exporters. In 2007, 76% of Jiangsu's exports were made by foreign firms. As this number shows, its economy is characterized by heavy dependence on foreign investment. In other words, the success of Jiangsu partly owes to the strong interventionism of the local government for provision of infrastructure (construction of industrial estates and related energy, water, transportation facilities) and favorable treatment for foreign firms.

In contrast, Zhejiang province is a free-market model. The Zhejiang economy is known for strong entrepreneurship of small and medium-size local firms. The share of foreign firms in Zhejiang's total exports in 2007 is 34%, which is well below previously mentioned figure of Jiangsu and the national average (58%). Zhejiang was originally a poor region not only because of inferior natural condition for agriculture but also because the communist government did not invest in infrastructure of Zhejiang which is facing Taiwan with possibility of conflicts. The Zhejiang economy developed gradually based on production of light industries such as textile, garment, and shoes as the side businesses of farmers. These products were originally distributed by travelling merchants of

local-origin. Having grown these activities, the local government established huge wholesale market place to sell locally produced manufactured goods. Beside that, the local government never intervened actively in the economy, maintaining free-market environment. The Zhejiang market place attracted large number of retail sellers not only within China but also from all over the world seeking low price merchandises. Producers of similar products in other parts of China also increasingly depend on Zhejiang wholesale markets, rather than selling by themselves. Due to the concentration of supply and demand, cities as Wenzhou and Yiwu are recognized as the biggest wholesale market of the world. As a consequence, production of local cluster of firms in Zhejiang is enhanced and diversified.

While the two local development models have present great success stories, there are marked differences. Jiangsu is more successful in attracting foreign investment, filling up high-tech industrial parks, and more export. On the other hand, although Zhejiang remains as low-tech goods producers, it has higher level of per capita income and income distribution within the province is more equal than in Jiangsu (See *Business week* October 20, 2008). In both cases, the local government had played important roles: connecting to the Jiangsu province with global business, and creating the market with global connection within Zhejiang province.

Implication for Mercosur

In order to conclude our discussion, let us list some general lessons drawn from the experience of RPI in East Asia, that may be useful for the policy discussion for the case of Mercosur.

First of all, RPI is based on scale economy because it involves a sunk cost of linking regionally fragmented productive units. Unless the local regional market is sufficiently large, like in North America and in EU, RPI depends on access to the world market. RPI will be inefficient if it is designed as a scheme of production sharing within a closed small local market. RPI develops as a process where firms search higher efficiency taking advantage of varied local advantage within a region, but it is not by origin designed as a mean to redistribute income, although it may eventually contribute to spread industrialization.

Second, RPI requires efficient transportation system which reduces broadly defined trade costs. Broadly defined trade costs are related to: the quality of transport nodes consisting of highways, port, and airport; efficient logistic service provider; good information and communication system; low import tariff and simplified procedure at customs. These parameters should be monitored. Mercosur has certain advantage due to relative homogeneity of the language and the recently launched

initiative to use local currency for intra-regional transaction. Furthermore, it is worth noticing that to reduce the time cost of trade is important in order to compete in the world market. Imagine, for example, that the World Cup Football final game will be held between a South American country and a European country. Only if the South American team will win, we expect a huge demand for a commemorative T-shirt. Manufacturers won't like to produce it in advance because of the risk of accumulating dead stock, while they are also afraid that they are not going to sell very much if the product will arrive the market so late after the South American team wins. If they can supply speedy using RPI, consumers will be willing to pay higher price. Thus, the speed will generate rent that can be shared in the region. If there were no efficient supply from RPI, the merchandise order should go to suppliers in China or Vietnam who can provide so cheaply that convinces retail stores to bet for the win of home team.

Third, public-private-partnership in human capital development such as that practiced in Penang, Malaysia. Insufficient human capital may become a binding condition, especially at the initial stage of formation of RPI for not being able to fulfill the need of productivity to compete in the world market and also for not being able to create local suppliers. General public education may not be enough to build specific skill. If we let the capacity building only to private firms' responsibility, the effort will be less than optimal level because of the externality that individual firm's effort might benefit other firms. Hence, the government is required to play the role of coordinator.

Fourth, local governments can play an important role to connect its jurisdiction with the global business. China's experience shows two variants, either to attract affiliates of foreign firms or to create local wholesale market. The former is effective to create high-tech industrial clusters, while the latter has contributed to enlarge low-tech industrial clusters. It is worth recalling that once border cities as Ciudad del Este of Paraguay boomed because of the duty free shopping when Argentina and Brazil were strictly closed to consumer goods imports. However, these markets could never grow for locally manufactured goods. The Zhejiang experience shows the importance of such a link.

Finally, but not the least, RPI requires spatial compactedness in order to minimize the operational cost to link the dispersed productive units and the need of scale economy implies concentrating investment in industrial agglomerations. This aspect intensifies the pressure for widening the gap of development across the space, leading us to four policy implications. First, the migration from the lagged areas to the industrial agglomerations needs to be encouraged. Second, local policy should target at investing in urban infrastructure to mitigate the negative effect from congestion. Third, some scheme of income transfer should be established by levying tax on urban income rent and redistributing it to residents of lagged areas who do not migrate for being engaged in economic

activities which is tied to the land. Fourth, market accessibility from the rural area should be improved because the economic distance affects rural income. It is responsibility of the supra-national organization if the issues of migration and income transfer should be discussed and implemented at the regional level rather than individual country level.

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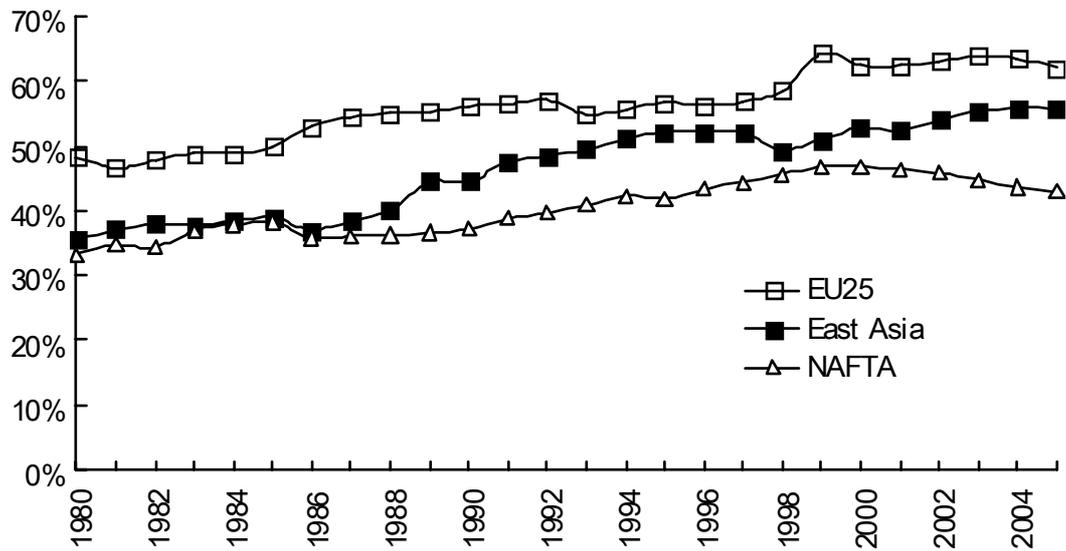
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Table 1 Japanese firms' competitiveness in parts and components (2006)

Products and share of Japanese firms in the world market	Parts and components in which Japanese firms own competitiveness	Share of Japanese firms in the world market (%)
Liquid Chrystal Display 10%	Color filter	39.9
	Polarizer	61.7
	Protective film for polarizer	100.0
	Glass Substrate	39.5
Semiconductor 20%	Silicon wafer	69.6
	Molding compounds for semiconductor encapsulation	85.0
	Automotive relays	59.1
Others	DC motors with brush	57.6
	DC motors without brush	80.4
	Lithium-ion rechargeable battery	61.8
	White light LEDs for Cellular phone	76.2
	Multi-layered ceramic condenser	76.8
	Aluminum electrolysis condenser	90.1
	Carbon fiber	76.0

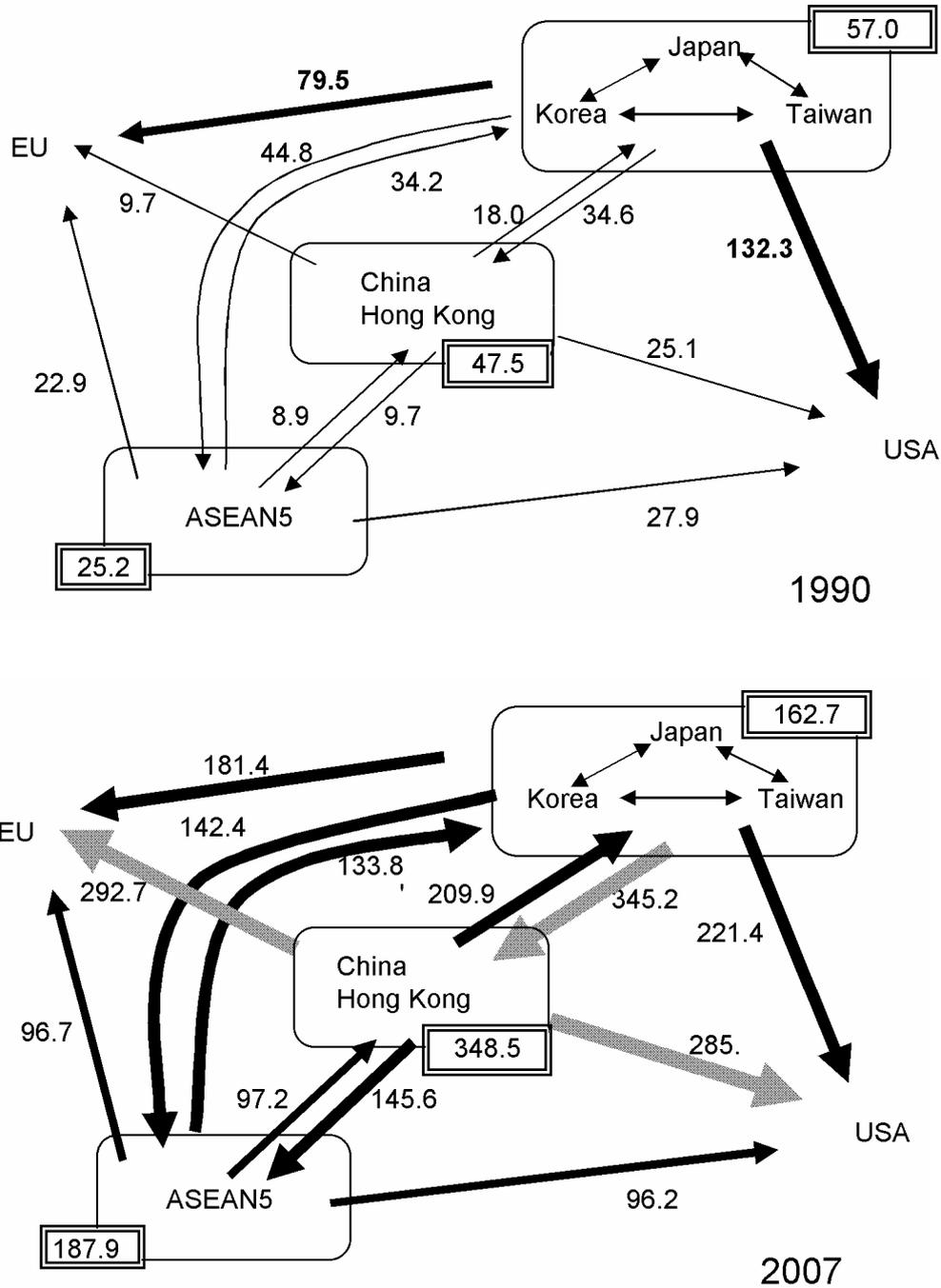
(Source) METI, *Strategic Technology Roadmap 2008*

Figure 1. Evolution of intra-regional trade



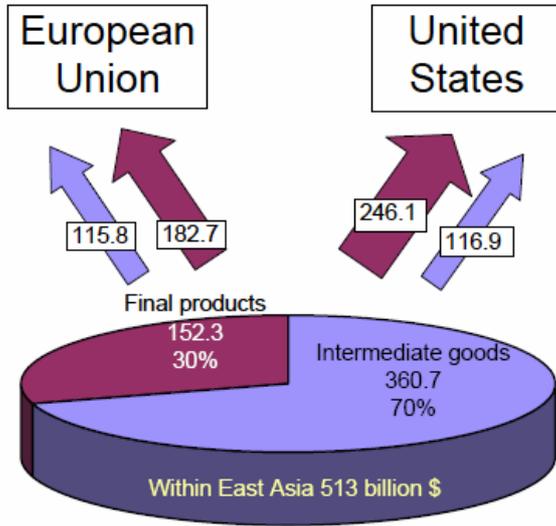
(Source) METI, *White Paper of International Trade 2007*

Figure 2. Directions and volumes of trade in East Asia



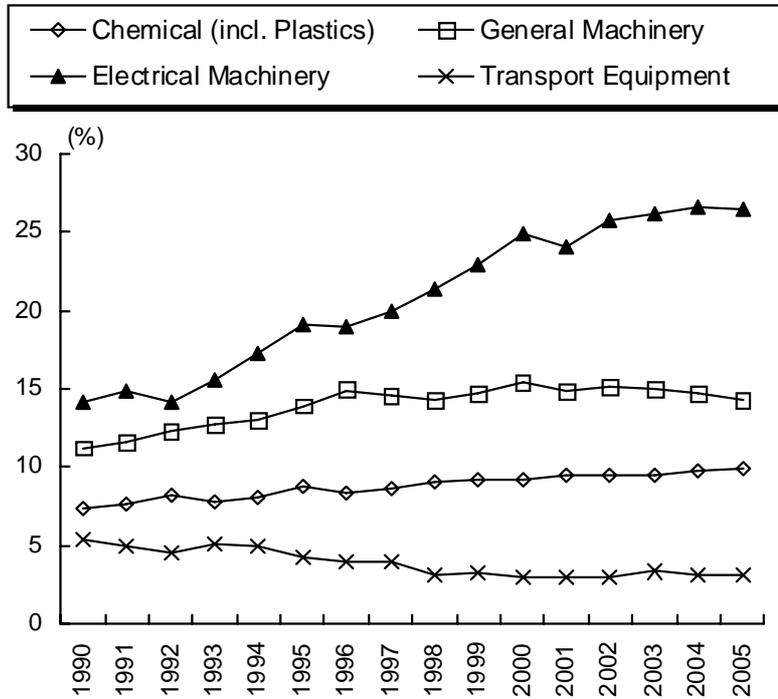
(Source) IMF, Directions of Trade CD-ROM and Taiwan Bureau of Foreign Trade

Figure 3



(Source) METI, *White Paper of International Trade 2008*.

Figure 4



(Source) METI, *White Paper of International Trade 2007*

Figure 5

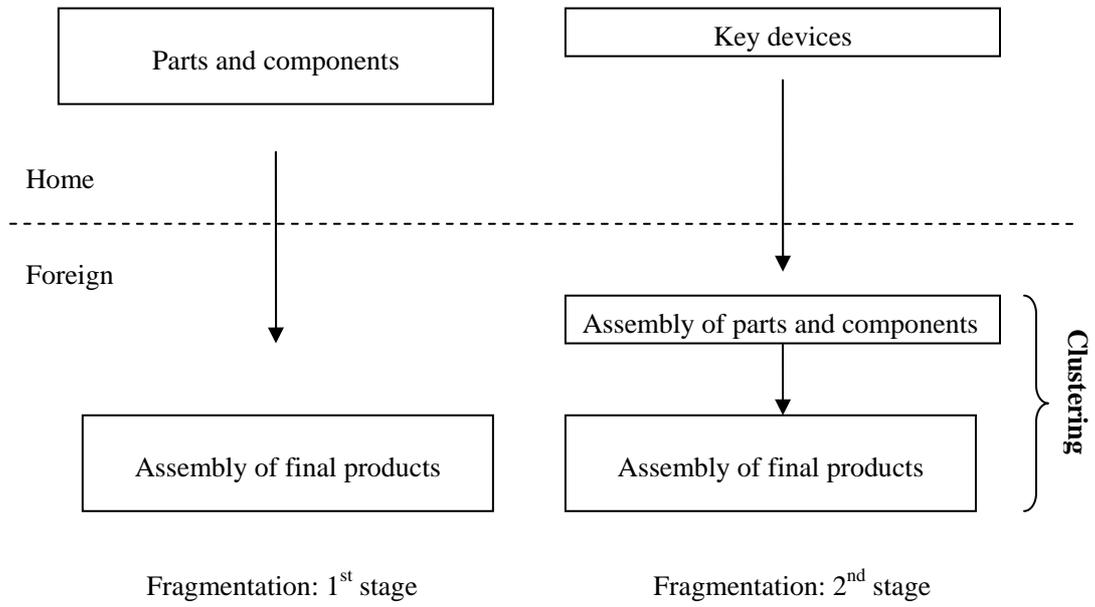


Figure 6 Procurement of intermediate goods of Japanese foreign plants in East Asia by sectors

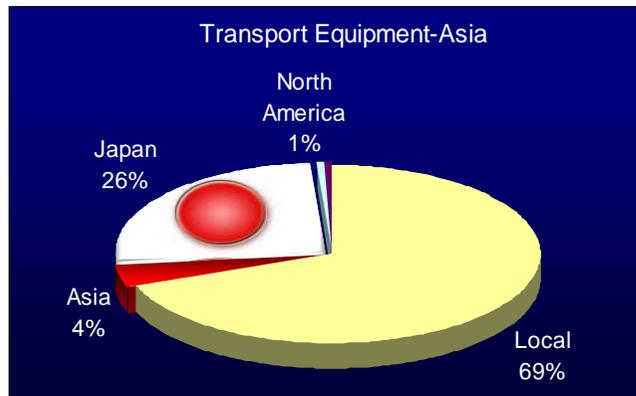
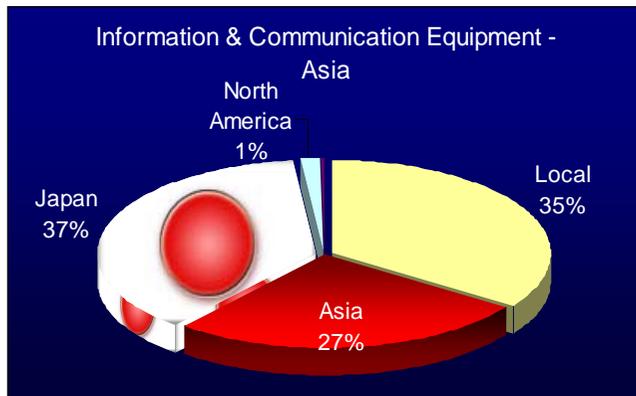
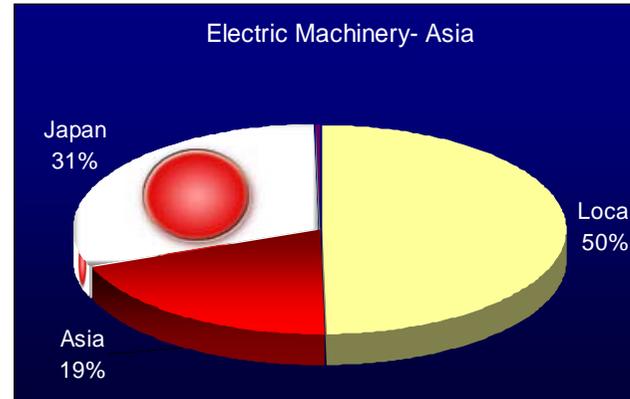
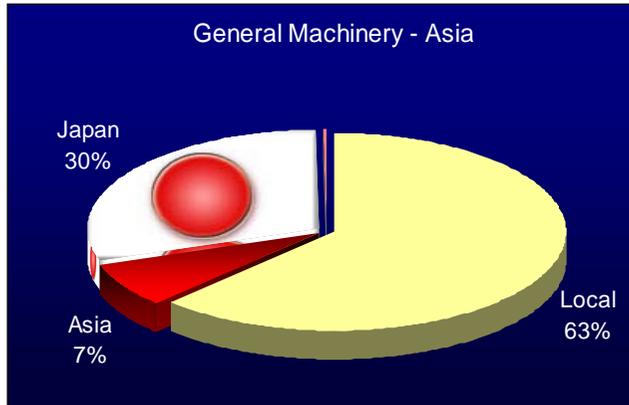


Figure 7

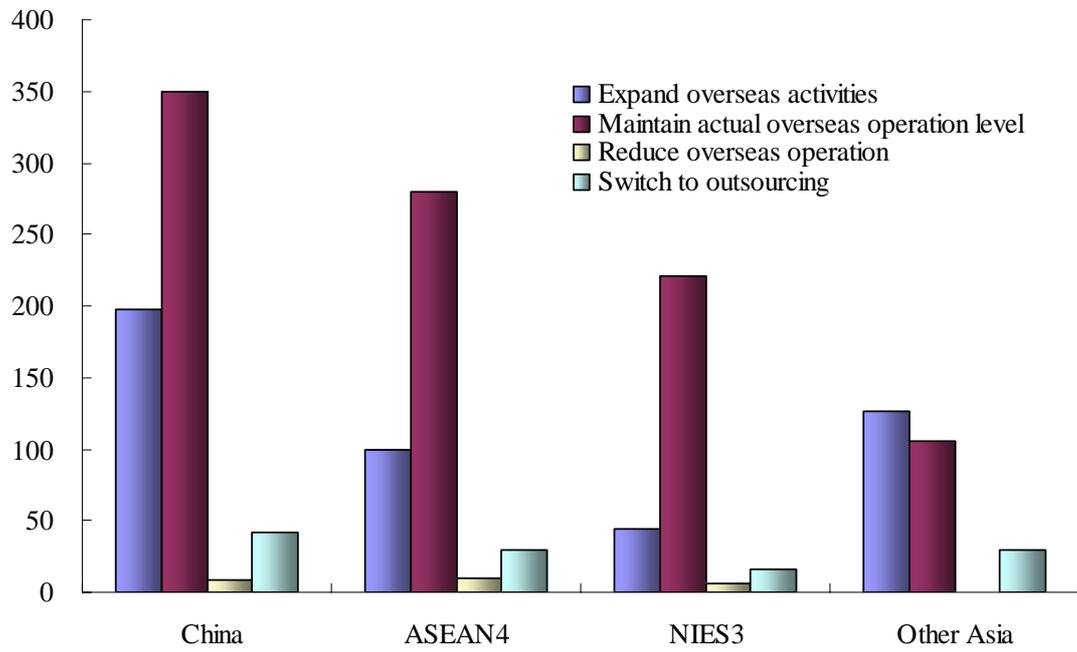


Figure 8 East Asian industrial belt

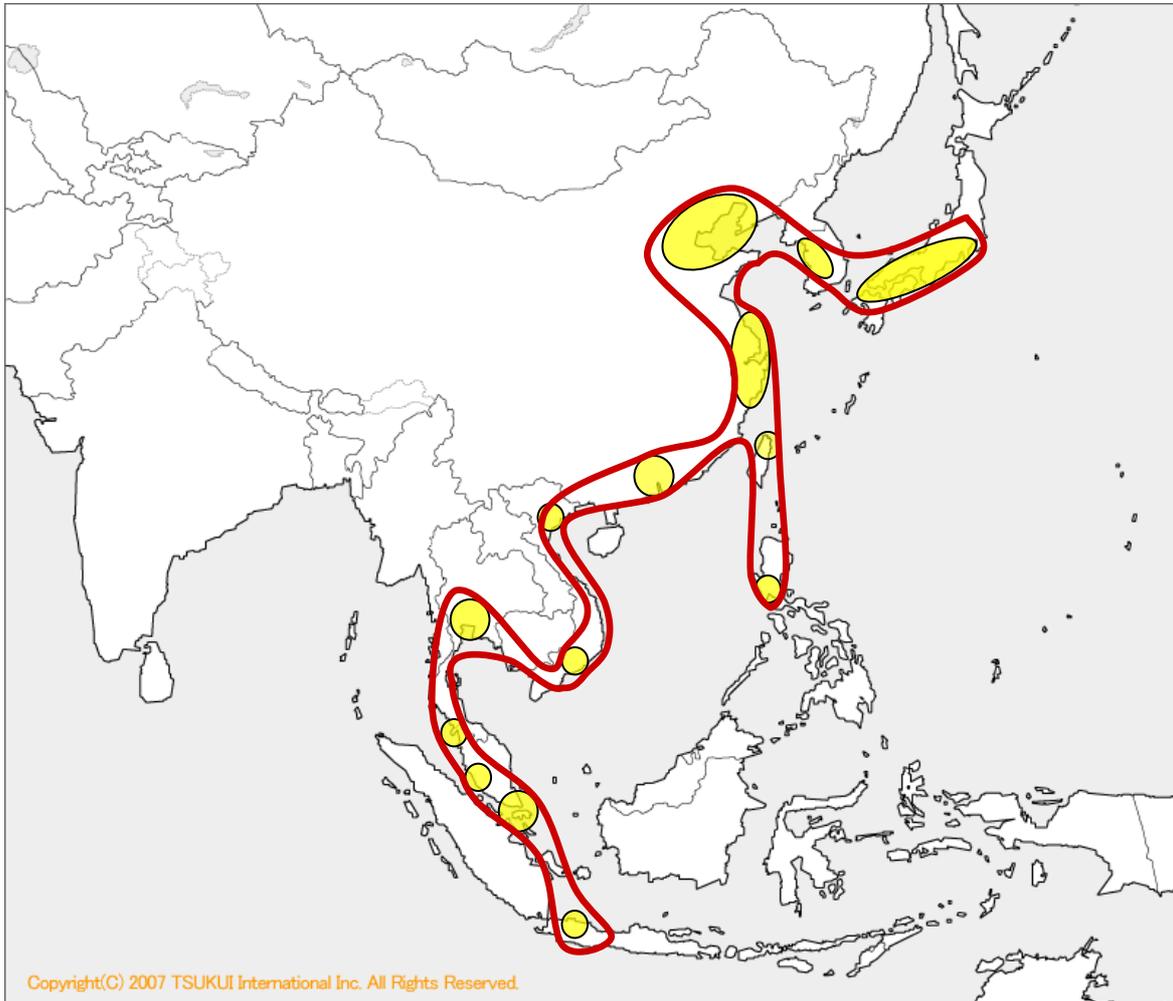
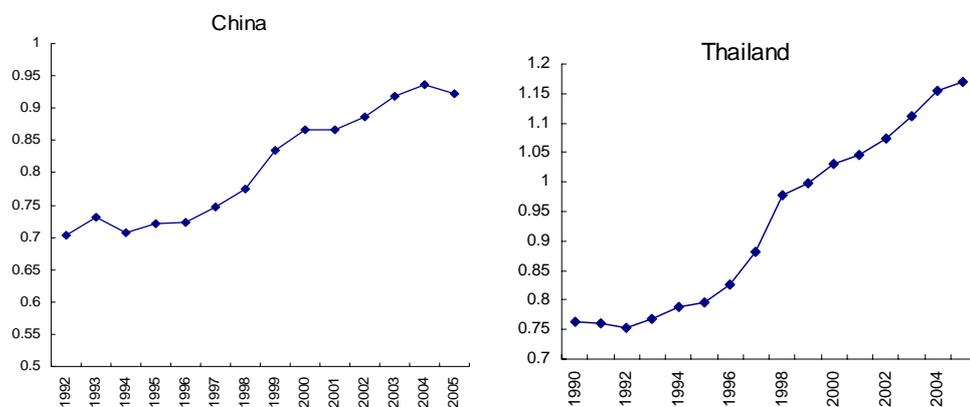


Figure 9 Regional income disparity measured by coefficient of variation of per capita GRDP



Data source: (China) *China Statistical Yearbook*, National Bureau of Statistics of China, (Thailand) National Statistical Office <http://web.nso.go.th/eng/index.htm>