Regional Disparity and Economic Linkage in the Greater Mekong Sub-region
(Resume)
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1. Introduction

Greater Mekong Sub-region (hereinafter referred to as GMS) is composed of five countries and two Chinese districts. They are Thailand, Cambodia, Laos, Myanmar, Vietnam, plus the Guangxi Autonomous Region (hereinafter, Guangxi) and Yunnan Province of China.

There are two kinds of purpose of this paper. The first one is to clarify the level and trend of regional disparity in the GMS. And another one is to clarify the progress of the economic integration in this region. The author used the statistics of trade in order to measure the level of intra-regional trade. It will give some hints to know how deep the division of labor in the process of production is.

Under the fragmentation theory, vertical division of labor in one industry at separate production blocks can occur due to the differences of factor prices and productivities if the cost of service links is low enough. The author tries to find the situation of economic linkage among the GMS through the regional disparity and intra-regional trade, bearing the fragmentation theory in mind.

2. Existing literature and consideration

First, as for the theoretical analysis about economic linkage, fragmentation theory should be referred. Jones and Kierzkowski (1990) introduced the idea of service links, which connect the different production blocks, as separated production process is more efficient when the factor prices are different. Kimura, Takahashi and Hayakawa (2007) conducted a comparative survey between East Asia and Europe. Fragmentation theory helps the experience of vertical division of labor in the process of manufacturing, especially machinery and their parts and components, in East Asia, which is different from European situation, where horizontal division of labor is well advanced. They explained that decrease of the cost of service links, mainly achieved through the cross-border infrastructure and arrangement of customs system, urged the division of production process to be divided following the factor cost for divided each process.

There are many surveys which treat the disparity. As for regional disparity, some researches like Nozaki (2007) measured the regional disparity in one country. It calculated the regional GINI coefficient utilizing the GPP/GRP per capita weighted by the regional population. However, the example, which analyzed the regional disparity of the GMS quantitatively by time series, is not found so far. The author believes that it is necessary to know the regional disparity of the GMS for long term trend and comparison with other region quantitatively.

As for the intra-regional trade among the GMS, Fujimura (2008) conducted a detailed research. Intra-regional trade is surveyed collecting the bilateral trade information by both Direction of Trade of IMF (hereinafter, DOT) and statistical yearbook of two Chinese districts. It compared two years, 2000 and 2006, and led the result that the intra-regional trade was growing.

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1 Guangxi became an official member of the GMS program in 2005.
3. Trend of regional disparity

3.1 Method of estimation of disparity and used data

In order to measure the level of the disparity of the GMS, the author calculated the GINI coefficient by using per capita GDP and population. As for the exchange rate, the author adopted the purchasing power parity (hereinafter, PPP) of the United Nations for conversion.

3.2 Results of estimation

Regional disparity of the GMS was very large in early 1990s, and it has been shrinking gradually (Figure 1). From this calculation we should discuss about two points. One is the reasons of GINI decrease, and another point is how to understand the GINI figure of 0.34 in 2009 as an absolute level of disparity.

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2 As for the Guangxi and Yunnan Province, PPP of China is used for both districts. And as for the PPP of Vietnam, the UN provides only figures since 1995. Therefore, the author extrapolated the PPP figures from 1990 to 1994 by GDP deflator.
To consider the first point, it is useful to draw a Lorenz curve (Figure 2). Although Thailand recorded positive economic growth throughout the period, other members recorded higher growth. As a result, when we observe the Lorenz curve, inclination of each country or district is steeper in 2009. Among them, rapid economic growth of Vietnam and two Chinese Districts attracts attention, although other members such as Myanmar, Cambodia and Laos also recorded the higher growth than Thailand.

With regard to the second point, the author calculated the regional GINI coefficient of ASEAN original six members. The GINI coefficients in 1990, 2000 and 2009 are 0.28, 0.26 and 0.25, respectively. As far as this comparison, we can point that regional disparity in the GMS is still left behind. It suggests that such moderate disparity of ASEAN keeps the vertical division of labor through the difference of the factor costs.

Furthermore, GINI of ASEAN six gives us a suggestion about the relationship between the level of disparity and the economic linkage. Although the disparity is still on the trend of shrinking slightly, we may be able to say that disparity of ASEAN six in 1990 was substantially low. Around 1990, it was the time that many ASEAN six members are eager to introduce the foreign direct investment to promote export-oriented industries, so that it was before the economic linkage in the region advanced. It is actually in 1992 that the Southeast Asia free trade agreement (AFTA) was agreed officially. What should be learned here is that improvement of the regional disparity is necessary condition to promote economic linkage, but it is not a sufficient condition. As existing researches point out, economic policies or infrastructure building are essential to cut the cost of service links.

### 4. Economic linkage

#### 4.1 Intra-regional trade

![Figure 3: Intra-export share to the total export of the GMS](image)

The ratio of total intra-regional trade was very low, almost negligible in early 1990s. Even in recent years the ratio is single digit, but it continuously rose to 9% in 2010 (Figure 3).

When we see the individual member, some features are observed as follows (Table 1).

Thailand has many trade counterparts outside of the GMS. As for the ratio of export to the GMS, it was below 1% in early 1990s. The ratio gradually rose but reached only to 6.5% in 2010. On the other hand, import from the GMS member draws the same trend and much lower ratio of 3.1% in 2010. The ratio of intra-regional trade of Vietnam is also low. But trade with Guangxi and Thailand are increasing and the
intra-regional trade ratio is rising. As for other members of the GMS, the ratio is relatively high.

<table>
<thead>
<tr>
<th>Year</th>
<th>Myanmar</th>
<th>Cambodia</th>
<th>Laos</th>
<th>Vietnam</th>
<th>Yunnan</th>
<th>Guangxi</th>
<th>Thailand</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>6.5</td>
<td>27.6</td>
<td>62.9</td>
<td>2.0</td>
<td>–</td>
<td>–</td>
<td>0.7</td>
</tr>
<tr>
<td>2000</td>
<td>23.1</td>
<td>14.1</td>
<td>63.3</td>
<td>6.4</td>
<td>28.5</td>
<td>16.4</td>
<td>2.2</td>
</tr>
<tr>
<td>2010</td>
<td>41.2</td>
<td>13.6</td>
<td>64.6</td>
<td>10.0</td>
<td>25.3</td>
<td>43.7</td>
<td>4.8</td>
</tr>
</tbody>
</table>

(Note) 1. Each figure is the share of export plus import with GMS to the total export plus with whole world.
2. Data sources are DOT of IMF and Yunnan and Guangxi Statistical Yearbook.

Thus, it can be said that the intra-regional trade within the GMS is gradually activated although the level is still low.

4.2 Bilateral trade of Thailand with the GMS members

In order to examine the depth of economic linkage within the GMS, the author analyzed the trade items of Thailand with Vietnam, Laos and Myanmar. The Ministry of Commerce of Thailand releases the top 20 items of bilateral trade with main trade partner countries. The author categorized each item into four groups: they are (a) food and products of primary industry, (b) energy and material, (c) manufactured products and parts, and (d) others.

4.2.1 Thai trade with Vietnam

The amount of trade with Vietnam was very small in early 1990s. After that, with progress of the economic reform, both exports and imports increased and the ratio to total Thai trade rose. As a result, 46% of Thai export to the GMS, as well as 25% Thai import from the GMS were with Vietnam in 2010.

![Figure 4-1: Structure of bilateral trade of Thailand with Vietnam](image)

When we see export items, ‘manufactured goods and parts’ increased in 2011, after decline of the share in 2006 (Figure 4-1). Contents of the ‘manufactured goods and items’ changed from previous years. For example, ‘spark-ignition reciprocating internal combustion piston’ and ‘motor cars, parts and accessories’ have appeared in an export item in recent years. Together with the increase of the amount of machinery and its parts, Thai export may support Vietnamese manufacture.

As for the import, items which support manufacturing activities in Thailand are being imported from
Vietnam in these years.

4.2.2 Thai trade with Laos

About half of the export to Laos is ‘energy and material’. In particular, main item is refined fuel. As for the manufactured products and parts, ‘motorcycle and parts’ is major item. In this regard, it is difficult to say that Thai export strongly support the industrialization of Laos. However, industrialization related export may start to increase in 2011.

As for the import, no specific features were observed, but in these years imports of metal ores are increasing reflecting the development of mineral resources in Laos.

4.2.3 Thai Trade with Myanmar

Although no specific features were observed until mid-2000s, exports of refine fuel and motor cars, together with machinery, increased in 2011. It may suggest that Myanmar economy started the industrialization and that Thai products support it.

About import from Myanmar, The increase in the natural gas from around 2000 is characteristic.

5. Discussion

5.1 Consideration from the regional disparity

The fact that regional disparity is shrinking in spite of the continuous growth of Thailand means that the economic development of the late-coming countries are progressing. It may mean the condition is being prepared to strengthen the economic linkage among the GMS.

| Table 2 Structure of the GDP/GRP of the Member of the GMS in 2009 (%) |
|-----------------|--------|--------|--------|--------|--------|--------|--------|
| Primary Industry | Myanmar | Cambodia | Laos | Vietnam | Yunnan | Guangxi | Thailand |
| Secondary Industry | 38.2 | 32.5 | 32.8 | 20.9 | 17.3 | 18.8 | 11.6 |
| Tertiary Industry | 44.4 | 22.4 | 25.2 | 40.2 | 41.9 | 43.6 | 43.3 |

(Note) ADB Key Indicators of 2010, Yunnan Statistical Yearbook, Guangxi Statistical Yearbook.
Figure of Cambodia is in year 2008
Primary Industry is composed of agriculture and mining, while Secondary Industry is composed of manufacture, electricity, gas, water and construction.

However, regardless of the situation of regional disparity, it is necessary to note that the income level of the region as a whole is still low. Table 2 shows that lower income countries maintain the higher share of agriculture and lower share of manufacture, while Thailand and two Chinese districts, attained higher share of manufacture with small portion of agriculture. Vietnam positions the middle of these two groups. As industrialization of the late-coming countries is immature, the existence of the moderate regional disparity does not directly mean the vertical division of labor in the manufacturing process.

On the contrary, rich natural resources in the low income members of the GMS may push up their income to increase. If they accumulate the capital through the natural resources, industrialization will proceed and the regional disparity is expected to shrink less and less. It may give the condition to the region activate vertical division of labor in the manufacturing process.
5.2 Consideration from the intra-regional trade

As far as the trade structure within the GMS is overviewed, it is difficult to say that intra-regional trade is very active, but economic linkage has just started.

However, there are some points that became clear through this survey. First, the economic relation between Thailand and Vietnam is developing. Vietnam is under industrialization utilizing the foreign direct investment. As a result, wide ranged division of labor in the manufacturing process may be progressing. Although division of labor with countries out of the GMS is big portion, division of labor with Thailand should have already started.

Another point is that the trade of natural resources within the GMS members is observed. As these natural resources are necessary for manufacturing process, intra-regional trade of these items may mean the progress of the vertical division of labor. Although it is not the fragmentation of the manufacturing process of intra-industry, we should take note that increase of intra-regional trade includes such kind of transactions.

Thus, movements of economic linkage are activating at the various levels in the GMS, although current situation is Thailand centered economic linkage.

Before closing this section, the author would like to mention the environment for the GMS members to increase the intra-regional trade. It is infrastructure building and arrangements of the trading systems. As for the infrastructure, improving the transportation is the key. As Fujimura (2008) already mentioned, Asian Development Bank, together with international community like Japan, inputs its resource to transportation projects. As for the trading system, new comers of ASEAN members have already joined the ASEAN Free Trade Area (AFTA) and are scheduled to eliminate the tariffs with ASEAN members by 2015. In addition to it, Cross Border Trade Agreement (CBTA) was agreed among six GMS member countries in 2003. It mitigates the burden of cross border trade. Although there seems to be some troubles, soft infrastructure building will cut the cost of service links. Increase of the trade between Thailand and Vietnam is supported by these kinds of institutional arrangements.

6. Conclusion

The regional disparity of the GMS has been gradually shrinking from serious level to moderate in recent years, although it is still a larger level than the level of disparity of ASEAN original members. This result is not surprising but is expected to be useful for other research and policy formulation. As cross border policies are undertaken or being planned, this findings can be used for the estimation of policy impact.

Economic linkage measured by intra-regional trade shows the sign to be strengthening. Although the level of intra-regional trade is still low, it grows steadily. From the information of Thai bilateral trade, vertical division of labor in the manufacturing process is growing, although it is still in a primitive stage, while the intra-regional trade of items relating the natural resource plays an important role. We can expect that more deepening economic linkage will be realized with further economic development of the whole GMS region.