【研究論文】

A change in the appearance in Japanese industry & regional structure after the great earthquake disaster in East Japan and a direction of international division of labour

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Preface

Japanese manufacturing had been changed mainly in the field of parts & material on the background of the innovation of environmental & new energy. As a result, the competition among parts & material companies in Japan has shifted from the domestic competition to the global competition especially in the field of provision and supply of the parts & material.

I predict that such kind of change from the domestic competition to the global competition is going to shift more rapidly toward enormous global competition being resulted with the great affection of the earthquake disaster in East Japan especially attacking against so called "supply chain" in Japanese manufacturing especially in the field of the parts & material.

Then I will recognize such kind of affection on the "supply chain" as the change in the appearance in Japanese industry & regional structure, and I will study (a) what kind of the significance of the change from the viewpoint of Japanese international division of labour and (b) what is new direction of Japanese division of labour in the age of great global competition, especially focusing on the case of Japanese Niigata prefecture.

The structure of this study is as follows. In the Chapter 1, I will take up the issue what is a competition among global networking — especially focusing on which we will study the competitiveness of Japanese companies on the background of the emergence of global companies especially of the emergence of Asian global companies. In the Chapter 2, I will observe the influence of the earthquake disaster in East Japan on the competitiveness among global networks in Japanese companies including not only global companies but also local companies. In the chapter 3, I will study which economic zone (business zone) is more better selection related to the enforcement of the competitiveness among global networks in Japanese companies, FTA/North East Asia (Free Trade Agreement in North East Asia) or TPP (Trans-Pacific Partiership). In the Chapter 4, I will consider the compatibility of the competition among global networks with the inner development in especially focusing on local economy.

Chapter 1. The competition among global networks

(1) A retreat of the competitiveness of the Japanese global network

The competition among global networks means the competition among business networks which are pursued on companies in Japan, Korea and China aiming for the acquisition of East Asian market especially focusing on the market of parts & material.

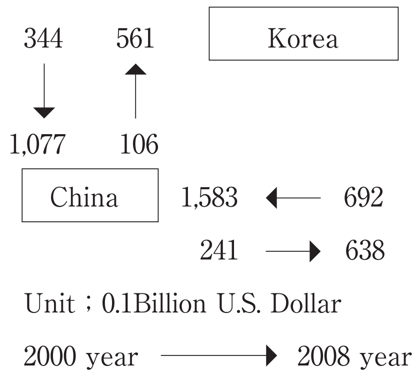
The main stream in present East Asian trade is the trade of parts & material. When we condemn the trade of parts & material as the "intermediate goods trade" and we observe the trend of this trade in Japan, Korea and China on the term of ten years from 2000 year to 2008 year, we can find the result as follows (See Chart 1-1).

If we pick up the amount of the export from Japan to China and pick up the amount of the export from Korea to China, too, both cases have exceeded 100 billion Dollars resulting in 2.3 times in the case of the former and resulting in 3.1 times in the case of the latter.

Moreover, if we classify parts & material goods according to the type of industry, we can find new international division of labour as follows.

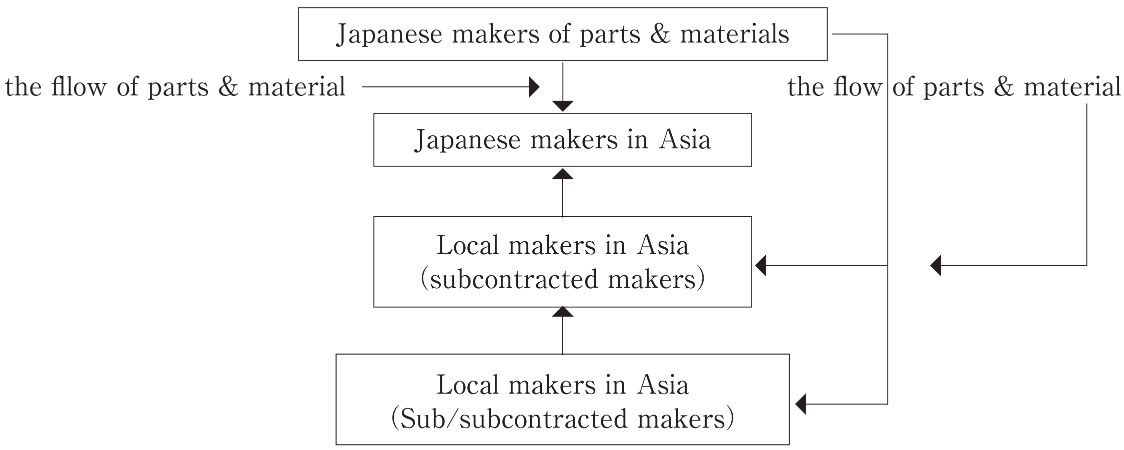
We will find two characteristics on the above Chart (Chart 1-2) namely on the new

Chart 1-1 The triangle among three countries consisting of Korea, China and Japan



(Data) Ministry of Economy, Trade and Industry ; 2010 White Paper on Industrial Economy and Trade p.172

Chart 1-2 The new framework of the relation between Japanese makers of parts & materials and Asian makers consisting of "intermediate goods" and "final goods"



(Original source) Niigata Nippo (May 17, 2011)

framework of the relation between Japanese makers of parts & materials and Asian makers concerning to "intermediate goods" and "final goods". First one is the strategic importance of parts & materials owing to the position of the "up stream" on the supply chain in manufacturing. Second one is the importance of the network of international division of labour which is supported by the network of new rolls of companies in each Asian countries. Namely the roll of Japanese company is the manufacturing of key parts & materials, the roll of Korean company and Taiwanese company are supplying of "intermediate goods", and the roll of Chinese company and East Asian company is the assembling of "final goods".

By the way, if we classify parts & Material goods according to the type of industry, the electric machinery occupies about 70% of whole machinery industries in 2008 and three industries consisting of the electric machinery, general machinery and transport machinery occupies about 90% of whole machinery industries in the same year.

Then we should notice the competitiveness of the electric machinery. In the case of this industry, the ratio of supply of parts & material from Japan in Asia has been decreased under 10% in 2008 been substituted for the increase of Chinese and Korean supplying.

There are two kinds of flow in this point. One characteristics is as follows. The main actor of the "intermediate goods trade" and the "final goods trade" in electric machinery industry is shifting from Japan to China/Hong Kong team. For instance, the export of in the "intermediate goods trade" from China/Hong Kong team to U.S.A. & EU has reached 124.4 Billion U.S. Dollars in 2008, whereas the export of the "intermediate goods from Japan to these districts has 27.4 billion U.S. Dollar in same year being resulted in a fives of 124.4 billion U.S. Dollars. Second flow is as follows. That is a emergence — especially a emergence of the export of the "intermediate goods trade" — of Korea. For instance, the export of Korean "intermediate goods trade" toward China/Hong Kong team has been increased about 11 times from 1998 to 2008.

Concerning to general machinery, China as the country of the "intermediate goods trade" in the East Asia has already occupied about 20% share in the world resulting in pursuing the biggest basement of the "intermediate goods supplying" in the world. As the result, Japan has the main position of the "intermediate goods trade" only in the field of transportation machinery.

(2) The business Network as one of Global Networks

We should be careful on the point that the business network forms a part of global networks. We have to point out the fact that global networks have familiar relationship with an anti-borderization of the value added curve on the production of parts & materials. This point provides most important grounds for an argument why "supply chain" are going to globalize.

First ground is as follows. According to a shift of value added sources from the "products" to the "parts & materials" and "sails", the "value added line" is going to shift from old "value added curve" to new "value added curve".

Second ground is as follows. The shift of the value added line from old "value added curve" to new "value added curve" necessarily accompanies with the change of the concept of the "value added". Under the new concept of the "value added", it is necessary to improve the importance of the "quality" of goods & services comparing to the importance of the "quantity" of goods & services owing to the productivity.

Third ground is as follows. Resulting of the metamorphosis which consist of two elements — one is the shift of the "value added line" from old curve to new curve and another one is the change of the concept of "value added" from the "quantity" to the "quality" —, the order of the borderless of business process has decisively been reversed. In old order, first runner was the assembler who assembled parts & materials owing to the necessity of cost down especially wage cutting. But in new order, assembler has been driven to second runner owing to the limitation of cost cutting being enough to compensate the lost of profit itself.

As the result mentioned above, new type of international division of labour from old model in which model the principle of international division of labour has been depended on the "comparative cost of production" to new model in which model the principle of international division of labour depends on the matrix between business process and the progress of the work.

(3) The relationship between the "business networks" and the "business economic zone" through the conduits

By the way, we call these kind of the network as the "business network" which has a familiar relationship with the "business economic zone" through the "conduits". Then we explain the concept of the "conduits" so that we make a clear distinction between the "business network" and the "business economic zone".

What is the "conduits"? You can understand it more easily using the comparison of business network by giving examples. If we classify the "business networks" as flows of streams according from "upper stream" to "down stream" through "middle stream", you can find that there are six conduits. First is the "conduit of energy･materials･provisions". Second is the "conduit of goods" consisting of industries, investment and employment including circulation, physical

Chart 1-3 The relationship between the "business network" and the "six conduits" resulting in the formation of "business economic zones"

Business Network \ Conduits	Ⅰ	Ⅱ	Ⅲ	Ⅳ	Ⅴ	Ⅵ →	Business Economic Zone
Global/Network	◎	◎	◎	◎	◎	◎ →	Global/Business Economic Zone
National Network	○	○	○	○	○	○ →	National/Business economic Zone
Local Network	○	○	△	△	△	● →	Local Business Economic Zone

(Note.1) Ⅰ. The "conduit of energy･materials･provisions"
Ⅱ. The "conduit of goods"
Ⅲ. The "conduit of man power"
Ⅳ. The "environmental conduit"
Ⅴ. The "conduit of information"
Ⅵ. The "conduit of money"
(Note.2) Moreover, business Network should be divided in according in category of business and in companies size resulted in the independence of local economiese

distribution & transportation'. Third is the "conduit of man power" consisting of the bringing up of human power, the development of technology and know-how & knowledge". Forth is the "environmental conduit" related to green procurement, recycling & green manufacturing. Fifth is the "conduit of information" including hardware & software. Sixth is the "conduit of money" including of capital, fund & foreign exchange.

We are going to explain what kind relationship between the "business network" and the "six conduits" resulting in the formation of "business economic zones" as bellow mentioned (See Chart 1-3).

Shortly saying, the "business network are divided into about three network categories namely the "global network", the "national network and the "local network" according to tying up in "a bundle of straw". Nevertheless on this stage, three network are only bounded in "each line among three points".

By the way, if each line are overlapped each other — namely are accumulated —, a line will be changed from a line to a apace. We call such kind of a space as a "business economic zone". Namely, nevertheless the "business network" is only in a line, that line transfer from a line to a space through the conduits.

Chapter 2. A change in appearance of network competition — through the great disaster in East Japan —

By the way, competitions among global network are obliged to be broadly changed by the great disaster in East Japan. We will observe the situation on the national level and local level.

(1) On national level

According to the report (Note 1) — which has been researched by METI (Ministry of Economy, Trade and Industry) — concerning to the damage and influence by this time disaster, the amount of damage was great even focusing on the field of key parts and material industry. For instance the scale of damage by the stop of parts production from this March (2011 year) to this April (ibid) in the field of semi conductor would be 40 trillion Yen in the world.

There would be two kind of reactions — we will call such kind of reaction as the "substitution problem" — owing to this great damage. First substitution is the demand side substitution and second substitution is the supply side substitution.

Firstly we are going to study the former. The most serious problem is the substitution from user side especially semi conductor user. For instance U.S. company Apple has been obliged to substitute from Japanese supplier to another countries supplier. Not only semi conductor user, but also automobile user are careful to the supply of Japanese semi conductor which are very excellent parts in nomal condition.

Secondly we will try to the latter namely the supply side substitution. From the study of US Broking Institute, there are many companies in new emerged countries especially in Korea and China which are eager to substitute from Japanese companies to emerged companies even in the field of production of parts and materials concerning high technology in this chance.

As already saying, there are rapid flow of overseas investment by Japanese company to wrestle with foreign companies especially new emerged countries companies. Then, if new trend of substitution consisted from two kind of substitution mentioned above has combined to existing rapid flow of overseas investment by Japanese companies, the 'vacuum problem in Japan will emerge in near future. It is no need to say that such kind of vacuum problem will be accelerated not only by substitution problem but also by other problems == namely the energy shortage owing to East district disaster and yen-valuation on the back ground of European and U.S.A. financial crises

(2) On local level — Focusing on Niigata prefecture

There is no exception in Niigata prefecture concerning on the damage of great disaster in East Japan. According on the report of Hokugin (Note 2), the index of DY (Diffusion Index) dropped 44.6 pint on April-June in 2011 comparing on same term in 2010.

It is noticeable that the damage of manufacturing has accepted most biggest damage comparing another industries. The ratio of decrease has reached to 49.6% on April-June in 2011 comparing on same term in 2010. It is noticeable that such kind of decrease in manufacturing has concentrated on small business in which business are consisted on under 300 employees, too.

(Note 1) Refer to Nihonkeizai Shinbun April 9 th, 2011

(Note 2) Refer to Hokugin Keizai Kenkyusyo; "Emergent Report:The damage on companies in Niigata prefecture by the great disaster in East Japan" [April 14 th, 2011]

Chapter 3. The business economic zone in North East Asia and FTA (Free Trade Agreement/TPP (Trans-Pacific-Partnership)

Mentioned above, Japan is now at a crossroad on which crossroad Japan would be defeated in the competition of global networks being accelerated by the damage through the earthquake disaster in East Japan or, at another crossroad on which crossroad Japan would be recover the competitiveness in the competition of global networks being strengthened through the recovery of Japanese industries — especially the recovery of excessive parts and materials being supplied by "supply chain" — from the damage through the earthquake disaster in East Japan.

By the way, we should not forget that Japan is now at another kind of crossroad namely in

Asian Pacific. Because we are facing at a crossroad on which crossroad Japan should adopt the creation of "North East Asian business economic zone" namely FTA in North East Asia, or on which crossroad Japan has to attend to 'TPP.

There are two pre-conditions — the characteristics of geo-politics in North East Asia and the relationship between inner-development of Japanese local districts and globalization — just before we begin to study these problems. Then we should take up two pre-conditions just before we begin to study these problems.

(1) The characteristics of the geo-politics in North East Asia.

① North East Asia in regional strata

We consider the characteristics of geo-politics in North East Asia as follows. North East Asia has the position of core center in two concentricities consisting of the "Pan-Asian business economic zone including India" and of the "North Pacific business economic zone including U.S.A." while North Esat Asia has the position of core center of the "North East Asian business economic zone consisting of Japan, South Korea, North Korea, Mongolia, North East district in China and Far East/Siberian district in Russia".

② The characteristics of North East Asia and Japanese local districts

The geo-politics in North East Asia mentioned above is decisive factor on the consideration of the "inner development of Japanese local districts under globalization". Because the characteristics of accumulation is needed in the development of Japanese local districts, too.

Japanese local districts needs three kinds of business economic zone. Firstly they need "economic and social zones to improve their communities". Secondly they need "broad local economic zones to develop their industries and clusters". Thirdly they need "North East Asian economic zones to develop their international division of labour".

It is noticeable to observe the characteristics of accumulation even in the relation of these three local business economic zones.

we can say that such kind of accumulation support not only the role of core center in concentricities mentioned above but also promote the development of Japanese local development accompanying with the globalization of local districts in Japan.

(2) The stratum approach toward the business economic zone in North East Asia — focusing on FTA/TPP —

What is the stratum approach ? Just before approach this concept, we have to review key concepts. Firstly from the viewpoint of the geography, concerning to the "business economic zone", we recognized this concept as the concept that it is emerged in the case of the formation

— namely from the "line" to the "space"— of the "business network". Secondly, North East Asian economic zone as one of business economic zones in Asia has three kinds of strata. First stratum is its position as the center of the "Pan-Asian business economic zone". Second stratum is its position as the center of the "Pan-Pacific business economic zone". Third stratum is its position as the center of the "inner cooperation of local districts in Japan toward globalization".

Secondly from the viewpoint of political economy, there are some issues in three strata. For instance, on the level of first stratum namely on the level of the "Pan-Asia zone", there are many FTA(Free Trade Agreement) problems. If there is no "North East Asian initiatives"— especially initiatives by China, Japan and South Korea —, there will be severe confusion(Note 1).

Concerning to the level of second stratum namely on the level of the "Pan-Pacific zone", there is a strong pressure by U.S.A. on North East Asian countries — especially on Japan which don't principally approve the import of agriculture products including rice even now — to promote TPP. But as well-known, nevertheless there is no contradiction from the viewpoint of geography mentioned above, North East Asian countries — especially Japan which has unbelievability with the liberalization of agriculture goods including rice — don't agree with TPP yet.

Related to the Third level namely on the level of the spontaneous cooperation of local districts toward globalization in Japan, Japanese people especially in local districts are very nervous against the emergences of Asian new companies which are condemned as rivals eager to acquire the market of Japanese goods especially manufacturing goods in the world especially in the Asia. There are two possibility in the competitiveness of Japanese manufacturing goods as already mentioned above. One possibility is pessimistic possibility (Note 2). Another possibility is optimistic one (Note 3).

If Japanese people are able to be successful in combination of excellent parts and materials supplying supported with "supply chain" to the Third stratum position in the North East Asian business economic zone, we can expect a optimistic possibility. It is no needs to say that we expect such a kind of optimistic possibility as possible as just after the earthquake disaster in East Japan. Because we need the co-existence of the revival of Japanese economy and the spontaneous development of Japanese local economy.

But unfortunately if we fail to grip such a lucky combination — namely we cannot combine the "supply chain" with the formation of inner cooperation of local districts to globalize Japanese local industries in North East Asian zone"—, our Asian rivals especially Chinese companies, Korean companies and Taiwanese companies will get manufacturing market including excellent parts and materials in Asia.

Then we will envisage a scenario of optimistic possibility as the strata strategy against a pessimistic possibility as follows (See Chart 3-1)

Chart 3-1　The strata strategy in Asian business economic zones

Conduit / Business Network	Ⅰ	Ⅱ	Ⅲ	Ⅳ	Ⅴ	Ⅵ	Business Economic Zone
Global Network		(Supply		Chain) →			FTA/TPP Business Economic Zone ↑ stratum relationship (geographic stratum) ↓ North East Asian Business Economic Zone
National Network							↑ stratum relationship (geographic and spontaneous stratum) ↓ National Business Economic Zone
Local Network							↑ stratum relationship (spontaneous stratum) ↓ Local Business Economic Zone

(Note) Ⅰ. The "conduit of energy·materials·provisions"
Ⅱ. The "conduit of goods"
Ⅲ. The "conduit of man power"
Ⅳ. The "environmental conduit"
Ⅴ. The "conduit of information"
Ⅵ. The "conduit of money"

(Note 1) We call such kind of confusion as "spaghetti ball" phenomenon.

(Note 2) Related to a pessimistic possibility, There is a prediction of Japanese substantial growth rate decreasing from 1% in 2011 to 0% in 2015 because of the vicious cycle of the hollowing of Japanese economy (See Nihonkeizai Shinbun June 6 th, 2011)

(Note 3) Reversely, there is a prediction of Japanese GDP level expanding from present level to +4% in 2030 owing to the supplying chain (See Nihonkeizai Shinbun June 4 th, 2011).