

International Symposium
“Seeking a new balance in the regional integration of the Asia-Pacific region”

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Japan Economic Foundation (JEF) / Taiwan Institute of Economic Research (TIER)

Session 1:

Role of regional integration in ensuring stable supply of resources (energy, minerals, food, etc.), parts and industrial materials. *How can regional integration contribute to ensuring stable supply of resources, including the issue to recover the parts supply chain disrupted by the Great East Japan Earthquake?*

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A. Historical background to trade and the global value-chain

In trade, as in most other economic undertakings, an activity will be undertaken if the benefits are greater than the corresponding costs.

One of the primary challenges to conquer in trade is “geographic space.” Hence, the importance of transport costs and conditions. Thus, when travel was still extremely difficult, dangerous, and expensive, trade was limited to the very expensive goods—mostly luxury items such as silk and exotic produce such as spices. Only high-priced items could offer enough returns to be worth the risk of travel.

With revolution in transportation, however, it became possible to trade in commodities—low-cost items traded in high volume.

Then came the revolution in industrial production—when convergence of technological advancements led to factories which were able to exploit economies of scale. This was followed by the revolution in manufacturing processes, when a particular product can be broken down into its smallest component parts and the production of these parts parceled out to the most efficient locations in the world, thus paving the way for the globalization of supply chains. Of course, this could not have been attained without parallel reduction and, in some cases, elimination of trade barriers across countries.

As further efficiency improvements were sought, the revolution in management systems ensued. Sophisticated management systems, often requiring application of information technology, made it possible for discrete production processes across the world to be synchronized and for the parts and components to be delivered in the factories that need them at the exact time when they are needed. The result was huge savings in inventory

carrying costs. The global supply-chain has progressed from interdependence mainly in product inputs and outputs—with inventories to serve as buffers against disruptions and inefficiencies; to interdependence of schedules and processes, allowing for “just-in-time” deliveries and production.

B. Responding to supply disruptions: moving back to “just-in-case” situations?

Increasingly vicious disasters have however opened discussions on how to respond to these “just-in-case” situations. Traditional options can be generalized into two: (1) consolidate production in a single location, in order to minimize the risks or (2) maintain dispersed sourcing locations but keep higher inventory levels as a buffer in case of supply-chain disruptions.

The first alternative actually does not minimize risks—rather, it only localizes risks. Depending on how an organization then responds to localized risks, the possibility for disruptions can either be lessened or amplified. What is certain, however, is that forcing production to consolidate in a single location, while possibly gaining from economies of scale, can prevent realization of efficiency gains from the interaction of both specialization and scale. The second alternative, on the other hand, will certainly lead to higher inventory carrying costs.

Both approaches clearly present supply disruption and efficiency as a trade-off.

C. Four nuances of the session topic: Regional integration and stable supply of resources and industrial parts

One must elaborate on the nuances of the relationship between regional integration and stability of supply of resources and industrial parts, as presented in the current Session’s title. There are four nuances, as follows:

(1) The possible contribution of regional integration.

Regional integration should not refer only to government-led, policy-driven approaches. Rather, it should necessarily encompass cooperation schemes between and among businesses and communities.

(2) The achievement of stable supply.

It is important to emphasize that **stability** of supply refers not only to times of supply **shortage** but also to times of **glut** or **excess**. That, for purposes of efficiency, a long-term stable correspondence between the supply and demand of any product or service would be superior to intermittent periods of either shortage or glut. For certain types of businesses, periods of glut can ruin their viability; while especially for non-renewable resources, supply glut means wasted resources.

(3) The supply of resources (energy, minerals, food) and parts and industrial materials.

In terms of supply disruptions, there is a need to differentiate between resources and industrial parts and components. The nature of disruption would be different for the two.

Resources are typically geography-specific. Thus, when it comes to sourcing, this translates to a tension between (1) enlarging the geographic area for sourcing (as different locations can enhance diversity and complementarities of natural resources) and (2) the associated cost of transporting resources. Developing supply sources for natural resources will be, to a significant extent, limited by resource endowments and geographic considerations.

On the other hand, parts and components sourcing can be more deliberately influenced by a company's global investment decisions and less influenced, relatively, by geographic factors.

And, perhaps more important, the discussion of resources should not exclude the most critical resource of all—human resources, i.e. *how to ensure the stable supply of skills during times of and after disasters*. This is especially critical as on-site skills may have to face the challenges of the disaster not only on their workplace but also on their families and communities.

(4) The context of disasters.

Indeed, the world is seeing disasters that it has not seen before. However, it is actually difficult to imagine a “first-of-a-kind” type of disaster. Most likely, the “never-before-seen” description refers to the severity and not the nature of the “disaster.”

But even this may have to be refined further. It is possible that these disasters have happened before (i.e. within the past couple of generations) but their impact may have not been as severe because of physical and socio-economic conditions were different. For instance, geographic areas were less densely populated.

D. Four main points for consideration

There are a variety of ways that stable supply can be promoted in the aftermath of a disaster. However, as a criterion, the option that at least preserves (or even enhances) efficiency gains must be considered. And this is where solutions based on enhanced regional integration are superior.

Supply chain disruptions happen not because the global production system has become too integrated. On the contrary, disruptions occur because the Asia-Pacific region has not integrated enough. The solution is not to localize but to further globalize.

Concretely, this refers to the need to further globalize in the following terms:

- (1) Production systems may have globalized, but business outlooks and appreciation of risks have not. In a truly global system, an industrial buyer in Mexico should also internalize (i.e. partly own) the risks faced by a manufacturer in Japan. This can be concretized by developing regional insurance mechanisms for risk-sharing.
- (2) There is a need for a regional approach to disaster recovery plans. Recognizing that in a complex system, “fortunes” are interlinked, the Asia-Pacific region should strive to have more business-to-business exchanges and cooperation schemes for disaster-preparedness—not only within given localities but across countries, within

defined supply chain systems. This should be concretized, in turn, with a tangible plan of action reflecting cross-boundary and cross-business disaster recovery plans. The real difficulty with supply chain disruptions is not that a disaster occurred, but that there was no plan of action to deal with such a disaster.

- (3) Third, there must be cooperation in learning more about disasters. Especially as disasters now are increasingly becoming more severe, knowledge sharing is very important to expand bodies of knowledge across geographies, cultures, and historical periods. What people may not have seen in their present lifetime may have occurred in some other area previously. In terms of supply chain disruptions, the objective is to update definitions of disasters in the broadest practicable terms. This may require huge resources and will thus necessitate regional cooperation to be cost-effective.
- (4) Lastly, in terms of regional integration, regions are nearing the limits of what policy action at the level of governments can achieve. As regional integration frameworks are being set in place, regional business-to-business and business-to-community cooperation must not be forgotten.

Within businesses, countries should also allow production to migrate naturally to where resource and skills advantages dictate. In wanting to protect certain portions of the value-chain and retain these beyond what is economical based on market conditions, critical bottlenecks develop in the global supply-chain. When these bottlenecks are freed, then countries can truly move from having sequential supply-chains towards inter-linked supply-networks. This will be most efficient way to prevent supply disruptions.

There are two important lessons derived from looking at disasters and supply disruptions. Disruptions occur during or after disasters not because the economic system has integrated BUT because (1) it has not integrated enough; and (2) there was no viable regional disaster recovery plan of action.

As a point to consider in the future, disaster (and the need to ensure stable supply in their aftermath) may also provide inputs for defining geographic boundaries of regional integration arrangements. Just as socio-cultural (e.g. linguistic patterns, shared histories) and market opportunities and efficiency goals provide incentives for countries and economies to aggregate and pursue integration; similarities of the types of disasters that occur in geographic areas may provide a natural way for country-aggregation as member-countries would understand each others' risk-situations better and possibly cooperate more effectively.