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Establishing Reliable Supply Chains: A Key Role for APEC to Play

By Aekapol Chongvilaivan

Since the endorsement of the Asia-Pacific Economic Cooperation (APEC) Supply Chain Connectivity Initiative in Yokohama, Japan in 2010, collaborative actions to enhance the efficiency and reliability of global supply chains involving APEC economies have been central to discussions at APEC Ministerial Meetings and other related gatherings. The framework expresses the common understanding among member economies that global networks of production are susceptible to rapid and dramatic changes.

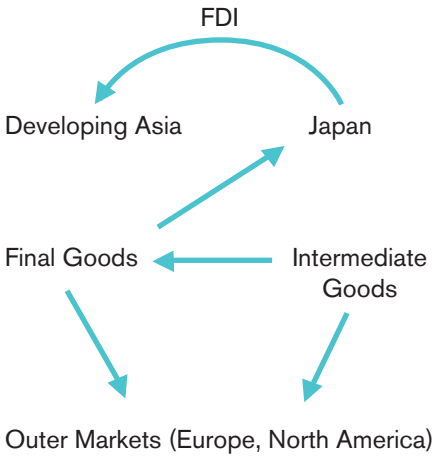
The issue of reliable supply chains is now among the international body's most pressing priorities and was regarded as "the next generation trade issues" at the 2012 APEC Ministerial Meeting in Russia. The APEC Transportation Ministerial Meeting in St. Petersburg, for example, accepted the objective of the APEC Supply Chain Connectivity Initiative to improve the flow of goods and services within the APEC region by 10 percent by 2015 in terms of reduced time, cost, and uncertainty.

The APEC Policy Support Unit estimates that a 10 percent increase in supply chain efficiency would bolster APEC's real GDP by US$21 billion per year. Some progress has been made so far in enhancing supply chain efficiency. In particular, a set of "chokepoints" – barriers and impediments to trade and services, which make economic functions more expensive than they need to be – has been identified, including the lack of awareness regarding regulatory issues among government agencies, variations in cross-border standards, and the lack of cross-border customs-transit arrangements. Several innovative measures have also been jointly explored by the member economies, such as the diversification of supply chain routes across all modes, and the establishment of a logistics information service network, among others.

SUPPLY CHAIN CONNECTIVITY IN APEC ECONOMIES

Proliferation of production networks is central to the debate on industrialisation and the rapidly changing international trade patterns in Asia and the Pacific because regional supply chains have made credited for making it possible for developed and developing economies to flourish on cross-border economic synergies. On the one hand, developing economies have been able to get into high value-added manufacturing activities and accelerate the industrialisation process even though they do not have a comparative advantage in capital-intensive production. Developed economies, on the other hand, stand to gain from lower production costs and higher competitiveness through vertical specialisation and economies of scale by contracting out some production activities.

Figure 1: Supply Chain Connectivity in Asia and the Pacific



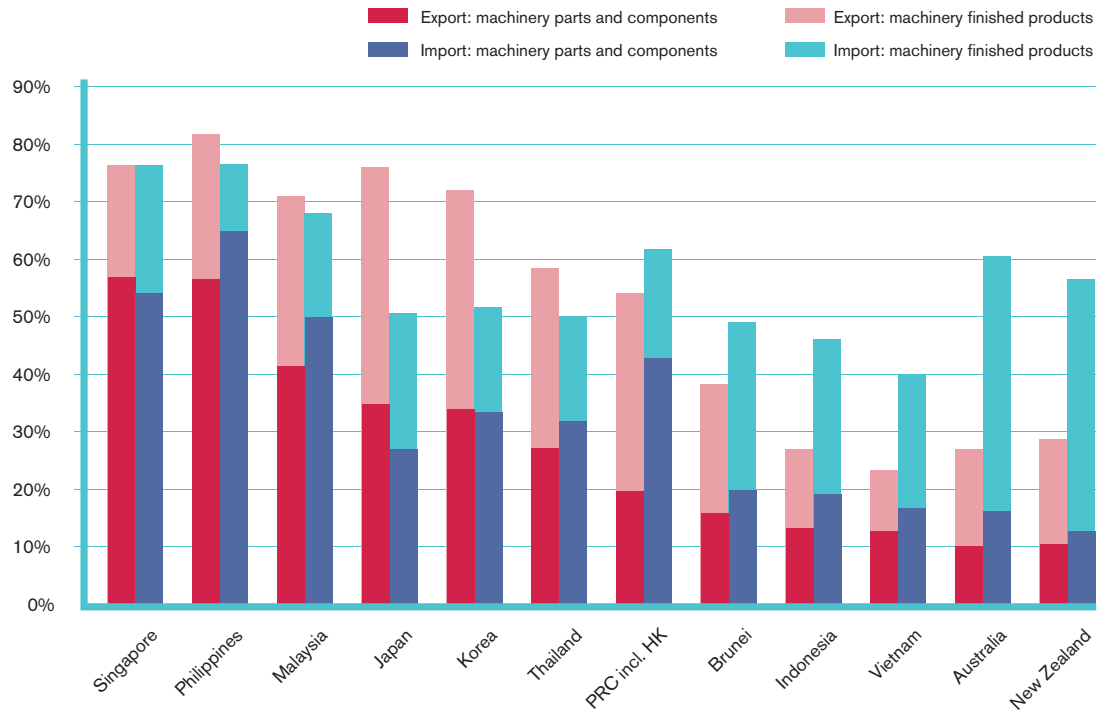
Source: Masahisa Fujita and Nobuaki Hamaguchi (2012), "Japan and Economic Integration in East Asia: Post-disaster Scenario", Annals of Regional Science, Vol. 48, No. 2, pp. 485-500.

Figure 1 describes how supply chains serve as a nexus of trade and investment in Asia and the Pacific. Firms across regions and countries are linked through vertical intra-industry specialization whereby capital-intensive intermediate parts and components are produced in advanced economies like Japan, Korea and the United States, while developing countries such as China, Malaysia, Indonesia, Thailand, and Vietnam tap on imports of key intermediate parts and components and specialise on labour-intensive assembly and provision through foreign affiliates and multinational firms. Final goods are then re-exported to outer markets. With this pattern of regional supply chains, firms in the region are vertically interrelated through trade flows of parts and components.

To clarify this further, *Figure 2* portrays the export and import shares of machinery parts and components in selected APEC member countries. It can be observed that trade in parts and components takes up a significant proportion of international trade, both exports and imports, particularly in Singapore, the Philippines, Malaysia, Japan, Korea,

Thailand, and China. The dominant role of trade in parts and components demonstrates that regional supply chains have been a key engine of international trade in Asia and the Pacific.

Figure 2: Shares of Machinery Exports and Imports, 2007.



Source: Fukunari Kimura and Ayako Obashi (2011), "Production Networks in East Asia: What We Know So Far", ADBI Working Papers No. 320, Asian Development Bank Institute.

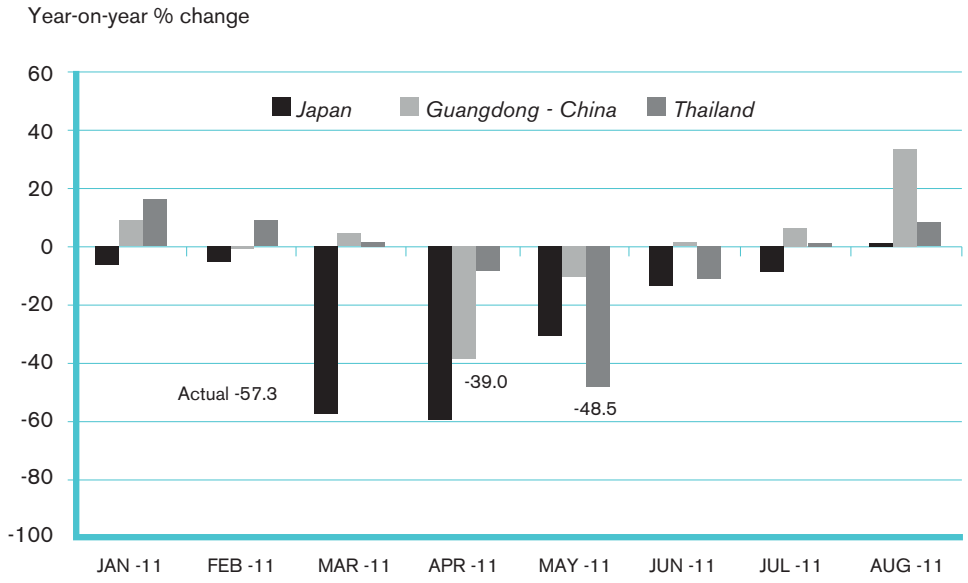
EMERGING VULNERABILITIES

In 2012, the focus of the APEC Supply Chain Connectivity Initiative has clearly shifted towards the reliability of the supply chains in the APEC region. This is attributable principally to a series of natural disasters that brought the supply chains in the region to a halt, especially Japan's 9.0-magnitude earthquakes in March 2011 and, more recently, Thailand's unprecedented floods in the last quarter of 2011. Now that regional trade and business operations have been by and large dominated by trade in parts and components through the regional supply chains, the emerging vulnerabilities may undermine efficiency and sustainability of supply chains and, ultimately, mutual attempts to achieve the Bogor Goals by 2020.

Figure 3 demonstrates the vulnerabilities of supply chains in the APEC region by showing growth rates of automobile production in Japan, China's Guangdong Province, and Thailand during Japan's massive earthquakes in 2011. It can be observed that the natural disasters translated into a sharp slowdown of automotive production in Guangdong

Province and Thailand in April-June 2011, as hindered exports of automotive parts and components from Japan forced assembly lines located in major industrial parks in its trading-partner countries to shut down operations. As shown in the figure, the earthquakes slashed car assembly, as well as export capacity, by 39 percent for Guangdong-China in April and 48.5 percent for Thailand in May, mainly because the lean inventory of automotive parts allows normal operations to last for only three days. The knock-on effects on Japan's trading partners underline that any delay in transportation and resumption would result in losses in trade and outputs not only for the event economy, but also its trading partners.

Figure 3: Monthly Change of Automobile Production in Japan, Guangdong, and Thailand.



Source: Masahisa Fujita and Nobuaki Hamaguchi (2012), "Japan and Economic Integration in East Asia: Post-disaster Scenario", Annals of Regional Science, Vol. 48, No. 2, pp. 485-500.

APEC'S EXISTING INITIATIVES

The issues of supply chain security and restoration of regional trade during high-impact events are not entirely new to the APEC platform. In 2006, APEC Senior Officials and Leaders endorsed the APEC Trade Recovery Program (TRP) – an initiative that aims to establish "principles and guidelines that will facilitate the restoration of trade among APEC economies as rapidly as possible after a terrorist attack and provides actions that will facilitate trust and confidence in the process".[1] At the Special APEC Transportation Ministerial Meeting in 2012, the APEC Counter-Terrorism Task Force, together with the APEC Transportation Working Group (TPTWG), kicked off the TRP to ensure that trade flows in the region can be restored as quickly as possible in the event of major disruptions.

1 APEC Secretariat (2008), APEC Trade Recovery Program, Singapore: APEC Secretariat.

The measures pertain to the development of communication mechanisms through which governments and businesses can share information during periods when transportation systems are interrupted by disasters. The APEC Transportation Ministers also envisaged opportunities for diversification of transportation routes and modes so as to manage and reduce risks.

To date, most of the efforts to enhance supply chain security weighed in on the prevention of terrorist attacks, leaving many other threats in the past in terms of natural disasters and outbreaks not properly addressed under the TRP. Before Japan's massive earthquakes and Thailand's floods in 2011, supply chain disruptions had earlier included the drastic earthquake in Taiwan in March 2000, the outbreak of the SARS epidemic in southern China in 2002-2003, the Great Hanshin-Awaji Earthquake of 1995, and the Chuetsu Offshore earthquake of 2007 in Japan. More importantly, the focus of the TRP is largely on post-incident measures for facilitating trade recovery but does not deal with pre-emptive measures that essentially equip businesses and governments with capabilities of managing supply chain disruptions.

BUILDING UP RESILIENT SUPPLY CHAINS

Notwithstanding these joint attempts in addressing supply chain uncertainties, there remains large room for the APEC Supply Chain Connectivity Initiative to improve supply chain connectivity among APEC economies that are more resilient to disruptions and allow them to thrive on the burgeoning trade and business opportunities of the region. There are at least three avenues in which the Initiative can do this.

Vulnerability Assessment and Awareness

Companies need to increase their awareness of supply chain disruptions and make that the most fundamental aspect of their corporate culture and management mindsets. Although much evidence points to the deterioration of long-term performance in the aftermath of disruptions in terms of diminishing stock prices, losses of market shares, and lower likelihood to survive; realizing the risks of supply chain breakdowns is easier said than done. Most entrepreneurs and even governments have not been fully aware of the escalating disruption risks associated with the just-in-time procurement policy and continue to put excessive emphasis on enhancing efficiency improvement through lean operations, industrial clustering, and economies of scale. Without appropriate identification of risk sources and without having business continuity plans in hand, a company tends to fail to systematically and quickly respond to disruptions and will ultimately incur more damages than would have been inflicted otherwise.

The APEC Supply Chain Connectivity Framework should expand its function making sharing risk assessment and awareness the best practice of supply chains. This will encourage businesses and governments to systematically assess risks, take pre-emptive

actions, and prepare preventive measures to effectively cope with supply chain disruptions. In addition, cutting-edge technologies advocated by APEC Business Advisory Council (ABAC), such as GLONASS, GPS, and integrated satellite navigation systems, offer more impetus for information sharing and risk assessment and hence their use must go beyond enhancing supply chain efficiency and reducing transportation costs.

Enlarging Redundancy in Supply Chains

Redundancy in the procurement policy of supply chains is equally imperative. There are two aspects of redundancy in supply chains – redundant inventory and redundant suppliers. The former offers a shock absorber for companies while the latter helps diversify the risks that a breakdown in delivery by one supplier will halt entire operations. Strategies that bolster redundancy of supply chains include larger inventory stockpiles, multiple-sourcing strategies, backup production sites, and product designs that advocate compatibility with supplies from various sources, among many others.

The APEC Supply Chain Connectivity Initiative needs to facilitate greater redundancy through reducing dependence on a single supplier and through spreading production sites and transportation routes throughout the region. However, it is equally important to realize that the dispersion forces fortified by procurement redundancy are subject to trade-offs between lower disruption risks and higher costs in terms of holding outlays, transaction-specific investment and operational inefficiencies; and therefore can only be implemented with limitations.

Strengthening Flexibility

An area that allows vertical specialization and input procurement to proliferate but that has as yet not been sufficiently emphasized is the building up of flexibility – the capabilities to forestall uncertainties and respond to them quickly through reliable and timely information about the potential disruptions and their consequences. This will boost a company's vertical relationship with its partners and allow for quick and effective information exchange and coordination among counterparts.

The APEC Supply Chain Connectivity Initiative needs to promote flexibility of procurement in supply chains within the private sector. Flexibility of procurement implies developing and aligning the corporate-supplier relationship, where both single- and multiple-sourcing policies are concerned. Several initiatives can help deepen the vertical relationship, such as investment in monitoring systems, improving exchange of information and, not least, the mutually agreed Business Continuity Planning (BCP).

CONCLUSIONS

The substantial impact that supply chain disruptions on industrial production has had across APEC economies not only demonstrates how the APEC region has become central to global production networks, but also re-affirms that building up reliable supply chains serves as a pivot for enhancing competitive advantages. Since supply chains are being prevalently, costs due to the anticipation of increasingly drastic natural and man-made disasters, on top of ever-expanding competitive pressure on industrial agglomeration and clustering, are bound to become heavier. Therefore, all effort must be made to enhance the APEC Supply Chain Connectivity Initiative to build up a well-functioning supply chain system in which regional growth and trade in goods and services flourish on reliable and cost-effective transportation.

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