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AIC COMMENTARY

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Assessing Supply Chain Resilience between ASEAN and India[#]

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The global supply chain has been affected by COVID-19 pandemic. Countries have been looking for resilient and long-term value chains as well as improving supply chain linkages. In this regard, this commentary examines the possible value chain linkages between ASEAN and India, and discusses how resilient their supply chains are to cope with the future shocks, and the way forward toward achieving the goal of sustainable value chain linkages.

1. Introduction

The global supply chain has been affected by COVID-19. Countries have been attempting to improve supply chain linkages as well as searching for resilient and long-term value chains. Countries are interconnected and depend on other countries for production inputs leading to exports. The Covid-19 and subsequent trade (protection) measures have led to restricting the flow of goods and services between the countries. Today, value chain and intra-industry trade account for more than half of Asia's trade.¹ The pandemic is also seen as an opportunity to rebuild trade partnership and supply chain linkages. Supply chains need to be smarter, more sensitive, flexible, and technically viable and resilient enough to move towards the sustainable value chain integration. In view of the above, this commentary investigates current and potential value chain linkages between ASEAN and India and attempts to answer how supply chain resilient they are to mitigate the future shocks and discusses the way forward towards achieving sustainable value chain integration between ASEAN and India.

2. Trends in Value Chain Linkages between ASEAN and India

The strength of value chain linkages between two trade partners can be judged based on the volume of trade in parts and components (P&C). India implemented the ASEAN-India FTA in 2010. Since then, India's exports of P&C to ASEAN have increased by at an annual average growth of 6.3 per cent (US\$ 2.71 billion in 2020) between 2010 and 2020 (see Table 1). Among

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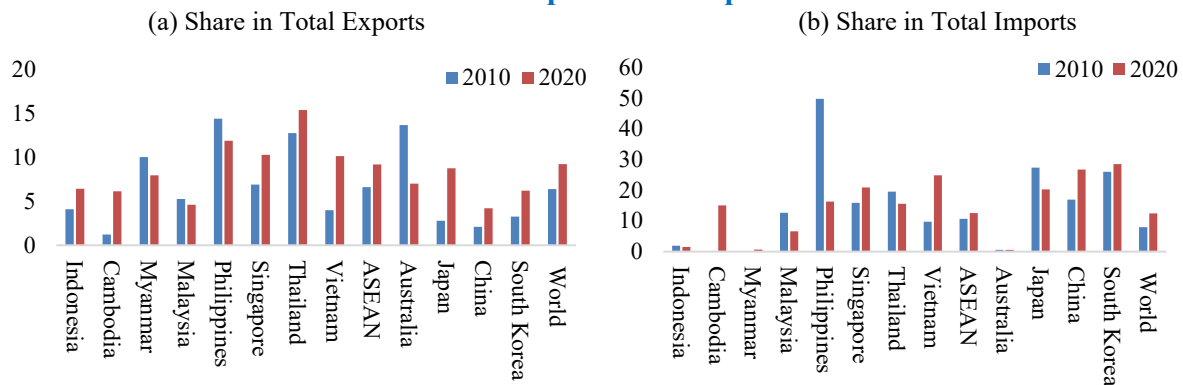
the ASEAN countries, India's exports of P&C are majorly directed to Vietnam (US\$ 455.4 million), Thailand (US\$ 579.4 million), Singapore (US\$ 852.3 million), Indonesia (US\$ 278.9 million) and Malaysia (US\$ 285.2 million) in 2020. India's exports of P&C have increased by 9 to 10 per cent with Japan (US\$ 353.2 million), South Korea (US\$ 280.5 million) and China (US\$ 799 million) between 2010 and 2020. India's major export destinations, in terms of share of exports of P&C in total exports, are Vietnam, Thailand, the Philippines, Singapore and Myanmar, respectively in 2020 (see Figure 1a).

Table 1. Trends of India's Trade in Parts and Components (P&C)

	India's Exports of Parts and Components			India's Imports of Parts and Components		
	2010	2020	CAGR 2010-2020	2010	2020	CAGR 2010-2020
	Value (US\$ Million)			Value (US\$ Million)		
Indonesia	186.4	278.9	4.1	187.4	180.6	-0.4
Cambodia	0.7	8.8	28.0	0.0	5.7	111.0
Myanmar	27.3	66.4	9.3	0.4	3.9	26.3
Malaysia	186.5	285.2	4.3	751.3	486.8	-4.2
Philippines	114.8	167.7	3.9	194.8	82.4	-8.2
Singapore	577.0	852.3	4.0	1144.7	2565.3	8.4
Thailand	272.0	579.4	7.9	763.9	811.5	0.6
Vietnam	98.7	455.4	16.5	96.6	1379.3	30.5
ASEAN	1465.0	2710.1	6.3	3139.4	5516.3	5.8
Australia	224.3	243.1	0.8	64.8	42.3	-4.2
Japan	132.4	353.2	10.3	2193.6	2041.0	-0.7
China	366.7	799.0	8.1	6457.6	15652.9	9.3
South Korea	118.1	280.5	9.0	2460.9	3454.0	3.4
World	13816.5	25361.5	6.3	27336.3	45414.1	5.2

Source: Author's own based on WITS Database

Figure 1: Share of India's Exports and Imports of Parts and Components in Total Exports and Imports

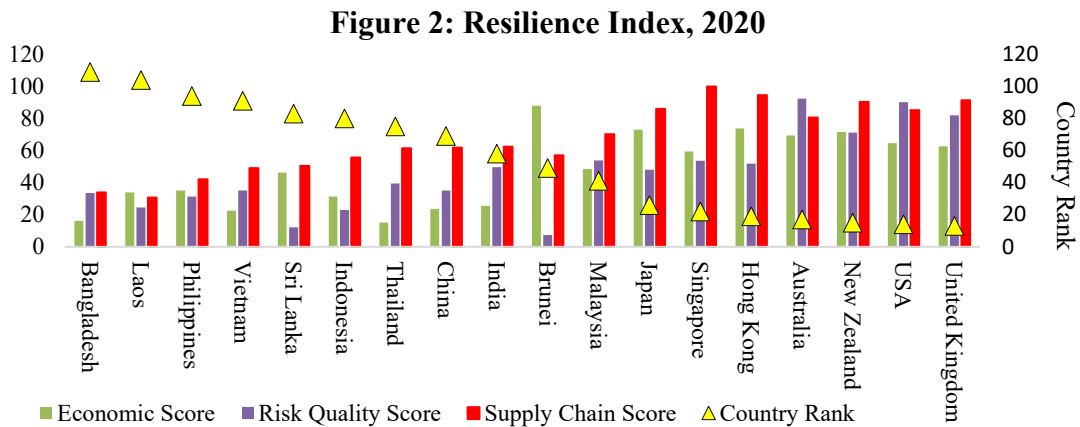


Source: Author's own based on WITS Database

In the case of India’s imports of P&C from ASEAN, it has increased by about 5.8 per cent (US\$ 5.51 billion in 2020) between 2010 and 2020 (see Table 1). Among the ASEAN countries, India’s imports of P&C from Vietnam (US\$ 1379.5 million in 2020) have significantly increased by about 30.4 per cent between 2010 and 2020. India's major source of P&C is China. In 2020, India has imported US\$ 15.5 billion worth of P&C from China (annualized growth rate of about 9.3 per cent between 2010 and 2020). In terms of the share of imports of P&C in total imports, India's major sources of imports are most of the ASEAN countries, China, Japan and South Korea.

3. Moving towards Sustainable Value Chain

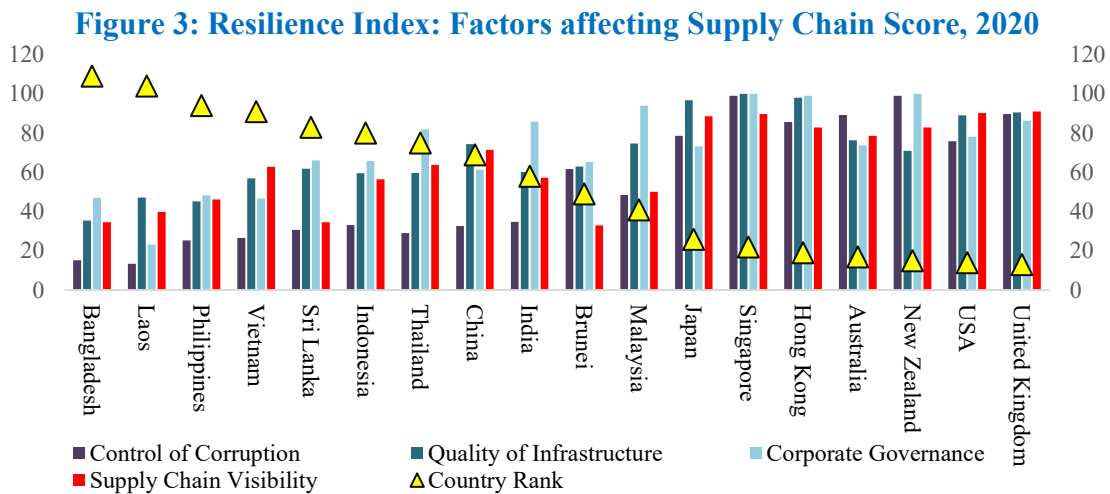
The world has experienced several setbacks in the past in terms of supply chain disruptions and the COVID-19 pandemic is the recent one. Japan experienced a massive earthquake and tsunami in 2011, which had forced to shut down factories that manufacture electronic parts for automobiles, thereby disrupted the assembly lines all over the world. Similarly, the recent episode of flooding in Thailand has affected the computer assembly lines.² Countries have been learning from the past and putting an effort to be more resilient towards the shocks. However, due to lack of quality infrastructure, and other institutional barriers some of the ASEAN countries are still subject to lower resilience (less than 50) in terms of supply chain and risk assessment than India, Malaysia, and Singapore (see Figure 2). Thailand, India, and China ranked above 62 in terms of supply chain resilience, which underscores the need for improvement in resilience.



Note: The FM Global Resilience Index is an equally weighted composite measure of three core resilience factors: economic, risk quality and the supply chain itself. Each factor is comprised of four core drivers. Scores are bound on a scale of 0 to 100 with 0 representing the lowest resilience and 100 being the highest resilience. Use the buttons to select the factor and associated driver scores.
 Source: FM Global Resilience Index

In order to facilitate trade and value chain integration, most countries have given significant weight to the supply chain resilience factor, among other things. Controlling corruption is one of the major challenges that most ASEAN countries and India face when it comes to supply chain

ranking (see Figure 3). To improve the regional and global value chains, both ASEAN and India have extended a priority on infrastructure efficiency and supply chain visibility.



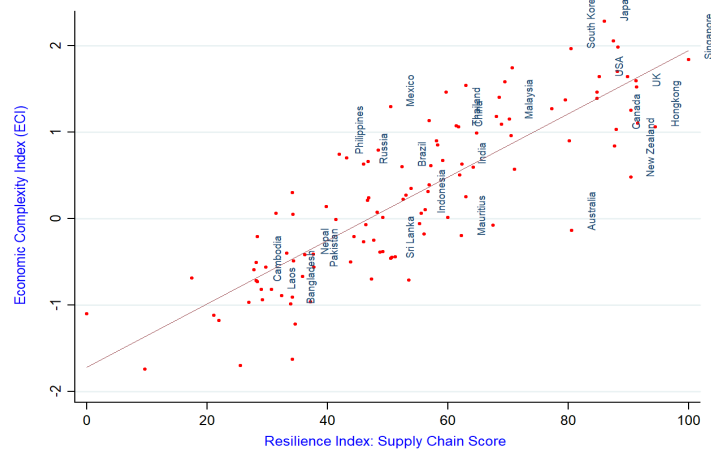
Source: FM Global Resilience Index

The recent supply chain disruption caused by a massive container vessel trapped in the Suez Canal has further impacted global trade, resulting in a loss of approximately US\$ 10 billion in products, production inputs, and consumer goods.³ It is a significant setback for already overburdened supply chains that were getting back on business after the COVID-19 pandemic. A sustainable supply chain is a way forward. To move in this direction, resiliency in supply chains is necessary.

3. How Resilient ASEAN and India with an Export of Complex Product?

ASEAN and India are indifferent transitions in terms of value chain linkages. Depending on whether capital- or knowledge- intensive or labour-intensive or natural resources, the complexity of the value chain linkages is determined. For instance, a group of large MNCs depending on the intensity of product complexity and productive knowledge, have several direct and indirect suppliers through which they buy parts and components for the production processes. Therefore, a large company's entire supplier network can include several thousands of business linkages from all over the world. In this context, Economic Complexity Index (ECI)⁵ captures the amount of productive knowledge and capabilities in an economy. The country with higher ECI indicates that a country can produce and export a wide variety of products (high diversity) and those which are commonly produced by other countries. Higher ECI tends to capture a larger share of the value-added from GVCs. Countries those are engaged in higher complexity of the production process face a huge risk of supply chain disruptions. Therefore, firms should acquire strong supply chain risk mitigation strategy to address the vulnerability in the supply chain operations.⁴

Figure 4. Export Complexity Index vs. Supply Chain Resilient Index



Source: Based on the Observatory of Economic Complexity, MIT and FM Global Resilience Index

Figure 4 shows that in addition to some of the developed countries such as Japan, South Korea, the USA, the UK, ASEAN countries such as Singapore are specialised in innovative GVC activities through intensive R&D activities. Similarly, India, Thailand, and Malaysia which are moving towards advanced manufacturing GVC activities must ensure higher supply chain resilience in terms of engaging in exports of complex products. On the other hand, countries such as Cambodia, Lao PDR and Myanmar having rich natural resources and engaged in limited manufacturing have low supply chain resilience due to lack of quality infrastructure, corruption, and lack of supply chain visibility.⁶

4. Encourage Start-up to Strengthen the Supply Chain Linkages

Through digitizing their supply chains, the COVID-19 has rekindled interest in automation and robotics as a way of minimizing the harm to supply chains caused by restrictions on people movement. Big data analytics can assist companies in streamlining their supplier selection process; cloud computing is increasingly being used to facilitate and manage supplier relationships, and logistics and shipping processes can be significantly enhanced via automation and remote monitoring through the internet of things.⁷

Both ASEAN and India should promote new ideas that might arise from start-ups to meet the emerging challenges in supply chain resilience. For instance, Zetwerk⁸, a Bangalore based startup that connects global companies with manufacturing facilities in India, has raised US\$ 120 million to bolster its technology and expand its customer base. The company connects its small manufacturers with suppliers, logistics providers and banks.⁹ Besides, start-up ecosystem such as future technologies like Artificial Intelligence (AI), Blockchain, Augmented Reality/Virtual Reality, Internet of Things (IoT), Robotics would also facilitate the supply chain reliance through the digitalization of supply chain linkages.

5. Digitalisation in Trade Facilitation Measures

The COVID-19 epidemic has forced product and service manufacturers to digitalize their operations. There is a clear link between country internet usage and GVC participation, with approximately 30 per cent of ICT-enabled services embodied in imported inputs, where suppliers and customers frequently interacting through internet-based technologies.¹⁰ As a result, incorporating emerging technology into trade facilitation programmes would aid supply chain improvement. The ASEAN Digital Integration System (ADIF)¹¹ has prioritized the development of dependable physical infrastructure for digital-enabled trade to facilitate seamless trade flows within and across ASEAN. Similarly, India has taken several digital trade facilitation measures¹² that have enhanced trade facilitation significantly. Implementing trade facilitation commitments and improving border management would reduce trade costs between and within ASEAN and India. Strengthening regional value chains between ASEAN and India require an effective way of implementing trade facilitation measures.

6. Concluding Remarks

ASEAN and India may consider engaging in supply chain resilience in the context of strengthening supply chains in the Indo-Pacific region through exploring alternative sources of supply of raw materials and attract investment for sustainable supply chain in the focused areas of the food-processing industry, automobiles, textiles, pharmaceuticals, electrical and electronics. Encouraging digitisation of trade documentation, trade and investment promotion activities, and the identification of sectors for collaboration, engage in multi-stakeholder interactions would help to strengthen supply chain risk management and improve end-to-end transparency to minimize the exposure of supply chain shocks.

Besides, addressing non-tariff barriers and customs cooperation, enhancing air, land and maritime connectivity would facilitate seamless movement of goods between ASEAN countries and India. Both ASEAN and India have to work for re-skilling and upskilling the human resources, and cooperation in R&D would create a stronghold in the supply chain resilience. Besides, ASEAN and India should place a special emphasis on promoting entrepreneurship, facilitating financial access, and providing platforms for MSMEs to explore business opportunities. In addition, they should work together to establish a harmonized customs system, which will strengthen the regional supply chains.

ASEAN and India may devise policies and incentives for multinational corporations (MNCs) to promote local-affiliate manufacturing, local sourcing of parts and components, and technology transfer to local manufacturers, allowing for maximum spillover benefits for supply chain resilience. For instance, the Production-Linked Incentive (PLI) programme launched by India under the 'Atmanirbhar Bharat' or 'Self-Reliant India', aims to improve domestic production while also attracting foreign direct investment. Such incentive worth replicating for strengthening the value chains between ASEAN and India.

Endnotes:

1. Refer, UNESCAP (2018)
2. Refer, for example, McKinsey Global Institute (2020)
3. Refer, for example, Economic Times (2021)
4. Refer, for example, McKinsey Global Institute (2020)
5. Economic development requires the accumulation of productive knowledge and its use in both *more* and *more complex* industries. Harvard Growth Lab's Country Rankings assess the current state of a country's productive knowledge, through the Economic Complexity Index (ECI). Countries improve their ECI by increasing the number and complexity of the products they successfully export.
6. Refer, AIC-RIS (2020)
7. Refer, Baker and Mckenzie (2020)
8. Zetwerk offers its technology platform and project-management help to customers seeking manufacturers for everything from electric-vehicle and aerospace components to luxury apparel
9. Refer, for example, Bloombergquint (2021)
10. Refer, for example, WDR (2020)
11. The ASEAN Digital Integration System (ADIF) was ratified at the 18th ASEAN Economic Community Meeting in Bangkok in October 2019 to promote digital trade.
12. The Trade Facilitation Agreement (TFA) of the WTO aims to improve transparency, increase possibilities to participate in global value chains, and reduce the scope of corruption. It also sets out measures for effective cooperation between customs and other appropriate authorities on trade facilitation and customs compliance issues. Both ASEAN and India have ratified the WTO TFA, where most of the ASEAN countries have bound their commitments in category A, and India has selected both categories A and B.

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About AIC

Considering the work of the ASEAN-India Eminent Persons Group (AIEPG), and its Report with recommendations for forging a closer partnership for peace, progress and shared prosperity, the Heads of the State/Government of ASEAN and India at the ASEAN-India Commemorative Summit 2012, held at New Delhi on 19-20 December 2012, recommended the establishment of ASEAN-India Centre (AIC), which was formally inaugurated by the Hon'ble External Affairs Minister of the Government of India on 21 June 2013 at RIS. AIC serves as a resource centre for ASEAN Member States and India to fill the knowledge gaps that currently limit the opportunities for cooperation. AIC is closely working with the Indo-Pacific Division of the Ministry of External Affairs (MEA), Government of India to undertake and disseminate evidence-based policy research and provide policy recommendations.

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