GATEWAY HOUSE
INDIAN COUNCIL ON GLOBAL RELATIONS

KONRAD ADENAUER STIFTUNG

The Great Supply Chain Shift from China to South Asia?

by **Ganeshan Wignaraja**, Professorial Fellow In Economics and Trade

JULY 2023 | PAPER NO.34

The Great Supply Chain Shift from China to South Asia?

Ganeshan Wignaraja,
Professorial Fellow In Economics and Trade

July 2023 | Paper No.34

GATEWAY HOUSE
INDIAN COUNCIL ON GLOBAL RELATIONS

KONRAD ADENAUER STIFTUNG

Executive

Executive Director: Manjeet Kripalani

Publication

Research Assistant: Kamalaharan Shanmugam
Project Manager: Aliasger Bootwalla
Layout Design: Debarpan Das
Cover Design: Debarpan Das

Gateway House: Indian Council on Global Relations

@GatewayHouseIND

@GatewayHouse.in

@gatewayhouse.in

For more information on how to participate in Gateway House's outreach initiatives, please email outreach@gatewayhouse.in

Printed in India by Airolite Printers

About the Author

Dr. Ganeshan Wignaraja is the Professorial Fellow in Economics and Trade at Gateway House and Senior Research Associate at ODI in London. He holds a visiting appointment at the National University of Singapore and is a Board Member of the Geopolitical Cartographer. He advises the President of Sri Lanka on strategic trade policy and is a member of the Central Bank of Sri Lanka's Stakeholder Engagement Committee on monetary policy and financial stability matters. Previously, he served on the WTO Director-General's Task Force on Aid for Trade during the WTO Doha Round and the Sri Lankan Prime Minister's Task Force on the Indian Ocean.

In a career spanning over 30 years in the UK and Asia, he has held senior roles in international organizations (including the Director of Research at the Asian Development Bank Institute in Tokyo, Chief Programme Officer at the Commonwealth Secretariat in London and a Visiting Scholar at the IMF in Washington DC), government (including Executive Director of the Sri Lankan Foreign Ministry's think tank), and the private sector (including Global Head of Trade and Competitiveness at Maxwell Stamp PLC in London). He also worked at the Institute of Economics and Statistics at Oxford University and the OECD in Paris. Dr. Wignaraja has published extensively on macroeconomics, international trade, regional economic integration and economic development. He has successfully led teams to deliver complex projects for aid agencies and governments in over 30 countries in Asia, Africa, Europe and Latin America.

He has a DPhil in economics from Oxford University and a BSc in economics from the London School of Economics.

Acknowledgements

Thanks are due to comments from Surjit Bhalla, Amita Bhatra, Biswajit Dhar, Cristita Perez, Manjeet Kripalani, Mustafiz Rahman, Consuls General of Mumbai and the other participants at the seminar on global supply chains hosted by Gateway House, Mumbai, and the Konrad Adenhauer Stiftung (KAS), Japan, on 22 March 2023 in Mumbai. KAS also deserves special thanks for funding the Gateway House project. Kamalaharan Shanmugam provided valuable research assistance. The views expressed here are solely mine and not to be attributed to Gateway House or KAS.

Table of Contents

Abstract

China-centric global supply chains, which brought prosperity to East Asia, are changing as MNCs re-assess risks in the post-Covid era. This paper asks the question – is a shift of supply chains from China to South Asia occurring? A careful read of recent data suggests that global supply chains and those in Asia and China faced multiple disruptions and decreased YoY in Q42022. Nonetheless, East Asia and China remains prominent in supply chains as industrial relocation is costly and replication of conditions for sophisticated manufacturing is hard for latecomers. Historically South Asia has had a limited role in global supply chains. But high-profile manufacturing investments by Apple and Mercedes in India suggest that South Asian supply chain pessimism could be changing with India emerging as a complementary supply chain hub in Asia. This development is linked to de-risking strategies of MNCs, growing US-China trade tensions and rapid Indian growth. India can spread the gains regionally though more outward FDI to Bangladesh and Sri Lanka, a Make in South Asia Programme and bilateral FTAs. Outward-oriented development strategies, smart business strategies, and close business-government collaboration are crucial for South Asia while the deployment of industrial policy merits careful study.

1. Introduction

Global supply chains connect world industry and international trade in manufactures. East Asia's dominance with China as the preferred assembly hub in global supply chains has brought unprecedented regional prosperity, but South Asia remains a latecomer. However, pandemic-related and post-pandemic continuing disruptions to supply chains and slowing growth are being keenly felt, dampening China's attractiveness. In an uncertain global economy, increasingly footloose foreign investors are looking for alternative production locations. Is it South Asia's turn to prosper through supply chains in this uncertain world? This is the topical public policy question facing India and the others in South Asia.

This paper discusses the concept of global supply chains, the industrial rise of East Asia, drivers of supply chain relocation from China, South Asia's prospects, India as a complementary hub and policy lessons from East Asia's industrial success. For the purposes of this paper, South Asia is broadly defined as the India and its contiguous countries: Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka.[1]

2. Unpacking Global Supply Chains

Global supply chains have emerged as the leading model of industrial production since the 1980s influencing the pace and nature of globalization and regionalisation. The shift in industrial production from local and regional supply to global supply took place gradually over the last 100 years and is arguably one of the most revolutionary developments in the history of industrialisation. Global supply chains can be found in a wide range of simple industries (e.g., textiles and clothing, food processing and consumer goods) and complex industries (e.g., automotives, aircraft, machinery, electronics and pharmaceuticals).

The academic literature on international trade and industrial organization uses various terms to describe the phenomena of global supply chains with minor differences including global production networks, production fragmentation or global value chains. In essence, they refer to the geographical location of stages of production (such as design, production, assembly, marketing, and service activities (such as distribution, logistics and other related services) in a cost-effective manner.[2] Different production stages are increasingly located across various countries, linked by a complex web of trade in intermediate inputs and final goods. This pattern of international specialization is a long way from the simple textbook idea of a single large vertically-integrated factory situated in a given country.

It is driven by various factors including corporate strategies of multinational corporations (MNCs), technological advances (e.g., trucking and warehouses, shipping containers, computerisation, robotics and miniaturization technologies to name a few important innovations), developments in logistics and trade facilitation, opening up economies to trade and investment flows, the spread of free trade agreements (FTAs) and other trade deals and geopolitical schemes (e.g. China's Belt and Road Initiative and the U.S.' Free and Open Indo-Pacific Strategy).[3] Multilateral groupings like BRICS now recognise supply chains as essential to sustainable development.[4]

There is much still to learn about the complex workings of sophisticated global supply chains. For instance, the role of services in global supply chains are growing in importance but have been underestimated due to serious problems with the availability of services data. Researchers are attempting to study what specific services are important in different parts of supply chains, and whether they are typically provided in-house or outsourced. More attention is also being given in the literature to unpack the role of firm size in global supply chains. Evidence suggests that small and medium enterprises (SMEs) can participate in global supply chains initially as suppliers to large export firms and then graduate to become independent exporters or investors through innovation and learning.

3. Rise of Factory Asia

Sophisticated and geographically dispersed global value chains (GVCs) have emerged as a distinctive feature of Asia's economic success, particularly in East Asia. The extent of East Asia's participation in global supply chains is significantly greater than elsewhere and has spurred its global rise to the coveted "Factory Asia" league with middle-income status for many economies.[5] National trade data has been used by researchers to identify trade in intermediate goods (also referred to as parts and components trade) as a convenient proxy for supply chain trade. This approach also has the advantage of being reasonably up to date as it is based on readily available high frequency trade data from sources such as COMTRADE or CIEC.[6]

Table 1: World Shares of Intermediate Goods Exports in Asia and Developed Countries, 2020-2021 (%)

Region/Country	2000	2010	2016	2021
Asia (a)	31.0	38.3	41.1	42.9
East Asia	21.1	29.4	34.0	36.0
China	3.1	10.4	13.3	14.7
Hong Kong	3.4	4.0	5.3	4.8
Republic of Korea	3.5	4.1	4.5	4.1
Taiwan	3.4	3.1	3.2	3.4
ASEAN	7.8	7.8	7.9	9.0
South Asia	0.9	1.8	1.8	1.5
India	0.8	1.6	1.7	1.4
Rest of South Asia	0.2	0.2	0.1	0.1
Developed Countries				
Japan	9.0	6.9	5.1	3.9
US	15.5	9.4	9.2	8.1
EU 28	38.6	36.0	33.8	35.5
Rest of the World	14.9	16.3	15.8	13.5
World	100	100	100	100

Note: Japan+East Asia+South Asia+rest of Asia.

Source - Wignaraja et al. (2018), WTO (2022), WITS accessed 10 March 2023.

Intermediate goods exports from the developing countries of East Asia have grown rapidly since 2000 and made it a leading regional producer of parts and components. As Table 1 shows, developing East Asia's share of world intermediate goods exports increased from 21.1% to 34.0% between 2000 and 2016. Of the 2016 figure for developing East Asia, China (13.3%) and Hong Kong (5.3%) together made up as much as 18.6%, the ten members of the Association of Southeast Asian Nations (ASEAN) for 7.9%, Korea for 4.5%, and Taiwan for 3.0%. Developing East Asia compared favourably with developed countries in 2016 – 33.8% for the European Union, 9.2% for the U.S. and 5.1% for Japan. It is likely that Japan's figure may understate the extent of its share of world intermediate goods exports as its MNCs are lead firms in automotive and electronics supply chains in East Asia.

East Asia's transformation from a poor, less developed agricultural periphery to a prosperous global factory over the last half a century is widely hailed as a miracle of economic development. Korea and Singapore have become high-income economies partly linked to the spread of supply chain activities while Malaysia is not far behind. China is classed as an upper-middle income economy.

Three historical events were instrumental in export-led industrialisation and the spread of global supply chains to East Asia.[7]

First, there was a widespread adoption of outward-oriented development strategies in East Asia emphasizing attracting export-oriented foreign direct investment (FDI) into export processing zones (EPZs) to exploit low-wage and trainable labour.[8] Export-led industrial growth has powered developing Asia's rise and prosperity in the past several decades. The switch from inward-oriented to outward-oriented strategies in the 1960s and 1970s galvanised the rapid growth of manufactured exports and created jobs in newly industrializing economies in East Asia like Hong Kong, the Republic of Korea, Singapore, and Taiwan. Subsequently, Malaysia, Thailand and other Southeast Asia economies also adopted outward-oriented strategies and witnessed export success. These became known as the Asian Tigers.

Second, Japan had a catalytic effect on the industrial development in neighbouring Asian economies. Following the 1985 Plaza Accord to depreciate the U.S. dollar and rising labour costs, Japanese MNCs (e.g., Toyota and Sony) began relocating labour-intensive segments of its automotive and electronics industry to Korea and South-East Asia. The effectuating role of Japan in spreading industry to neighbouring Asian countries was conceptualised in the wild geese flying pattern of industrial development by Japanese economist Kaname Akamatsu (1962). According to Akamatsu's theory, Japan as a leading country is compared to a lead goose, followed by a flock of developing country geese. The developing country geese that trail behind eventually catch up with where Japan was, but by that time the Japan has progressed. Thus, all countries advance technologically and with higher per capita income but the relative positions of countries in the hierarchy remain stable over time.

Third and arguably most significant was China's emergence in the world trading system following its reform and opening up policy in 1978 and its membership of the World Trade Organization (WTO) in 2001. Coastal regions in China gradually became the central Asian assembly hub in global supply chains due to a liberal investment regime, attractive export processing zone incentives for export-oriented FDI, high quality infrastructure and logistics, and ample supplies of labour among other factors.[9]

4. Drivers of Supply Chain Relocation from China

Even before the Covid-19 pandemic, Western firms had begun de-risking strategies to reduce their reliance on China, and its popularity as a sourcing market among Western buyers receded. Some production stages in China's supply chains particularly labour-intensive ones — are migrating from China to lower-cost locations. The major Asian recipients of such investment include South-east Asian countries (e.g., Vietnam, Indonesia, Malaysia, Thailand, and Cambodia) and India in South Asia. This trend is partly attributed to factors internal to China such as rising wages, supply chain bottlenecks within China, and investor concerns about tighter regulation of foreign firms and the allegation of violation of intellectual property rights.

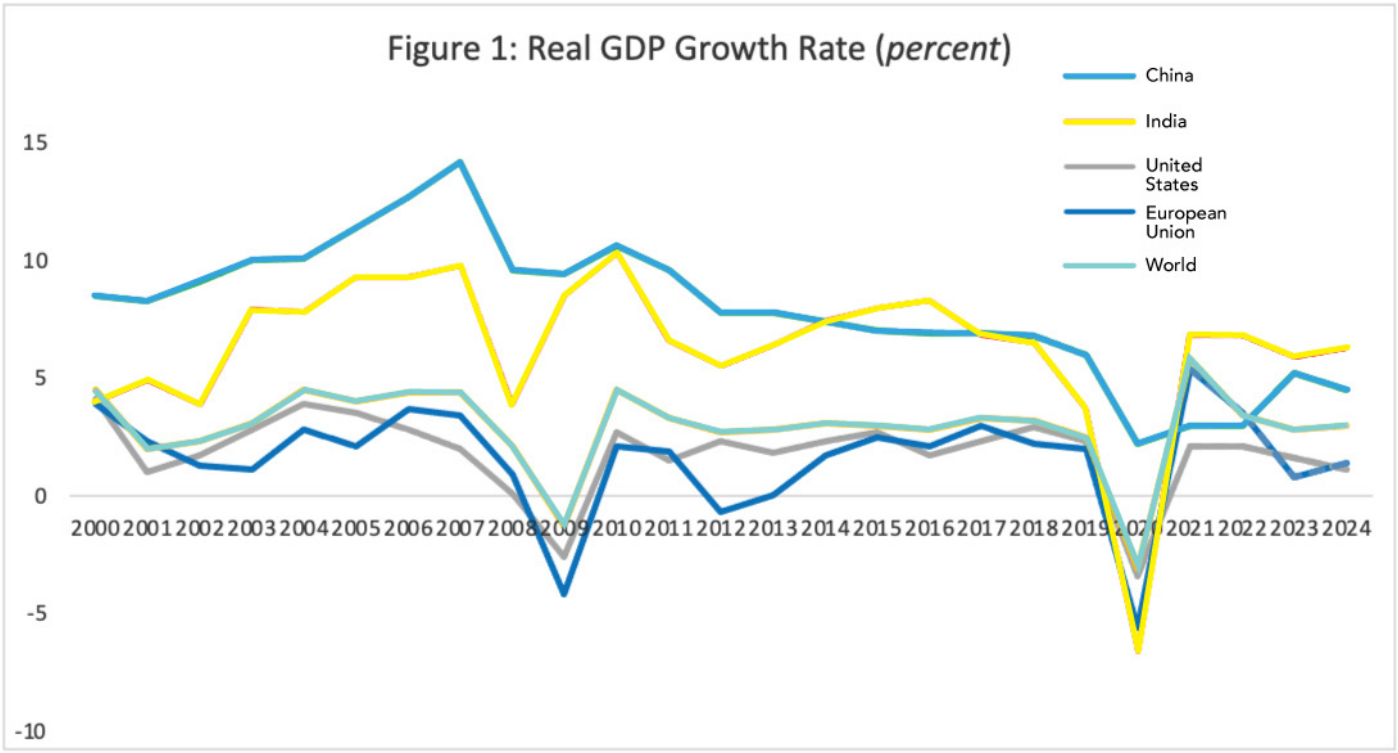
Externally, US-China trade tensions have also affected China-centric supply chains. The Trump Administration alleged that China pursued unfair trade practices against its trading partners and advocated for greater protectionism. Starting in 2018, the Trump Administration imposed industrial tariffs on China and other trading partners thereby pressuring American firms to re-shore production activities back to the U.S and to friendly nations (so-called friend-shoring). Since then, both countries engaged in intense trade negotiations, a tit-for-tat tariff war, introduced foreign technology restrictions and fought WTO cases. A truce was reached in mid-January 2020 when the two sides signed the Phase One Deal, which officially agreed to the rollback of tariffs, expansion of trade purchases, and renewed commitments on intellectual property, technology transfer, and currency practices. Recent research suggests that unofficial non-tariff barriers were responsible for 50% of the overall reduction in Chinese imports from the U.S. during the height of the U.S.-China trade war in 2018 and 2019.[10]

However, US-China trade tensions remain today. In early October 2022, the Biden Administration imposed sweeping export controls, including rules to cut China off from certain semiconductor chips made globally with US tools, vastly expanding its reach in its attempt to slow China's progress in technology and military development.[11] The expanded rules to key U.S. toolmakers require them to stop shipments of equipment to wholly Chinese-owned factories producing advanced logic chips. This dramatic U.S. move, which is beginning to see U.S companies and staff depart China, could set back China's chip manufacturing industry for years and affect its leading electronics companies such as Huawei. China may impose retaliatory measures on the U.S. (e.g., limits on the exports of rare earths used in industrial applications, including electronics, clean energy, aerospace, automotive and defence) sparking off a new phase of the simmering U.S.-China trade-war (see Milner, 2022 on the so-called Chip War) and is also investing heavily in domestic R&D which is discussed below.

Developments following the Covid-19 pandemic have further disrupted China-centric supply chains. One is China's slowdown associated with Covid-19 outbreaks, a strict zero-Covid policy, a property market downturn, and tightening regulations on domestic technology companies (e.g., Alibaba and Tencent). Figure 1 based on IMF data and projections shows that China's growth slowed to its lowest rate in over 40 years from 8.4% in 2021 to 3.0% in 2022. Following the removal of tough Covid restrictions, China could rebound to 5.2% in 2023 but moderate to 4.5% in 2024. Sustaining medium-term Chinese growth may prove more difficult given high levels of property and local government debt, uncertainties about rebalancing the economy away from investment towards consumption and the U.S.-China trade war.

Another is a world economy facing a rocky road to recovery which poses risks for supply chains. IMF estimates suggest that world growth, which nearly halved from 6.0% in 2021 to 3.4% in 2022, could be subdued at 2.8% in 2023 and 3.0% in 2024. Multiple external shocks in recent years – the Covid-19 pandemic, the Russia-Ukraine conflict and sanctions, volatile commodity prices and geopolitical events

– have hit a fragile world economy. Major economies are witnessing economic downturns with higher inflation and unemployment. Central banks have tightened monetary policy and global interest rates are rising. A shortage of shipping containers, which are critical to modern supply chains, has raised freight charges and hampered global trade.



Source: IMF Data Mapper Database, accessed on 15th May 2023

Reflecting these disruptions, world exports of intermediate goods decreased by 10% in Q4 2022 on a year on year basis while Asia's exports of intermediate goods decreased by 15% (WTO 2023). Asia's fall in Q4 2022 was more than the decrease of 3% in the US, 12% in Germany and 10% in France. Underpinning Asia's significant fall were decreases of 15% in China, 27% in Hong Kong, 13% in Japan, 21% in Korea and 9% in Taiwan.

Nonetheless, recent data in Tables 1 and 2 confirm that developing East Asia and China continue to be prominent in global supply chain trade in a post-Covid world economy. Table 1 shows that developing East Asia's share of world intermediate goods exports rose to from 34.0% 36.0% between 2016 and 2021 linked to a rising share of China and Hong Kong combined from 18.6% to 19.5%. Looking at others in East Asia, ASEAN's share rose from 7.9% to 9.0% and Taiwan's from 3.2% to 3.4% but Korea's fell from 4.5% to 4.1%. Meanwhile among developed countries, the share of the EU rose from 33.8% to 35.5% while those of the US fell from 9.2% to 8.1% and that of Japan from 5.1% to 3.9%.

Table 2: Top 15 World Intermediate Goods Exporters in 2021 and Q4 2022 (value in US$ and world share)

Rank	Country	Intermediate goods exports 2021 ($ Bn)	World share 2021 (%)	Intermediate goods exports Q4 2022 ($ Bn)	World share Q4 2022 (%)
1	China	1458	14.7%	354	15.3%
2	United States	800	8.1%	208	9.0%
3	Germany	718	7.3%	158	6.8%
4	Hong Kong	470	4.8%	95	4.1%
5	Korea, Rep. of	406	4.1%	87	3.8%
6	Japan	389	3.9%	89	3.8%
7	Taiwan	335	3.4%	84	3.6%
8	Netherlands	316	3.2%	73	3.2%
9	Belgium	272	2.8%	55	2.4%
10	Singapore	266	2.7%	59	2.5%
11	Italy	255	2.6%	61	2.6%
12	France	249	2.5%	59	2.5%
13	United Kingdom	173	1.7%	70	3.0%
14	Australia	160	1.6%	n.a	n.a
15	Canada	154	1.6%	n.a	n.a
	World total	**9,887**		2,314	

Source: WTO (2022 and 2023)

Table 2 providing the values and shares of the top 15 world intermediate goods exporters in 2021 and 2022Q4. The value data illustrate China's role as the so-called world's factory in post-Covid times compared to key developed countries with much higher incomes per capita. The value of China's intermediate goods exports nearly twice that of the U.S., twice that of Germany and nearly four times that of Japan, and nearly nine times that of the U.K. It is notable that India has not shown up on the top 15 exporter list in 2021 and 2022Q4. China's share of world intermediate goods exports rose from 14.7% to 15.3% between 2021 and 2022Q4 while that of the US also rose from 8.1% to 9.0% and Germany's fell from 7.3% to 6.8%. The combined world share of China and Hong Kong was 19.4% which is about the same as the 2021 figure.

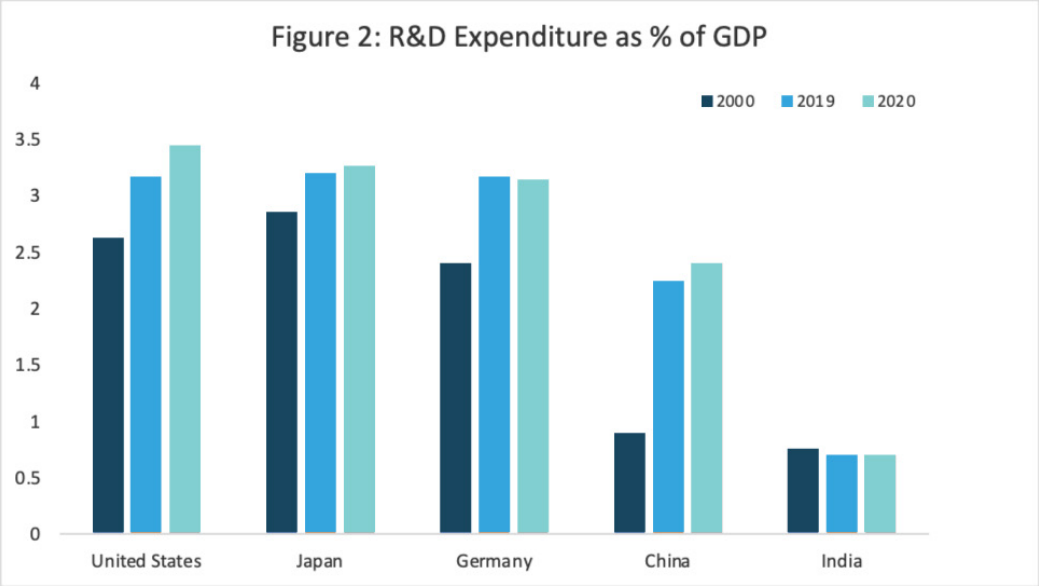
A careful reading suggests the following interpretation of the China data in Tables 1 and 2 which reflects the locational decision-making of MNCs. There is some momentum to spread manufacturing activities as some MNCs create parallel assembly hubs to reduce the geopolitical and economic risks of concentrated China-centric global supply chains. India's role as a complementary hub is discussed below. But it seems premature to count China out of the global supply chain game. The Chinese economy is a global supplier of electronics components (memories, integrated circuits, processors), parts and accessories for telephone sets and high-tech machines, lithium-ion batteries, photovoltaic cells and electrical components. It is very costly to shift such supply chain activities elsewhere. Most MNCs cannot afford a wholesale relocation of their factories out of China, train new labour or replace their Chinese sourcing vendors. China has a highly skilled and disciplined work force, giant factories reaping significant economies of scale, a dense network of sub-contractors and suppliers capable of most industrial intermediates, modern special economic zones along the coastal belt, world class logistics and efficient container ports, and attractive incentives and subsidies. Few other Asian locations presently have these highly conducive conditions for manufacturing production. Thus, in the short term, MNCs could make location decisions based on profitability rather than national security considerations. Beyond this, it is difficult to predict as global de-risking strategies of MNCs and China's technological advancement are evolving rapidly.

A breakdown of trade data show that China's huge value of exports and imports are dominated by high skilled manufacturing items including machinery, electronics, transport equipment, vehicle parts and precision equipment (see Table 3). This underlines China's role as a global supply chain hub producing and trading in such items.

Furthermore, China has significantly increased its R&D spending to bridge the technology gap with developed countries and upgrade its footprint in international supply chains. Data from the World Bank shown in Table 2 suggests that as a percentage of GDP, China's R&D spending more than doubled from 0.89% to 2.40% between 2000 and 2020. Compare these figures over the same period for Japan (2.86% to 3.26%), Germany (2.41% to 3.14%) and the US (2.63% to 3.45%).[12] Meanwhile, worryingly India's limited R&D spending fell from 0.76% to 0.70%.

The Chinese government has launched "Made in China 2025," a state-led industrial policy that seeks to make China dominant in global high-tech manufacturing.[13] The program is using government subsidies, mobilizing state-owned enterprises, and pursuing intellectual property acquisition to catch up with—and outdo—Western technological development in advanced industries. Accordingly, one interpretation of the R&D data is that China is pursuing a model of higher domestic value-added growth and the building of innovation capability, as was seen first in Asia through Japan, and subsequently in the Republic of Korea (see Wignaraja et.al 2017). This entails the development of more technologically sophisticated regional supply chains and related services in East Asia, which can drive a new phase of regional and global trade growth.

The spread of robotics, advances in miniaturization, developments in internet connectivity, artificial intelligence, process-centered research and development, and various organizational innovations are increasingly likely to feature in global supply chains in this new phase of trade growth. And China is investing in all of this. It is possible that like Japan before it, China could emerge as a future catalyst in a new wave of high-tech supply chains in Asia and elsewhere.



Source: World Bank World Development Indicators Database Accessed on 10 November 2022

China is emphasising a hub-and-spoke model to make itself the centre of high-tech industries while its supply chains in Southeast and East Asia facilitate is own central positioning in global supply chains. This may be seen as an attempt to make neighbouring Asian countries dependent on China for jobs, exports and growth in the future. However, it is unclear whether China is looking to South Asia to be part of more technologically sophisticated regional supply chains. Although China has invested significantly in infrastructure projects in some South Asian countries (particularly Pakistan and Sri Lanka) though its Belt and Road Initiative, there seems surprising little Chinese FDI in the manufacturing sector in South Asia. It may be that China sees South Asia largely as a market for its exports of manufactures and as a client for commercial infrastructure loans from its policy banks such as the China Development Bank and the Export Import Bank of China Bank. But, South Asia's cumbersome business environment probably makes the region less attractive to Chinese manufacturing investment, which is mostly dominated by private Chinese companies, compared to Southeast Asia. Furthermore, India is wary of permitting Chinese investment into the country due to national security concerns and inward-oriented business lobbies who worry about increased competition on the domestic market.

Table 3: China's Merchandise Exports and Imports by HS section, 2015 and 2020

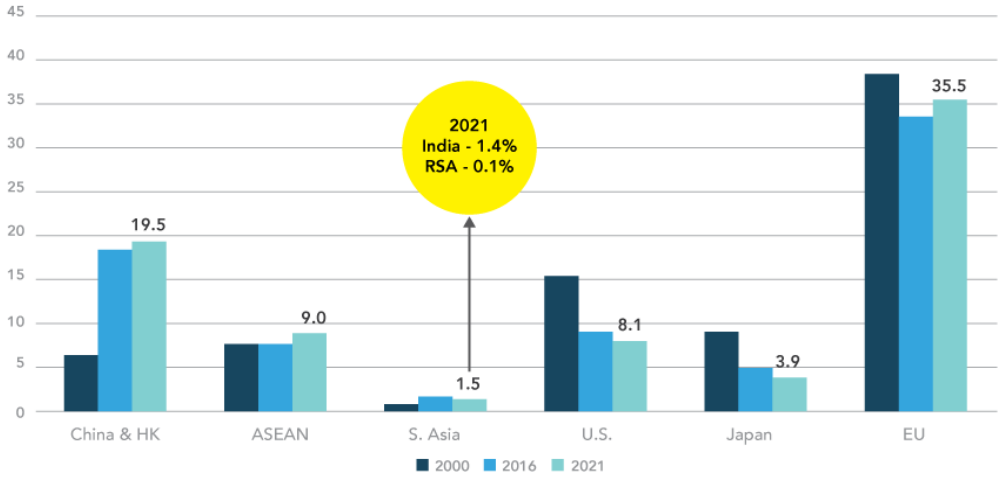
HS section/chapter/ subheading	**Exports 2015**	**Exports 2020**	**Imports 2015**	**Imports 2020**
	2,273.5	2590.6	1,679.60	2055.6
	(% of total exports)		(% of total imports)	
06 Chemicals and products thereof	4.7	5.3	6.7	7.3
11 Textiles and textile articles	12.0	10.8	1.9	1.4
12 Footwear, headgear, etc.	3.0	2.0	0.2	0.3
15 Base metals and articles thereof	7.8	6.8	5.2	5.7
16 Machinery, electrical equipment	42.2	44.4	34.9	36.0
84 Machinery and mechanical appliances, parts there of	16.0	17.0	9.4	9.3
8471 Automatic data processing machines and units thereof …	6.0	6.6	n.a	n.a
8473 Parts…suitable for use with machines of heading no. 8469 to 8472	1.3	1.2		
85 Electrical machineries and parts thereof	26.1	27.4	25.5	26.7
8517 Telephone sets, including telephones for cellular networks …	9.4	8.6	2.9	2.1
8528 Monitors and projectors …	1.2	1.2		
8542 Electronic integrated circuits	3.1	4.5	13.7	17.1
17 Transport equipment	4.7	4.3	5.8	4.2
87 Vehicles, parts thereof	2.8	2.9	4.1	3.6
8708 Parts and accessories of motor vehicles of HS 8701 to 8705	1.2	1.3	2.6	2.2
18 Precision equipment	3.6	3.3	6.2	5.1
20 Miscellaneous manufactured articles	6.9	7.7	0.4	0.3

Source: WTO (2021).

5. South Asia's Turn?

At first glance, South Asian countries offer potentially attractive locations for labour-intensive segments of global supply chain activities shifting from China. The region's allure stems from factors such as having ample supplies of low-cost labour for manufacturing assembly operations and strategic locations in the Indian Ocean along the main East West Sea route. These advantages have enabled some South Asian countries (notably India, Bangladesh and Sri Lanka) to enter exporting and supply chain activities in textiles and garments.[14,15] Yet the trade data suggest that South Asia has been slow to diversify beyond textiles and garments into intermediate goods trade.

Figure 3: World Shares of Intermediate Goods Export



Source: Wignaraja (2018), WTO (2022)

The reason is three-fold. First, South Asia as a region is a small player with its share of world intermediate goods exports, increasing from a low base of 0.9% to 1.8% between 2000 and 2016 and then falling to 1.5% in 2021 – far less than East Asia (see Figure 3 and Table 1). Second, most of the region's supply chain activity is highly concentrated in India with little penetration by the rest of South Asia. India's share of world intermediate goods exports increased from 0.8% to 1.7% between 2000 and 2016 and then fell to 1.4% in 2021. Third, there are few regional spill-overs from India's supply chain activities to the rest of South Asia. Intra-regional trade in South Asia at 5% (2017) is among the lowest in the world.[16] This suggests that South Asia is one of the world's most disconnected regions in economic terms. Despite its growing trade volume with the world, India's trade with its neighbours has remained roughly between 1.7% and 3.8% of its global trade.[17] India's largest regional trading partner is Bangladesh, followed by Sri Lanka and Nepal.

Cross-county comparisons of the national business environments between China and South Asian countries provides some explanations for South Asia's limited role in supply chains beyond textiles and garments. The evidence suggests that the difficult country-specific conditions and policy impediments in the business environment in South Asia are a deterrent to foreign investment in long gestation manufacturing activities. To illustrate this point, Table 4 compares China and South Asian countries on four key aspects of the business environment: (1) wages and labour productivity to indicate labour market conditions, (2) the state of cluster development to represent the quality of suppliers, (3) ports and logistics to represent the connectivity of trade-related infrastructure, and (4) behind-the-border regulations for starting a business to indicate the hassle factor in doing business.

Competitive wages and productive labour are fundamental for South Asia to benefit from supply chain shifts from China. According to data from various sources, all the South Asian countries have lower hourly wages than China. Expressed as a share of Chinese wages, four South Asian countries stand out: India (23.8%), Bangladesh (10.9%), Pakistan (10.9%) and Sri Lanka (14.5%). Wages in Nepal (56.4%) and Maldives (50.9%) are relatively expensive which makes them uncompetitive for supply chain activities. However, labour productivity (measured by the ILO as GDP per hour worked in constant PPP$) India, Pakistan and Bangladesh lags China. Sri Lanka seems to be an outlier meriting more research using alternative labour productivity measures. Lagging labour productivity relative to China means that South Asia may find it challenging to achieve improvements in price, quality and delivery to world standards.

Having adaptable, high quality industrial suppliers would make South Asia attractive to supply chain shifts from China. China is famous for having a large pool of potential good quality industrial suppliers to choose from. This gives buyers more negotiating power and can help drive down prices and ensures competitiveness of supply chains. Furthermore, suppliers in China are reputed to be willing to work with small orders or even custom orders. This can be helpful for businesses that do not have the volume to justify working with a larger supplier. A crude proxy to represent a country's supplier base is the state of industrial cluster development measure from the World Economic Forum's national business surveys. Cluster development in China (4.6) is more advanced than in South Asia indicating it has notable regional concentrations of related industries and suppliers. Among South Asian countries, India (4.3) comes closest to China while Bangladesh (3.6), Pakistan (3.9) and Sri Lanka (3.9) are considerably behind.

The efficiency and quality of South Asian seaports and logistics are another factor affecting supply chain shifts from China. This hard and soft trade-related infrastructure reduces trade costs and transit times for the movement of goods and intermediate inputs from one link in the supply chain to the next. The World Bank's logistics performance index (LPI) measures the ease of establishing reliable supply chain connections and the structural factors that make it possible, such as the quality of logistics services, trade- and transport-related infrastructure, and border controls. China's LPI score (3.7) puts it ahead of South Asia. India (3.4) leads the region, and is followed by Sri Lanka (2.8), Bangladesh (2.6) and Pakistan (2.4).

A streamlined process of starting a business would make South Asia attractive to supply chain shifts from China. An imperfect indicator is the time taken to start a business (in calendar days) from the World Bank. Sri Lanka (8 days) seems on par with business start-up times in China (9 days). However, India (18 days), Bangladesh (20 days), Pakistan (17 days) and the rest lag China.

Table 4: Business Environment in China and South Asia

Country	Hourly Manufacturing Wages (US$) (1)	Hourly Wage Cost as a % of China	GDP per Hour Worked (GDP Constant 2017 International $ at PPP) (2)	State of Industrial Cluster Development (1-7 where 7 is best) (3)	Logistics Performance Index (4)	Time to Start a Business (Days) (5)
	2022	2022	2021	2019	2023	2019
China	5.5	100	13.5	4.6	3.7	9
India	1.3	23.6	8.5	4.3	3.4	18
Bangladesh	0.6	10.9	6.4	3.6	2.6	20
Maldives	2.8	50.9	17.5	-	2.6	12
Nepal	3.1	56.4	3.4	3.3	2.5	23
Bhutan	-	-	-	-	2.5	12
Pakistan	0.6	10.9	7.6	3.9	2.4	17
Sri Lanka	0.8	14.5	16.6	3.9	2.8	8

Sources:

1. *Manufacturing Wages for Hour – 2022 China, from Bureau of Labour Statistics China https://www.bls.gov/fls/china_method.htm. India, Ministry of Labour and Employment https://labour.gov.in/wages-and-statistics. Maldives, Ministry of Economic Development Introducing Minimum Wage Reporthttps://www.trade.gov.mv/uploads/12/newweb/reports Sri Lanka, Department of Labour Sri Lanka. Bhutan, Finance Ministry of Bhutan and Bhutan future workforce report 2022 https://www.undp.org/sites/g/files/zskgke326/files/2022-12/Bhutan%20Futures%20Workforce%20Report-%20Dec-2022.pdf*
2. *GDP per Hour Worked https://ilostat.ilo.org/topics/labour-productivity/*
3. *State of Cluster Development - https://www3.weforum.org/docs/WEF_TheGlobalCompetitivenessReport2019.pdf*
4. *Logistics Performance Index – LPI from World Bank Development Indicator for 2023, https://lpi.worldbank.org/international/global*
5. *Time Require to Start a Business (Days) – TRSB from World Bank Development Indicator for 2019, https://data.worldbank.org/indicator/IC.REG.DURS*

More generally, the trade and industrial literature on South Asia has long argued that the inward-oriented restrictive nature of the region's business environment hampers supply chain activities. Such policy impediments include high import barriers; restrictive, non-transparent FDI policies; limited participation in FTAs; variable quality of export processing zones; and high cross-border logistics costs and inadequate infrastructure for warehousing.[18] Although India's digital connectivity has improved substantially which supports coordination in supply chain activities, digital ecosystems and connectivity in other South Asian countries, also merits notable improvement.[19] Key measures include providing access to and adoption of high-quality affordable broadband, starting a paradigm shift in building digital public platforms and accelerating digital financial services.

6. India as a Complementary Asian Hub

Weighted down by a challenging business environment, it is hardly surprising South Asian countries do not appear on the WTO's list of the top 15 world exporters of intermediate goods in 2022Q4 (Table 2). But, as Table 5 shows, India is listed as the world's 5th largest importer of intermediate goods imports in 2022Q4 with a 5% share suggesting that supply chain pessimism on India may be altering since the pandemic (see Table 5). The countries ahead of India are China (23.4%), the US (16.2%), Germany (9.1%), and Hong Kong (6.0%).

Table 5: India - the World's 6th Largest Intermediate Goods Importer in Q4, 2022

Rank	Country	Value ($Bns)	Top 15 share Q4 2022 (%)
1	China	376	23.4%
2	US	261	16.2%
3	Germany	147	9.1%
4	Hong Kong	97	6.0%
5	India	81	5.0%
6	Japan	75	4.7%
7	Mexico	74	4.6%
8	Korea, Rep. of	72	4.5%
9	Netherlands	72	4.5%
10	France	67	4.2%
11	UK	65	4.0%
12	Italy	63	3.9%
13	Singapore	56	3.5%
14	Canada	52	3.2%
15	Taiwan	52	3.2%

Source: WTO (2022 and 2023)

Anecdotal evidence at the micro-level from India reinforces this finding. Apple has ramped up its manufacturing of iPhones in India, accounting for almost 7% of its total iPhone production in 2023, up from 1% in 2021. One eye-catching example is Apple's decision in 2022 to move some production of its latest model smart phone, the iPhone 14S, from China to India.20 A factory in Chennai has begun assembling the iPhone 14 for the domestic Indian market, with a larger plan to produce a quarter of all iPhone 14s in India by 2025. This is the first time Apple has assembled iPhones outside of China in the same year they are released. It is part of a plan to decouple its manufacturing operations from China due to Beijing's zero-Covid policy which has hit supply chains, and the geopolitical tensions between the U.S. and China.

Another striking example is the early technology transfer in the product cycle of the technologically advanced Mercedes Benz EQS to India. This is the first fully electric luxury sedan from the Mercedes Group with an impressive range of 350 miles. Domestic sales began in Germany as recently as September 2021, followed by exports in December to the U.S. market. The car is designed in Germany and assembled at the Mercedes' Factory 56 in Sindelfingen but with parts and components produced globally. In a landmark signalling of confidence in India as a manufacturing hub in Asia, in September 2022 Mercedes announced that the EQS 580 4Matic would be assembled in Pune for the Indian market with likely exports at a later date.[21]

A third example related to Apple is the Foxconn Technology Group teaming up with Vedanta, an Indian mining group, to develop a $19.5 billion chip-making fabrication plant in Gujarat which has been approved.[22] This is likely to be among the first semiconductor manufacturing plants in India. India's advantages for making semi-conductors are said to be its huge consumer market and a well-educated and cheap work force.

These examples suggest that India is being courted by foreign investors in high-tech manufacturing sectors, with no announced plans to set up new manufacturing in China. Over time India can lay the foundation to become a complementary Asian manufacturing hub to China by reaping gains from technology and skill transfer from abroad, earning foreign exchange from exporting manufacturing and creating local jobs. Manufacturing sectors in India such as automotives, pharmaceuticals and electronics assembly are already sophisticated and likely winners.

India's attractiveness to foreign investors is linked to geopolitical and economic factors. As the example of Apple suggests, geopolitics may be entering the locational decision-making calculus of investors. For instance, U.S. President Biden's Indo-Pacific Economic Framework (IPEF) seeks to decouple global supply chains from China and promote more global sourcing from trusted supplier economies like Southeast Asia and India. This reflects a U.S. perception that China is its main strategic and economic competitor globally. One gap in the IPEF is that it lacks a trade deal like the Comprehensive and Progressive Transpacific Partnership (CPTPP) offering preferential market access and regulatory coherence to members and discriminating against non-members. But, many MNCs fear the U.S. could unilaterally impose more stringent trade and technology restrictions on Chinese business which could also disadvantage third country firms. The IPEF has started discussions and held its first ministerial-level meeting in late July 2022. Interestingly, India has signed on to all the IPEF Pillars except trade. Analysts have suggested that India's caution may be due to the county not yet ready as it has made insufficient progress on domestic regulations in critical areas including labour markets, environmental standards and domestic competition regulations.[23] Nonetheless, if the IPEF progresses and many countries sign up, it can support national efforts across South Asia in practical ways by sharing best practices on supply chain resilience, supporting open and transparent FDI policies, assist in regionalization of supply chains (e.g., helping to upscale the Make in India Programme), invest in supply chain logistics and digital connectivity and improving cyber security for emerging IT infrastructure and services trade.

On the economic front, the large Indian economy is billed as one of the world's fastest growing countries related to its low-cost, trainable work force, a large middle class of consumers, and more openness to trade and investment. Table 4 highlighted important factors conductive to supply chains such as India's labour cost advantage relative to China and that India's cluster development and logistics/trade-related infrastructure are moving towards China's levels. The services sector in India could also be a likely winner including ICT services, financial services, professional services, transport and logistics. For this to occur, India will need to up its game by building knowledge and research capacity in services trade and learning by participating in trade agreements with developed countries.

Additionally, the Modi Government's trade policy is placing renewed emphasis on preferential trade opening with trading partners through a flurry of bilateral trade deals since 2022.[24] The UAE-India Comprehensive Economic Partnership Agreement entered into force in May 2022. An early harvest was reached in April 2022 for the Australia-India FTA and talks are on-going to conclude the full FTA by the end of 2023.

Negotiations are ongoing for a UK-India trade deal which could be the most comprehensive of India's FTAs.[25] British Prime Minister Rishi Sunak is interested in transforming historic ties into a modern economic partnership in the post-Brexit era while Indian Prime Minister Narendra Modi is keen to mark

India as a rising geopolitical player in the global economy. The fact that there were six rounds during 2022 in talks which only started in January 2022 indicates the enthusiasm to get the trade deal done. There is a reasonable window of opportunity to conclude the UK-India FTA as general elections are likely in both countries in the next two years. Expending some political will to find pragmatic solutions to difficult negotiations issues can yield a deep FTA with 26 chapters covering tariffs, sustainable growth, product and service standards, SMEs, government procurement, data flows and intellectual property.

Interestingly, EU-India trade talks revived in June 2022 after being halted in 2013. The talks cover 23 policy areas. If concluded, this comprehensive deal would be an economically important FTA for India as the EU is its second largest trading partner after the US. Furthermore, the EU is a huge global player in global supply chains and on a par with East Asia in terms of world exports of intermediate goods (see Tables 1 and 2). It could lead to many economic benefits for both parties like greater market access for businesses, lower import tariffs, easing of barriers to services trade and easier movements of professionals for work purposes.

The Modi Government's focus on bilateral FTAs has several motivations:[26] rising geopolitical tensions, a strategic move to counter the threat of rising global protectionism, gaining access to new markets and increase exports of goods and services, facilitating technology transfer, and helping to position the country as a complementary Asian hub to China. These new deals are significant because they are with Western trading partners and reflect plans for deep economic integration going well beyond India's previous FTAs which focused solely on the goods trade and related measures.

In an uncertain global economy, however, the economic gains from these trade deals (such as more exports and faster growth) will not automatically accrue to India.[27] To realise the benefits from the FTAs, Indian business needs strategies which raise its productivity and competitiveness to global standards. The Modi government recognises the challenge and in late August 2022 announced ambitious plans to restructure the Department of Commerce to support Indian business to export and join global supply chains.[28] It is hoped that a re-designed Department of Commerce will address the issue of low preference utilization rates in India's existing FTAs which means dealing with problems of information about preferences and cumbersome bureaucratic procedures in rules of origin.[29] Implementing much-needed second-generation economic reforms are also needed to cut red tape affecting business, ensure reliable electricity and green the economy, and invest in education and training which will help boost lagging labour productivity shown in Table 4. Furthermore, foreign investment and technology transfer into manufacturing needs to be supported by enhanced domestic industrial technology development as Figure 2 suggesting a worrying R&D spending gap in India compared to China, Japan and the West.[30] Stronger intellectual property legislation and legal enforcement, stronger partnerships between industry and science and technology institutions and better incentives for business R&D are ways forward. By working more closely together, business and government can ensure that the potential gains from India's new FTA push are properly realised in difficult economic times.

7. Implications for South Asia

Greater participation in global supply chains presents India with a historic opportunity to promote industrialisation in its South Asian neighbourhood, thereby stabilising the region, increasing jobs, and making it less vulnerable to Chinese enticements. However, the economics of sophisticated regional supply chain manufacturing and national business environments dictate which South Asian countries can benefit from regionalisation. Pakistan is ruled out of regional supply chain activities for the foreseeable future because of political and economic instability which raises political risk premiums and deters foreign investors. The limited Pakistan-India trade is also constrained by non-economic factors and largely takes place through third countries like UAE. Furthermore, land-locked Bhutan and Nepal are at a special disadvantage in regional supply chains due to high trade costs due to inefficient customs procedures and incompatible standards at land borders. Sea-locked Maldives is impeded by similarly high trade costs as well as the huge challenge of financing investments for world class container ports and logistics. This leaves Bangladesh and Sri Lanka are candidates for regional supply chains centred on India.

Market-led spillovers from India's supply chains participation through outward-FDI and international subcontracting of labour-intensive manufacturing are a natural transmission channel to Bangladesh and Sri Lanka. Furthermore, India's dynamic start-up culture, venture capital financing and fintech capacity can be used to draw in young entrepreneurs from other South Asian countries.[31] The Indian government should consider two policy initiatives to promote regional supply chains. First is upscaling the Make in India Programme into a Make in South Asia Programme. For instance, India could provide fiscal incentives to spread some Indian manufacturing companies to Bangladesh and Sri Lanka. Segments in food processing, textiles and garments, and automotive might be possible candidates given the factor endowments and industrial experience of neighbouring countries. Second, India should conclude a comprehensive bilateral FTA with Bangladesh and upgrade the Indo-Lanka FTA to support regional rules-based trade and investment. These policy initiatives can help to integrate these two countries into supply chain activities centred on India as the assembly hub and bring mutual welfare gains in terms of industrialisation, real income growth and job creation. For instance, notable trade gains are visible from concluding a deep India-Sri Lanka FTA which fully liberalises import tariffs on all goods, eliminates some non-tariff barriers and partially opens services. Under an India-Sri Lanka FTA scenario, a computable general equilibrium model-based simulation suggested that Sri Lanka's volume of merchandise goods exports to India could increase by 2.43% and its volume of merchandise imports from India by 1.56%. [32] This is higher than the trade gains from a shallow China-Sri Lanka which only fully liberalises import tariffs on all goods.

East Asia's success in global supply chains offers some policy lessons for business and government particularly in South Asian countries like India, Bangladesh and Sri Lanka. First, is the argument in the trade and industrialisation literature in South Asia and the evidence in Table 4 that a conducive business environment matters to participate in supply chains. This means emphasising outward-oriented, market friendly development strategies than the alternatives. Open trade and investment regimes which encourage inward investment, facilitate technology transfer from abroad and transmit price signals to business are essential for supply chain activities. Streamlining cumbersome bureaucratic regulations affecting business and digitalisation of approval processes in tax, customs and business permits can help to improve the ease of doing business. On the supply side, ensuring flexible labour markets to ensure competitive labour costs and investment in skills and training to boost productivity. A package of comprehensive business development services and industrial finance for SMEs can help to create competitive industrial suppliers and encourage such firms to organise in geographical industrial clusters. Investing in modern logistics systems and trade-related infrastructure is yet another requirement.

Second, industrial policy is coming back into fashion in South Asian in debates over policy responses to recent multiple external shocks and fostering transitions to renewable energy. These typically refer to policies that stimulate specific economic activities and promote structural change. Country studies show that some East Asian countries did undertake industrial policy interventions to remedy market failures and foster export-led industrialisation including participation in global supply chains.[33] Korea's export success was achieved by an industrialisation paradigm aimed at promoting large conglomerate firms while Taiwan's approach was to foster the international competitiveness of its SMEs. More recently, China's rise as Asia's assembly hub in global supply chains has drawn attention to its vast array of industrial interventions including technology-transfer requirements, local content rules, public ownership, production and investment subsidies, and subsidised credit and non-tariff import protection. The failures in industrial policy in East Asia loom large. Some examples of such failures with high loses include Korea's heavy and chemical industry (HCI) push, Malaysia's national car project (the Proton) and China's home-grown 3G mobile technology TD-SCDMA. Cronyism was also a problem in some countries.

Accordingly, industrial policy remains a controversial area of public policy and caution should be exercised before South Asia attempts to copy wholesale the templates of Korea, Taiwan and China. South Asian governments should actively engage with national think tanks to critically study economic policies to build back better from multiple external shocks (including East Asia's experience of trade and industrial policies) to gain insights into what might work.[34] Nonetheless, some aspects of industrial policy may be relevant to India including better targeting of MNCs in new industrial activities it has a potential comparative advantage, and investment in technology subjects in tertiary-level education (e.g., science, technology, engineering and mathematics or so-called STEM education). These policies should be tailor-made to the national circumstances and state capacity of India. However, as Bangladesh and Sri Lanka lack the state capacity and institutions to implement East Asia style industrial policies, there is a significant risk of government failure and cronyism. Furthermore, facing significant macroeconomic stresses and adverse foreign debt dynamics, Bangladesh (US$4.7 billion approved in January 2023) and Sri Lanka (US$ 2.9 billion in March 2033) have recently concluded tough IMF Programmes for the next few years. Under such IMF Programmes, both countries are obligated to implement measures to restore macroeconomic, debt and financial sustainability. This means that Bangladesh and Sri Lanka lack the policy space to experiment with East Asia style industrial policies.

Third, firm-level involvement in supply chains does not automatically occur but requires conscious and active efforts by business. Large sample cross-country cross-firm econometric studies of Southeast Asia shows that firms deployed smart business strategies to participate in global supply chains (see, for instance, Wignaraja, 2015). Being a big firm naturally creates advantages to participating in supply chains due to a larger scale of production, better access to technology from abroad, and the ability to spend more on marketing. Conglomerate firms can cross-subsidize investments and other costs among business units. SMEs should work as industrial suppliers and sub-contractors to large export firms and conglomerates. Hence, smart business strategies, such as mergers, acquisitions, and forming business alliances with multinationals or large local business houses are all rational business strategy approaches; so is investing in domestic technological capabilities to achieve international standards of price, quality and delivery. Southeast Asia's experience also suggests that nimble SMEs can join supply chains by locating in industrial clusters with other SMEs and reap the benefits of interdependence like co-financing a training centre or a technical consultant to upgrade skills. Business associations can facilitate clustering by mitigating trust deficits to cooperation among SMEs, and by coordinating collective actions for cluster formation.

An example can be drawn from Malaysia. The Malaysian electronics industry is a composite of three geographical clusters of similar size in terms of employment, namely Penang, the Kalang Valley and Johor.[35] In these clusters, large firms are working with thousands of SME suppliers and subcontractors making parts, components and final goods. Advancing of local production capabilities has benefitted by effective institutional policy support from a model regional development agency. The Penang Development Corporation coordinated various aspects of productivity improvement to create a world-class high-volume production system.

8. Conclusion

This paper analysed the changing dynamics of global supply chains in an uncertain global era and the prospects for South Asian countries. Several findings are noteworthy.

First, global supply chains have been the leading model of industrial production since the 1980s driving globalization and regionalisation and can be found in a wide range of sectors. East Asia's participation in global supply chains is more than other regions and has powered the ascent to middle-income status for many economies. China has become the central Asian assembly hub in global supply chains after opening up and witnessed a meteoric global economic rise. Rising wages, geopolitical factors and slower global growth are disrupting global supply chains including shifts of supply chain activities from China.

Second, data in 2022Q4 suggests that global supply chains and those in Asia and China faced multiple disruptions and decreased YoY in Q42022. But East Asia and China remains prominent in global supply chains while South Asia is a small player. While MNCs are engaged in de-risking strategies away from China, it is costly for MNCs to relocate and hard for latecomers to replicate China's evitable industrial conditions for sophisticated manufacturing. China is also upgrading its manufacturing capacity by building technological capabilities in a wide swath of medium technology industries and investing heavily in research and development in high tech industries of the future (including artificial intelligence, robotics and biotechnology). Emulating Japan, China could emerge as a future catalyst in a new wave of technology-oriented supply chains. However, it is still too early to predict the net impact on global supply chain behavior of MNC de-risking strategies, US trade policies on China and China's domestic technological upgrading.

Third, anecdotal evidence of high-profile manufacturing investments in India by Apple and Mercedes Benz suggests that supply chain pessimism in South Asia could be changing since the pandemic. India's attractiveness to leading foreign investors is linked to geopolitics, a large consumption market, skilled low-cost labour, renewed interest in FTA with the UK and EU. If present trends continue, India could become a complementary Asian supply chain hub.

Fourth, India has an opportunity to foster regional supply chains in South Asia thereby stabilising the region and making it less vulnerable to Chinese enticements. However, the economics of sophisticated regional supply chains and business environments suggests that Bangladesh and Sri Lanka could gain while others might miss out. Outward-FDI by Indian companies to Bangladesh and Sri Lanka can be usefully supported by a Make in South Asia Programme and comprehensive bilateral FTAs.

Fifth, outward-oriented development strategies, smart business strategies, and facilitating business associations are critical for South Asia, while close business and government collaboration promotes policy coordination. Some South Asian countries are also looking for quick recovery fixes and industrial policies are in vogue to promote supply chains entry. However, it may be a costly mistake for South Asia, with less industrial experience and state capacity, to copy wholesale East Asian style industrial policies. A lack of policy space and risks of government failure and cronyism could loom large in Bangladesh and Sri Lanka. But, with more state capacity, India could refine its targeting of foreign investors, invest more in STEM education and build industrial capacity. Before deploying a gamut of industrial interventions, South Asian governments should collaborate with think tanks to gain a better understanding of the appropriate mix of macroeconomic, trade and industrial policies for recovery.

Notes

[1] Future research can extend the coverage of the research include Myanmar and possibly Thailand, thereby capturing the essence of supply chains dynamics in the Bay of Bengal.

[2] Jones and Kierzkowski (1990). The fragmentation of production approach—found in seminal work by Jones and Kierzkowski (1990) and Arndt and Kierzkowski (2001)—has become the standard framework for international economists to study supply chain trade. Important work on global value chains can be found in Gereffi (2018).

[3] See Baldwin and Gonzalez, (2014); Cigna, Gunnella and Quaglietti (2022).

[4] Dr. S Jaishankar (@DrSJaishankar). "Its focus is on building a fairer, inclusive and open international architecture with sustainable development at its core. Creating resilient and reliable supply chains are central to ensuring that no one is left behind." June 02, 2023, Twitter. https://twitter.com/DrSJaishankar/status/1664618745539469312.

[5] Baldwin, and Lopez-Gonzalez (2014).

[6] An alternative approach to intermediate goods exports examines the value added by each country in the production of goods and services that are consumed worldwide (see ADB, 2021). While the value-added approach provides for arguably accurate estimates of the behavior of global value chains, the input-output tables on which they are based can be rather dated for some countries.

[7] Abashi and Kimura (2016).

[8] World Bank (1993).

[9] For a comparative analysis of trade policy and exports in China and India, see Wignaraja (2011) and Wignaraja et al. (2018).

[10] Chen, T., C.T. Hsieh, and Z. Song (2022).

[11] "Biden Administration Imposes Sweeping Tech Restrictions on China." The Guardian, October 7, 2022. https://www.theguardian.com/us-news/2022/oct/07/biden-administration-tech-restrictions-china. For a detailed history of the geopolitics of the so-called 'chip wars' see Miller (2022)

[12] These trends are confirmed by the US National Science Foundation. See Burke, Okraint, and Hale (2022).

[13] McBride and Chatzky (2022).

[14] Wijesinha (2021).

[15] Rahman and Moazzem (2022).

[16] This figure is from Sinha and Sareen (2020).

[17] This figure is from Sinha and Sareen (2020).

[18] Taneja, Prakash, Bimal, Garg, and Roy (2020).

[19] World Bank (2022).

[20] Cheng (2022).

[21] Singh, (2022).

[22] Kharpal (2022).

[23] Palit (2022).

[24] Dhar (2022).

[25] Agarwal and Wignaraja (2023

[26] Batra (2022) .

[27] Model based studies suggest significant welfare gains from a comprehensive India-UK FTA. Estimates from DIT (2022) suggest total bilateral trade in goods and services could rise from GBP25.7 billion in 2021Q1-2022Q1[2] to around GBP39.7 billion by 2035. Powered by trade, India's GDP could increase by between GBP3.7 billion to GBP8.8 billion by 2035 and the UK's GDP by between GBP3.3 billion to GBP6.2 billion.

[28] The restructuring includes goals increasing India's share in international trade, assuming leadership roles in multilateral organisations, creating 100 Indian brands as global champions, and establish economic zones in India to strengthen the manufacturing sector and attract investments. https://pib.gov.in/PressReleasePage.aspx?PRID=1853971.

[29] Saraswat, Priya and Ghosh (2017) suggest that preference utilization under India's previous FTAs is low at about 25% related to a lack of information about preferences, low margins of preference, delays, administrative costs associated with rules of origin, and impediments caused by non-tariff barriers.

[30] See Burke, Okrent, and Hale (2021)

[31] Bhandari, Chakraborty, Punjabi, and Dasgupta (2022).

[32] Wignaraja, (2021).

[33] Amsden (1989), Wade (1995) are classics in this tradition, and they typically provide a positive view

on the success of industrial policies in Korea and Taiwan. See Rodrik (2019) for a survey of the literature.

[34] Recent research has drawn on case studies to identify guiding principles for successful industrial policy. Terzi, Singh and Sherwood (2022) suggest six basic design characteristics when designing industrial policy that can maximize impacts while minimizing risks: (i) future-oriented; (ii) sector and technology-driven; (iii) competition is a strength; (iv) top down, but also bottom up; (v) accountable, non-partisan and adaptable; and (vi) holistic approach).

[35] Best (2005).

References

ADB (2021), Global Value Chain Report 2021: Beyond Production, Manila: Asian Development Bank.

Agarwal, P. and G. Wignaraja (2023), "UK-India FTA Negotiations: Contentious Issues, Potential Solutions", ODI Blog 1 March 2023. Available at: https://odi.org/en/insights/uk-india-fta-negotiations-contentious-issues-potential-solutions/ Also published as a Gateway House Commentary https://www.gatewayhouse.in/uk-india-fta-negotiations-contentious-issues-potential-solutions/

Arndt, S. W. and H. Kierzkowski. 2001. Fragmentation: New Production Patterns in World Economy. Oxford, UK: Oxford University Press.

Akamatsu, K. (1962); "A Historical Pattern of Economic Growth in Developing Countries", Journal of Developing Economies, 1(1), 3-25, March-August.

Baldwin, R., and J.V. Gonzalez (2014). "Supply-Chain Trade: A Portrait of Global Patterns and Several Testable Hypotheses", The World Economy. Online version. DOI 10.111/twec.12189.

Batra, A. (2022), India's Trade Policy in the 21st Century, London: Routledge.

Best, M. (2001), The New Competitive Advantage: The Renewal of American Industry, Oxford: Oxford University Press.

Bhandari, A., S. Chakraborty, N. Punjabi, and G. Dasgupta (2021), Unfinished Connectivity in the Bay of Bengal, Mumbai: Gateway House.

Burke, A., A. Okrent, and K. Hale. "Science & Engineering Indicators." NSF, January 18, 2022. https://ncses.nsf.gov/pubs/nsb20221/u-s-and-global-research-and-development.

Chen,T., C.T. Hsieh, and Z. Song (2022) "Non-Tariff Trade Barriers in the U.S.-China Trade War", BFI Working Paper No. 2022-99, Becker Friedman Institute China: University of Chicago.

Cigna, S., V. Gunnella and L. Quaglietti (2022), "Global Value Chains: Measurement, Trends and Drivers", European Central Bank Occasional Papers No. 289, January.

Dhar, B. (2022), "India's Renewed Embrace of Free Trade Agreements" East Asia Forum, 21 February Available at: https://www.eastasiaforum.org/2022/02/21/indias-renewed-embrace-of-free-trade-agreements/

DIT (2022), UK-India Free Trade Agreement: The UK's Strategic Approach, London: UK Department for International Trade.

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1046839/uk-india-free-trade-agreement-the-uks-strategic-approach.pdf

Gereffi, G. (2018), Global Value Chains and Development: Redefining the Contours of 21st Century Capitalism, Cambridge: Cambridge University Press.

IMF (2023), World Economic Outlook 2023, April, Washington DC: International Monetary Fund.

Jones, R. W and H. Kierzkowski (1990), "The Role of Services in Production and International Trade: A Theoretical Framework" in R. W Jones and A. O. Krueger (eds) The Political Economy of International Trade: Essays in Honour of R.E. Baldwin, Oxford, UK: Basil Blackwell.

Kathuria, S. R. Yatawara and X. Zhu (2021), Regional Investment Pioneers in South Asia: The Payoff of Knowing Your Neighbors. Washington DC: World Bank.

Kharpal, A. (2022) "'India Has a Big Role to Play': New Delhi Is Trying to Turn the Country into a Chip Powerhouse." CNBC, September 26, 2022. https://www.cnbc.com/2022/09/26/how-india-is-trying- to-turn-itself-into-a-semiconductor-powerhouse.html#:~:text=India%20doesn't%20have%20any,billion%20manufacturing%20facility%20in%20Indi.

Kimura, F. and A. Obashi (2016), "Production Networks in East Asia: What Do We Know So Far? in G. Wignaraja (2016 edited), Production Networks and Enterprises in East Asia, Springer.

McBride, J. and A. Chatzky (2019) "Is Made in China 2025, a Threat to Global Trade?" Backgrounder, Council on Foreign Relations 13 May 2019 https://www.cfr.org/backgrounder/made-china-2025-threat-global-trade

Miller, C. (2022), Chip War: The Fight for the World's Most Critical Technology, Scriber: New York.

Rahman, M. and K.G Moazzem (2022), "Enhancing Global Competitiveness in Textile and Garment Exports in South Asia", UNESCAP South and South West Asia Development Papers, 22-04, March.

Ray, S. and S. Miglani (2018), Global Value Chains and Missing Links: Case Studies from Industry, London: Routledge India.

Rodrik, D. (2019), "Where are we in the economics of industrial policies?" Article, VoxDev 21/09/2019.

https://voxdev.org/topic/public-economics/where-are-we-economics-industrial-policies

Palit, A. (2022), "The IPEF Advances – Is India Ready?", ISAS Briefs 4 August 2022, Institute of South Asian Studies, National University of Singapore.

Peiris, S.J., Lian, W., Deb, P., Blagrave, P., and Yang, N. (2023) "Boosting Trade and Value Chain Participation to Sustain Growth in South Asia" in R. Salgado and R. Anand (eds.), South Asia's Path to Resilient Growth, Washington DC: International Monetary Fund.

Saraswat, V.K., P. Priya, and G. Ghosh, (2017), "A Note on Free Trade Agreements and their Costs," NITI Aayog, New Delhi.

R. Sinha and N. Sareen (2020) "India's Limited Trade Connectivity with South Asia", Policy Brief May 2020, New Dehi: Brookings Institution India Centre. https://www.brookings.edu/wp-content/uploads/2020/05/Trade-Policy-Brief.pdf

Singh, S. and S. Banerjee (2022) "Is there any Dichotomy Between India's New FTA Strategies and its Trade Policy?", Economic and Political Weekly Commentary Vol 57: No 24, 11 June.

Singh, H.S. (2022) "Mercedes-Benz Launches 'made in India' EQS 580 Electric Car at ₹1.55 Crore." The Hindu BusinessLine, September 30, 2022. https://www.thehindubusinessline.com/companies/mercedes-benz-launches-made-in-india-eqs-580-electric-car-at-155-crore/article65955026.ec.

Taneja, N., S. Prakash, S. Bimal, S. Garg and R. Roy (2020), "Indo-Nepal Trade and Investment: An Analysis", India Quarterly: A Journal of International Affairs, vol. 76, issue 2, 243-275

Ting-Fang, Cheng. "Apple Already Building Latest Iphone 14 in India." Financial

Times, October 2, 2022. https://www.ft.com/content/1da1caa6-cd98-4335-902a-1bec453fc61.

Terzi, A., A. Singh and M. Sherwood, (2022), "Industrial Policy for the 21st Century: Lessons from the Past", European Commission Discussion Paper 157, January.

Wignaraja, G. (2011), Economic Reforms, Regionalism and Exports: Comparing China and India, Policy Studies No. 60. Honolulu: East West Center.

Wignaraja, G. (2015) Factors Affecting Entry into Supply Chain Trade: An Analysis of Firms in Southeast Asia", Asia-Pacific Policy Studies (Australian National University), 2:3, September, 2015, 623-642.

Wignaraja, G., J. Zhuang, M.J. Marasingham and M. Dumaua-Cabauatan (2017) "Changing Patterns of Trade and Global Value Chains in Postcrisis Asia", ADB Brief, February, Manila: Asian Development Bank.

Wignaraja, G., J. Tyson, A. Prizzon and D.W te Velde (2018), Asia in 2025: Development Prospects and Challenges for Middle Income Countries, London: ODI.

Wignaraja, G. (2021), "Macroeconomic Impact of Covid-19 and Policy Choices for Sri Lanka", Pathfinder Foundation Occasional Paper No. 2, Colombo: Pathfinder Foundation. https://pathfinderfoundation.org/images/publications/outcome_documents/2021/pf-odi%20occasional%20paper%20nov%202021%20final%202911211%20soft%20copy.pdf

Wignaraja, G. (2023), "Fostering Regional Integration Between East Asia and South Asia for Covid-19 Recovery" in R. Salgado and R. Anand (eds.), South Asia's Path to Resilient Growth, Washington DC: International Monetary Fund.

Wijesinha, A. (2021), "Sri Lanka and Global Manufacturing Value Chains: Performance, Prospects and Learnings from China", Paper prepared for UNCTAD/BRI PROJECT/RP14, October. https://unctad.org/system/files/official-document/BRI-Project_RP14_en.pdf

World Bank (1993), The East Asian Miracle: Economic Growth and Public Policy, New York: Oxford University Press.

World Bank (2022). South Asia's Digital Opportunity: Accelerating Growth, Transforming Lives, Washington, DC: World Bank.

WTO (2021), Trade Policy Review: China, Geneva: World Trade Organization.

WTO (2022), "Information note on trade in intermediate goods: Fourth quarter 2021", Geneva: World Trade Organization.

WTO (2023), "Information note on trade in intermediate goods: Fourth quarter 2022", Geneva: World Trade Organization.