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BRICS and Industrial Cooperation: China's Role and Lesson from ASEAN

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Abstract

Industrial cooperation among BRICS countries (Brazil, Russia, India, China, and South Africa) has been mostly lacking to date, exacerbated by the absence of a memorandum of understanding or agreement on the subject. However, there have been discussions about forming an industrial intra-venture. According to the records of ministerial meetings, only China expressed an interest in industrial cooperation because it possesses the capability, including industrial technology, productive capital, and human resources, to establish a joint venture for manufacturing activities. Russia and India also possess these skills, but they lack the ability to lead or force member states to form an industrial cooperation. In short, the BRICS member states lack considerable industrial collaboration, either bilaterally or through multilateral accords. In contrast, ASEAN maintains an active industrial cooperation among its member states, despite the fact that some of their industrial ventures

have failed due to a lack of technical know-how and technological development capacities, as well as productive and human capital. Nonetheless, investment amongst ASEAN countries has expanded due to the development of ASEAN Industrial Cooperation (AICO). One of the primary components of industrial cooperation is cross-border, or intra-regional, investment. This article examines inward and outward investments among the BRICS member states, the feasibility of industrial collaboration among them, and China's role in fostering this cooperation. ASEAN member states' industrial cooperation experiences will be explored to determine what lessons BRICS can learn from ASEAN.

Keywords: *industrial cooperation, intra-investment, BRICS, China, ASEAN*

1. Introduction

Politics and the market place encourage industrial cooperation. Governments generally initiate cooperation through bilateral or multilateral agreements, such as informal guidance or collaborative projects. This form of cooperation is also influenced by market forces, such as high development costs, global demand, marketing, and other factors. The players are industry firms, governments, and other business organisations that service the country's total industry and private sector in general. Industrial cooperation is the practise of conducting transnational operations between businesses, industries, or industry associations in order to establish a collaborative environment conducive for future cooperation. Thus, cooperation might be a discrete activity or a continuous process. However, this definition excludes the government's role in establishing industrial cooperation, whether with a single country or a group of countries.

Regional cooperation is a critical component of economic and industrial development. In regards to BRICS (Brazil, Russia, India, China, and South Africa), despite the fact that a number of proposals were debated and created, a lack of enthusiasm in boosting regional economic cooperation resulted in its premature demise. This could be explained by the restricted intra-regional economic activity that are restrained by geographical distance. The BRICS regional initiatives for trade and investment cooperation are integrated, forming a network of intra- and cross-regional arrangements. The effectiveness of this strategy in promoting trade and investment that flows inside and outside the region is contingent on not just the qualities of each arrangement, but also on their complementarity. Foreign direct investment (FDI) figures demonstrate that the BRICS intra-investment flow does not clearly represent industrial cooperation.

Industrial cooperation has developed slowly due to market strength. China possesses market dominance and, indirectly, the dominance of BRICS too. Certain BRICS members enjoy a competitive edge in manufactured goods, while others, such as Russia, excel in primary industries. On the output front, China and India have seen a dramatic shift in their economic structure, with the agricultural sector contributing less to GDP and the non-agricultural sector (industrial and service sectors) contributing more. Brazil and South Africa are transitioning away from basic industries and moving toward manufacturing. Manufacturing has risen sharply in China and India, where it is seen as the primary economic driver. Another aspect that could bolster industrial cooperation among BRICS is research and development (R&D) and technical advancement, which are critical areas of focus for China, Russia, and India. A cross-disciplinary approach to R&D, or a partnership in R&D activities, could result in a concrete industrial

collaboration. On the other hand, conflicts over market share and influence within BRICS have slowed industrial cooperation. Concerns over China's expansion and motivations have also harmed industrial cooperation among member states.

In general, BRICS has seen quick and broad restructuring of its manufacturing sector. Consistent with the alteration in the production structure, the trade sector has also undergone a transformation. Primary exports' share of total exports has declined, while manufactured goods' share has risen. Imported manufactured goods have steadily increased in share. The manufacturing sector's dominance is largely due to the impact of industrialization policies and a large inflow of FDI, which has boosted export industries, particularly in China. However, foreign money is mostly responsible for the expansion and export of manufactured goods. Since 2000, electric machinery, equipment, and parts have accounted for approximately 22per cent of China's total exports. Brazil, India, and South Africa have all benefited from substantial FDI inflows to develop their manufacturing sectors.

International power relations influence the evolution of regional economic arrangements. It appears as though BRICS's association is incapable of promoting regional economic integration due to geographical constraints that act as an obstacle to economic cooperation. BRICS member nations are averse to ceding their autonomy and national sovereignty, both of which are necessary for regional economic cooperation to flourish since their economic and industrial development is state-driven. The influence of industries and enterprises is another significant factor in the evolution of regional economic arrangements in BRICS. States and industry or business organisations should work together to advance cross-border industrial cooperation.

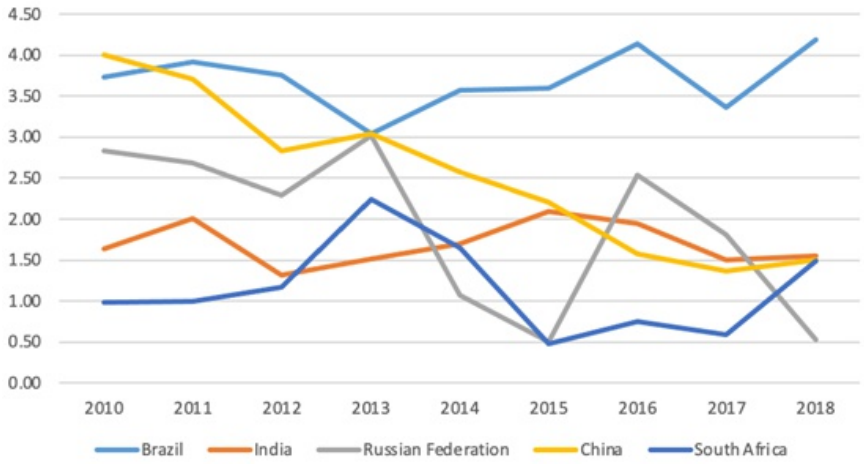
2. Foreign Direct Investment in BRICS

Foreign Direct Investment (FDI) is defined by the United Nations Conference on Trade and Development (UNCTAD) as "investment made to acquire a long-term interest in firms operating outside the investor's economy". FDI is critical for emerging economies, as it contributes to their development and economic progress by fostering economic integration, trade technology, and globalisation. Recipient countries tend to benefit from increased employment and income generation, technological know-how, and the acquisition of additional managerial skills (Crespo and Fontoura, 2007).

BRIC (Brazil, Russia, India, and China) was founded in 2001 with the signing of an agreement by Jim O'Neill of Goldman Sachs. O'Neill argued that the four major economies – Brazil, Russia, India, and China – would emerge as the world's richest by 2050, and that they have a significant potential to become a powerful and influential economic bloc. South Africa became a member of BRIC in 2010, and the organisation was renamed BRICS to reflect the addition. Due to their growing populations and expanding infrastructure, BRICS's largest and fastest-growing economies are regarded with attractive investment opportunities. BRICS account for 40 per cent of the world's population and account for 25 per cent of the world's land area. These countries are endowed with major natural resources, including oil, agriculture, coal, natural gas, and iron ore (Koba, 2015). BRICS's objectives are to promote sustainable development by strengthening cooperation and shared prosperity, promote intra-BRICS trade, commercial, business, investment, travel, and tourism relationships, promote people-to-people exchanges, provide loans to finance infrastructure projects through the New Development Bank (NDB), and combat terrorism.

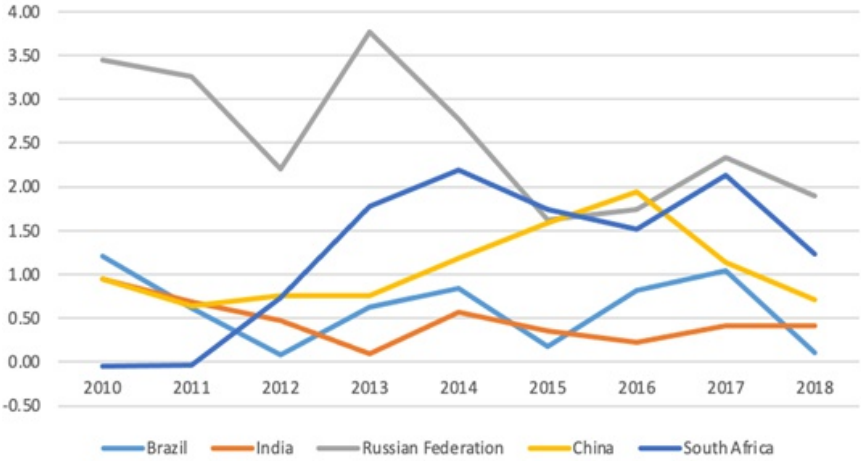
BRICS is also considered to be among the most significant group of developing countries, with the potential to be major drivers of the world's economy. Finardi (2015) found that inter-BRICS interactions are stable despite the presence of heterogeneity across multiple scientific fields. Emerging economies witnessed an increased FDI flow by 2 per cent to US$706 billion and it remained stable. BRICS secured FDI inflows of US$270 billion in 2017 and US$261 billion in 2018, respectively, while their economies received 18 per cent and 20 per cent of global FDI inflow in 2017 and 2018, respectively. BRICS's economies collectively accounted for 24 per cent of global GDP in 2018. (UNCTAD). Figures 1 and 2 illustrate patterns in net foreign direct investment inflow and outflow relative to the five BRICS economies' GDP from 2010 to 2018.

Figure 1 BRICS Countries' FDI Net Inflows 2010-2018 (per cent of GDP)



Source: Adapted from *World Development Indicators* (World Bank).

Figure 2 BRICS Countries' FDI Net Outflows (per cent of GDP)



Source: Adapted from *World Development Indicators* (World Bank).

Figure 1 shows that Brazil had received the biggest net influx of FDI in recent years, accounting for 4.18 per cent of GDP in 2018. In 2018, the following sectors benefited most from FDI in Brazil, namely petroleum and natural gas (11.4 per cent), motor vehicles, trailers, semi-trailers and components (9.8 per cent), financial and auxiliary service, and business sector (7.6 per cent), electricity and natural gas (6.8 per cent), chemical goods (5.4 per cent), pulp, paper, and derivatives of paper (5.1 per cent), information and technology services (4.3 per cent), supplementary storage and transportation activities (4.1 per cent) foodstuffs (3.5 per cent) support services for mining (3.3 per cent), and additional services (2.8 per cent). Inward investment was approximately US$684.21 billion in 2018, which was an increase of 16.7 per cent over 2015. There was a total of 20,198 foreign affiliates operating in the nation, with 4,184 parent corporations (Table 1).

Table 1 BRICS – Inward Investment in 2018 (US$ billion)

	Foreign Direct Investment			Foreign Affiliates	
	Inflow	Inward Stock	Change since 2015 (per cent)	Number	No. of Parents
Brazil	**61.22**	**684.21**	**16.7**	**20,198**	**4,184**
Russia	**13.33**	**407.36**	**15.7**	**13,141**	**7,322**
India	**42.29**	**386.35**	**11.0**	**4,593**	**1,863**
China	**139.04**	**162.77**	**10.1**	**31,967**	**18,224**
S. Africa	**5.33**	**128.81**	**0.5**	**1,204**	**715**

Source: *Investment Map <https://www.trademap.org/>*.

In 2018, Russia received FDI worth 0.53 per cent of its GDP. The country's FDI inflow has been steadily declining with US$37.2 billion in 2016, US$26 billion in 2017, and US$13.3 billion in 2018. Mining and quarrying received the most FDI inflow in 2018, accounting for 25.2 per cent, followed by manufacturing (20.2 per cent), trade and repair of motor vehicles (16.4 per cent), financial activities and insurance (12.2 per cent), public administration and defence, and compulsory social security (8.1 per cent), and real estate (5.9 per cent). The overall FDI stock was approximately US$407.36 billion in 2018, an increase of 15.7 per cent since 2015. There were 13,141 overseas affiliates in all, with 7,322 parent businesses.

In 2018, India maintained a FDI net inflow of 1.55 per cent of the GDP compared to 1.55 per cent of the GDP in 2017. The manufacturing sector received a FDI inflow totalling US$7,919 million, followed by the financial sector (US$6,372 million), communication services (US$5,365 million), retail and wholesale trade (US$4,311 million), computer services (US$3,453 million), business services (US$2,597 million),

electricity and other energy generation, distribution & transmission (US$2,427 million), construction (US$2,009 million), miscellaneous services (US$1,226 million), transport (US$1,019 million), restaurants and hotels (US$749 million), as well as education, research and development, mining, and real estate sectors with US$736 million, US$247 million, and US$213 million, respectively (Indian Reserve Bank). Total FDI inward stock in 2018 was approximately US$386.35 billion, an increase of 11 per cent since 2015. The total number of foreign affiliates was 4,593, with 1,863 parent companies.

In 2018, China's FDI accounted for 1.50 per cent of its GDP. According to the *2019 World Investment Report*, China is also the world's second-largest FDI receiver. Manufacturing received the most FDI (25.5 per cent) in 2017, followed by information transmission, computer services, and software (15.9 per cent), real estate (12.8 per cent), leasing and business services (12.7 per cent), wholesale and retail (8.7per cent), financial intermediation (6.0 per cent), scientific research, technical service, and geologic prospecting (5.2 per cent), and transportation (5.2 per cent). In 2018, total FDI inflow stock was more than US$162.77 billion, up 10.1 per cent from 2015. There were 31,967 overseas affiliates in all, with 18,224 parent businesses.

In 2018, FDI inflow to South Africa accounted for 1.49 per cent of the country's GDP. According to UNCTAD's *World Investment Report 2019*, South Africa attracted US$5.3 billion in FDI inflow in 2018, an increase of 166 per cent over multiple years of FDI. Financial and insurance services, real estate and business services attracted 44.6 per cent of FDI inflow in 2017, followed by mining and quarrying (21.2 per cent), manufacturing (15.9 per cent), transport, storage and communication (10.2 per cent), wholesale and retail trade, catering and accommodation (6.5 per cent), and community, social and personal services (6.5 per cent). In 2018, the total FDI inflow stock was more

than US$128.81 billion, up 0.5 per cent from 2015. There were 1,204 overseas affiliates in total, with 715 parent corporations.

Figure 2 depicts net FDI outflows from five BRICS nations. Russia has experienced the biggest net FDI outflow in the last decade, accounting for 1.8 per cent of the GDP in 2018. Investment outflows from South Africa, China, and India accounted for 1.23 per cent, 0.71 per cent, and 0.42 per cent of their GDPs, respectively. Brazil experienced the lowest net FDI outflows in 2018, at 0.11 per cent of the GDP (see Figure 2). Brazil's stock market outflow was approximately US$229.07 billion in 2018 involving 210 parent firms and 679 subsidiary enterprises (Table 2).

Table 2 BRICS – Outward Investment in 2018 (US$ billion)

	Foreign Direct Investment			Foreign Affiliates	
	Outflow	Outward Stock	Change since 2015 (per cent)	Number	No. of Parents
Brazil	-13.04	229.07	7.40	210	679
Russia	36.44	344.09	6.80	200	349
India	11.04	166.19	6.10	777	1,528
China	129.83	193.89	20.9	303	829
S. Africa	4.55	237.98	15.40	167	311

Source: *Investment Map <https://www.trademap.org/>*.

In the case of Russia, outbound investment totalled approximately US$344.09 billion in 2018, with 200 Russian enterprises having invested abroad, along with 349 affiliates. India's total outbound investment stock was US$166.19 billion in 2018, with 777 of its parent businesses investing abroad. China's total outward investment stock was

US$193.89 billion in 2018, and the country has 303 foreign-based enterprises. South Africa's total outbound investment stock was US$237.98 billion in 2018, and the total number of South African enterprises investing abroad was 167.

3. Industrial Cooperation in BRICS

Industrial cooperation among BRICS member states is still in its infancy. Despite member states' initiatives, the BRICS' commitment to actualize industrial cooperation is not very encouraging at the moment. Cross-border foreign direct investment or intra-BRICS investment is one sign of industrial cooperation. Foreign investment is low across the BRICS and there is a dearth of statistics on intra-BRICS investment. The Association of Southeast Asian Nations (ASEAN) has worked to expand intra-investment through various industrial cooperation, and it was only after the founding of ASEAN Industrial Cooperation (AICO) that intra-investment increased significantly.

The key player involved in the development of economic integration through intra-investment in BRICS is China. Even though China has an economic or political agenda by investing in BRICS, such as the exploration of natural resources, capturing market share for its manufactured goods, and developing intra-services trade, however, efforts by the Chinese government and firms in building an industrial cooperation is unquestionable. In 1995, China's exports to BRICS were US$3.8 billion, and they climbed to US$176.4 billion in 2019 (Table 3). Russia and India are its key export destinations. China's imports from BRICS in 1995 was approximately US$6.1 billion and it surged to US$183.4 billion in 2019 (Table 4). Brazil and Russia are the biggest source of imports. In aggregate terms, China had trade deficits with all BRICS members.

Table 3 China's Imports from BRICS (in percentages)

	Brazil	Russia	India	S. Africa	Total (US$ million)
1995	20	62	6	11	6,127
2000	17	59	14	10	9,157
2005	26	41	25	9	39,092
2010	38	26	21	15	99,544
2015	37	27	11	25	121,224
2019	43	33	10	14	183,362

Source: *China Statistical Yearbook*.

Table 4 China's Exports to BRICS (in percentages)

	Brazil	Russia	India	S. Africa	Total (US$ million)
1995	20	44	20	17	3,832
2000	20	37	26	17	6,038
2005	16	43	29	12	30,803
2010	23	28	39	10	105,810
2015	20	26	43	12	136,386
2019	20	28	42	9	176,447

Source: *China Statistical Yearbook*.

In 2003, Chinese investment in BRICS-4 was US$46 million (Table 5) and it grew to US$2.0 billion in 2018. The accumulated stock of China investment to BRICS-4 from 2003-2018 was US$24.6 billion. Most Chinese investments were centred on Russia and South Africa, totalling US$12.2 billion and US$7 billion, respectively, while investment by BRICS-4 to China, from 1997-2018, based on the accumulated stock, was US$3.3 billion (Table 5). Among the BRICS-4,

Russia was the leading investor in China followed by India, South Africa and Brazil. Thus, it is obvious that China has stronger corporate interest in BRICS-4 compared with the rest of the member states. Table 5 illustrates that China is seeking to create industrial cooperation and connections with BRICS.

Table 5 China's Investment in BRICS (US$ million)

	Brazil	Russia	India	S. Africa	Total (US$ million)
2003	**7**	**31**	**0**	**9**	**46**
2004	**6**	**77**	**0**	**18**	**102**
2005	**15**	**203**	**11**	**47**	**277**
2006	**10**	**452**	**6**	**41**	**509**
2007	**51**	**478**	**22**	**454**	**1,005**
2008	**22**	**395**	**102**	**4,808**	**5,327**
2009	**116**	**348**	**-25**	**42**	**481**
2010	**487**	**568**	**48**	**411**	**1,514**
2011	**126**	**716**	**180**	**-14**	**1,008**
2012	**194**	**785**	**277**	**-815**	**441**
2013	**311**	**1,022**	**149**	**-89**	**1,393**
2014	**730**	**634**	**317**	**42**	**1,723**
2015	**-63**	**2,961**	**705**	**233**	**3,836**
2016	**125**	**1,293**	**93**	**843**	**2,354**
2017	**426**	**1,548**	**290**	**317**	**2,582**
2018	**428**	**725**	**206**	**642**	**2,001**
Accumulated Stock	**2,992**	**12,236**	**2,381**	**6,990**	**24,599**
BRICS Investment in China, total from 1997-2018	***678.5***	***941.2***	***897.2***	***765.7***	***3,282.6***

Source: *China Statistical Yearbook*.

This section discusses intra-China-Russian investment (see Table 6). Chinese investment in the mining industry is substantial, mainly concentrated in oil exploration. Chinese firms invested a total of US$3.4 billion in Russia's mining industry (including oil exploration) (Table 6). The second largest investment sector by Chinese firms is agriculture (including forestry and fisheries), which received approximately US$2.9 billion in total. With a total investment of US$2.7 billion, the finance industry is the third largest recipient.

Table 6 China's Investment to Russia by Sector (US$ million)

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	*Total*
Agriculture	69.6	180.6	147.5	235.3	400.4	352.3	346.8	432.8	289.9	398.3	*2853.5*
Mining	20.7	49.0	303.9	106.7	227.0	82.4	1410.5	542.4	599.5	74.9	*3416.8*
Construction	3.7	24.2	12.1	62.6	20.5	6.5	19.0	-2.9	48.8	71.4	*265.8*
Manufacturing	56.1	69.8	44.2	174.0	165.3	115.5	276.3	222.6	131.0	211.9	*1466.4*
Finance	14.3	209.4	47.7	152.6	158.6	37.4	807.8	73.3	197.8	-11.6	*1687.2*
Real Estate	174.4	2.4	76.3	4.1	4.6	10.8	57.9	-57.2	51.2	-6.5	*318.1*
Transportation	2.7	1.4	2.3	0.3	1.5	0.2	0.0	1.4	22.5	-0.4	*31.8*
Wholesale, Retail	6.0	29.6	81.3	46.0	42.6	24.7	16.0	52.2	101.1	-39.0	*360.4*
Other Industries	0.9	1.3	0.7	3.1	1.9	3.8	26.7	28.5	106.2	9.7	*182.7*
Total	*348.3*	*567.7*	*715.8*	*784.6*	*1022.3*	*633.6*	*2960.9*	*1293.1*	*1548.0*	*708.6*	*10582.8*

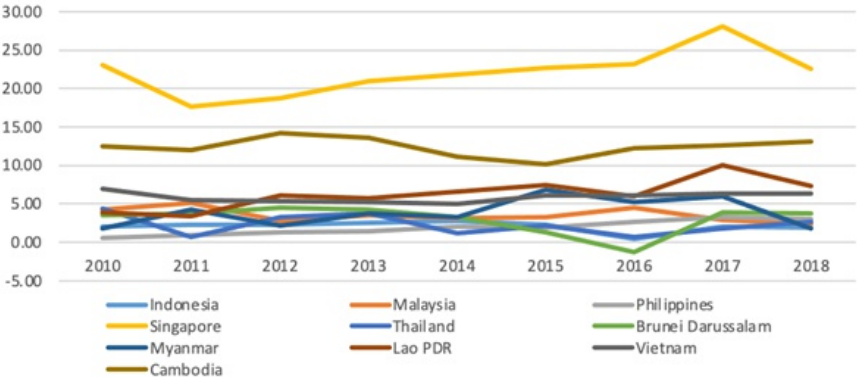
Source: National Bureau of Statistics, People's Republic of China.

4. Foreign Direct Investment in ASEAN

The net inflow and outflow of foreign direct investment (FDI) in relation to GDP for ASEAN nations are depicted in Figures 3 and 4. Malaysia attracted FDI worth US$2.39 billion in 2018, accounting for 2.39 per cent of its GDP. FDIs have varied between US$12 billion and US$9 billion since 2010. FDI inflow totalled US$8.09 billion in 2018 (UNCTAD *World Investment Report 2019*). The real estate sector

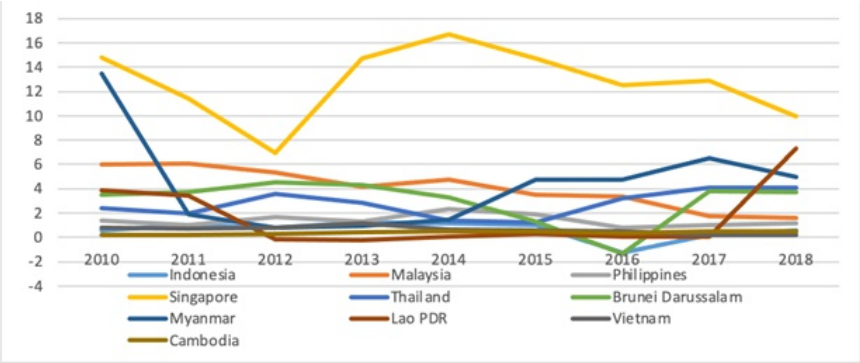
received the most FDI inflow at 23.7 per cent, followed by the petroleum products sector at 16.3 per cent, basic metals industry at 6.5 per cent, electrical and electronic products at 5.6 per cent, and mining at 5.1 per cent in 2018. In comparison, Malaysia's net investment outflow in 2018 was approximately 1.59 per cent of the GDP. In 2018, Indonesia's overall FDI was 1.89 per cent of the GDP, or US$21 billion, an increase from the previous year (*ibid.*). The primary beneficiaries were the metal, machinery, and electronic industries, which received 13.7 per cent of FDI each, followed by the mining sector (12.2 per cent), electricity, gas, and water supply sectors, (12 per cent), chemical and pharmaceutical industries (9.7 per cent), and the food industry (8.5 per cent). In 2018, it lost approximately 0.61 per cent of its investment.

Figure 3 ASEAN Countries' FDI Net Inflows, 2010-2018



Source: *World Development Indicators*, World Bank (own compilation).

Figure 4 ASEAN Countries' FDI Net Outflows, 2010-2018



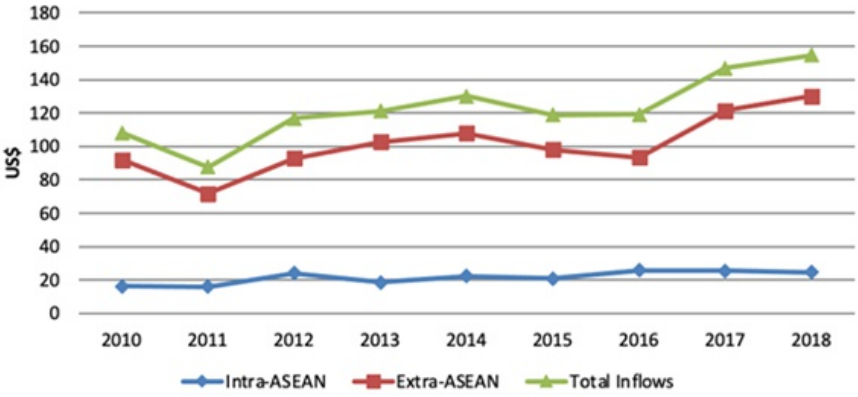
Source: *World Development Indicators*, World Bank (own compilation).

ASEAN's economic growth and industrial development are clearly dependent on foreign funding. The trend of FDI entry into ASEAN is highly correlated with the growth of its manufacturing exports (Mohamed Aslam, 2005). By and large, trade within ASEAN and with its major trading partners (the United States of America, Japan, China, and Germany) is between firms. Multinational corporations operating in ASEAN have effectively established a robust manufacturing network in the region.

Investment flow within ASEAN has accelerated dramatically since the founding of AIA and AICO, together with the removal of investment restrictions. Generally, members of ASEAN are open to foreign investment, notably in the industrial sector. Figure 5 depicts intra-ASEAN investments. Intra-investment growth is modest and highly dependent on external economic conditions. FDI to ASEAN, including intra-ASEAN investment, plummeted dramatically during the Asian Financial Crisis of 1997/1998. The US financial crisis and the

subsequent global economic downturn between 2009 and 2010 had affected ASEAN's FDI inflow. Intra-ASEAN investment totalled US$25 billion in 2018, accounting for approximately 16 per cent of total FDI inflow into the region. In 2018, intra-industry investment was the main source of FDI. The inflow of intra-ASEAN FDI increased at a 5.2 per cent annual rate from US$16.3 billion in 2010, with the agricultural sector benefiting the most. 84 per cent of FDI in agriculture sector was intraregional in nature (ASEAN Secretariat, 2019: 27).

Figure 5 ASEAN Countries' FDI Inflows (US$ billion)



Source: *ASEANStatsDataPortal*, www.asean.org.

Intra-ASEAN investments have grown as a result of regional integration, investment opportunities, and the increase of corporate activities, among other causes. In 2018 and 2019, some prominent ASEAN corporations continued to develop regionally (*ibid.*: 31). Aside from significant investments in agriculture, ASEAN investors were active in manufacturing, banking, as well as wholesale and retail trade in 2018. In 2018, the services sector received the largest portion of foreign

direct investment (FDI), accounting for 48per cent of intraregional investment. However, between 2017 and 2018, the manufacturing portion of intra-ASEAN trade increased by 4 per cent, to 33 per cent. (*ibid.*: 33).

5. Industrial Cooperation in ASEAN

The Association of Southeast Asian Nations (ASEAN) is an inter-governmental regional organisation founded in Bangkok, Thailand on 8 August 1967. Malaysia, the Philippines, Indonesia, Singapore, and Thailand founded ASEAN by signing the Bangkok Declaration (or ASEAN Declaration), with Brunei Darussalam joining ASEAN on 7 January 1984, followed by Vietnam on 28 July 1995, Myanmar and the Lao People's Democratic Republic on 23 July 1997, and Cambodia on 30 April 1999. ASEAN currently consists of ten member states and is classified as a regional inter-governmental organisation. ASEAN's mission and goals are to foster cooperation and facilitate military, security, sociocultural, educational, economic, and political cooperation among its member states.

The Association of Southeast Asian Nations (ASEAN) Economic Cooperation was created in 1972 on the proposal of a United Nations report titled "Economic Cooperation Among ASEAN Member Countries". The report urged ASEAN countries to liberalise trade and establish a market based on mutual dependence. Economic and industrial development have long been a focus of ASEAN member states' regional cooperation. Since the late 1970s, they have developed and implemented a variety of economic cooperation programmes.

In order to strengthen trade links, ASEAN developed the Preferential Trading Arrangement (PTA) in 1978, which is a type of free and open trade arrangement. However, the PTA was unable to

accomplish its purpose. In 1991, ASEAN's intra-trade represented around 20 per cent of overall ASEAN exports to the world, which was comparable to the figure recorded in 1970 (Mohamed Aslam, 1996). When ASEAN exports are omitted, intra-trade in Singapore decreased from 3.9 per cent in 1970 to 3.6 per cent in 1991. Between 1978 and 1990, approximately 2.6 per cent of listed commodities were traded under the PTA, and the trade value was equivalent to 19.0 per cent of ASEAN intra-trade in 1987 (*ibid.*). Intra-ASEAN trade remains disproportionately concentrated in three ASEAN economies, with Singapore, Malaysia, and Thailand accounting for approximately 90 per cent of intra-ASEAN trade in 1995 (*ibid.*). The primary cause for PTA's failure was the lack of commitment on the part of its member states. The United States of America (USA) and Japan are ASEAN's two largest trading partners (before 1997). The association's trade with the United States and Japan amounts to between 60 per cent and 70 per cent of total trade (before 1992). The majority of products eligible for tariff discounts were not manufactured by domestic enterprises (*ibid.*). Members' products were subjected to high tariff rates, thereby protecting both members and domestic businesses. PTA was superseded by the ASEAN Free Trade Area (AFTA) in 1992. An annual growth of more than 20 per cent was observed under AFTA, indicating considerable progress toward regional deregulation.

ASEAN has developed a number of programmes to promote industrial cooperation. The first was the 1976 ASEAN Industrial Project (AIP). In 1977, the Japanese government offered a US$1 billion loan to the project through the Fukuda Soft Loan programme, a wholly government-sponsored scheme. There were five initiatives in total, but only two became operational. As a result of the AIP, the ASEAN Aceh and ASEAN Bintulu Fertilizer plants were established. However, the strategy failed to foster significant industrial cooperation or

spur regional expansion in manufacturing. ASEAN Industrial Complementation (AIC) was founded in 1981 and it comprises various stages of manufacturing for vertically integrated companies in various ASEAN countries. Member states produce identical products in a specific industry sector, namely agriculture, electrical and electronic equipment, automobiles, and other sectors pertinent to the AIC programme. In 1983, another plan known as the ASEAN Investment Joint Venture was launched (AIJV). The AIJV aimed to promote joint ventures and cooperation between private enterprises in ASEAN. Around 30 projects have been approved, and approximately 18 have been operationalized, mainly applicable to the vehicle, chemical, mechanical equipment, food, and aluminium industries. In 1988, a new form of industrial cooperation, dubbed the Brand-to-Brand Complementation, (BBC) was initiated and focused on the automobile industry. Tariffs on parts or components of automobiles (cars) manufactured in ASEAN were fixed at a minimum of 51 per cent. In 1994, Malaysia and Thailand signed the BBC agreement. Cooperation under the BBC umbrella was less impressive due to differences over manufacturing location, and also in addition, the private sector was responsible for defining production, component types, and factory location.

Hence, due to the failure of the AIP, AIJV, and BBC initiatives to produce actual joint industrial projects in ASEAN, the member nations had agreed in 1995 to replace this traditional industrial cooperation with a new cooperative scheme called the ASEAN Industrial Cooperation (AICO) Scheme. In April 1996, the AICO was signed, and the system became operational in November 1996. The AICO is envisioned as a critical component of ASEAN economic cooperation. It was intended to foster technology-based investments and industrial joint ventures between ASEAN-based enterprises. The AICO scheme's primary

objective was to encourage collaborative manufacturing activities among ASEAN-based enterprises through the provision of a variety of tariff and non-tariff incentives. The AICO was created to facilitate the early harvesting of AFTA. Companies operating in 2 or more ASEAN member countries could qualify for the 0-5 per cent AFTA rates for their production inputs and finished goods if they could establish that the plan involved resource sharing/pooling and/or industrial complementation. The inputs and outputs also had to have 40 per cent ASEAN content. The type of industries under the AICO programme were automobile and automotive component makers, consumer electronics, and chemical enterprises. About 89 out of 129 approved AICO projects were tied to the automobile industry (Mohamed Aslam, 2005).

Since 1995, the global investment environment has become more competitive. ASEAN's share of foreign direct investment (FDI) involving emerging nations and inside Asia had decreased dramatically. This had caused tremendous anxiety within ASEAN, as all ASEAN members rely heavily on foreign finance for economic development. The decline in FDI to the region, which coincided with the emergence of strong free trade agreements (FTAs), such as the North America Free Trade Agreement (NAFTA) and the European Union (EU), is also related to China's rapid economic development since the implementation of the Open-Door Policy in 1978. In accordance with AICO's creation, the organisation established the ASEAN Investment Area at the Fifth ASEAN Summit in 1995. (AIA). The AIA's primary objective was to promote intra-ASEAN investment and further strengthen the region's potential to attract higher and more sustainable levels of foreign direct investment.

Prior to AICO, the failure of industrial cooperation initiatives was closely related to the ASEAN nations' industrial strategy. Since 1970, Singapore and Malaysia in particular have moved away from import

substitution and focused on export-oriented industrial programmes in order to boost exports and GDP growth. The development of EOI components is highly dependent on FDI. MNCs owned the majority of EOI industries (FDI contributors). The majority of completed or intermediate products were tariff-free. Local capital or local enterprises made a negligible contribution to the development of the manufacturing sector, which resulted in members lacking in technological capabilities, skill and know-how, productive capital, and adequate human capital to support any ASEAN-proposed industrial ventures. In comparison to BRICS, China, India and Russia have advanced technological capabilities and the capacity to establish a robust industrial base. These countries are also at the cutting edge of research and development (R&D), and they have an abundance of high-quality human resources as well as the financial resources required for accelerating industrial development. As a result, BRICS should be able to build industrial cooperation or mutually beneficial initiatives.

6. Industrial Cooperation in BRICS and ASEAN

Industrial cooperation has developed gradually due to market strength. China possesses market dominance and, indirectly, dominance over BRICS members. Certain BRICS members enjoy a competitive edge in manufactured goods, while others, such as Russia, excel in primary industries. On the output front, China and India have seen a dramatic shift in their economic structure, with the agricultural sector contributing less to GDP while the non-agricultural sector (industrial and service sectors) contributing more. Brazil and South Africa are transitioning away from basic industries toward manufacturing. Manufacturing has risen fast in China and India, where it is seen as the primary economic driver. BRICS has had great success in boosting economic cooperation,

developing mechanisms, encouraging global governance and people-to-people exchanges. In the energy, research and technology, finance, and trade domains, BRICS work well together.

BRICS's economic aggregate climbed from 12 per cent to 23 per cent of total world trade, while its aggregate trade volume increased from 11per cent to 16per cent of total world trade. Establishment of the New Development Bank (NDB) to support BRICS's sustainable development efforts as well as other developing and emerging market economies is another key achievement of BRICS in terms of financial cooperation (Wang, 2017). According to the BRICS Think Tank Council (2015), BRICS countries with robust economic growth might become the world's most powerful economic force. According to the report, BRICS's fundamental strength rests in its domestic demand-driven growth model, while its social inclusion policies and economic growth helped to stabilise the global economy, reduce poverty, create jobs, and reduce inequality. Hence, BRICS has made a substantial contribution to the achievement of the Millennium Development Goals (MDGs). Conversely, according to Oh *et al.* (2017), BRICS has deficiencies in terms of human capital and balanced development, despite having a strong potential for economic expansion and a combined huge population.

In comparison, ASEAN developed various agreements and strategies aiming to strengthen trade links and foster industrial cooperation among its member states, which included agreements such as Preferential Trading Arrangements (PTAs), ASEAN Free Trade Area in 1992. (AFTA), ASEAN Industrial Project (AIP), ASEAN Industrial Complementation (AIC), ASEAN Investment Joint Venture (AIJV), Brand-to-Brand Complementation (BBC), and ASEAN Industrial Cooperation (AICO). Due to the failure of the AIP, AIJV, and BBC endeavours to produce actual joint industrial projects in ASEAN,

member nations had replaced the various traditional industrial cooperation initiatives with a new cooperative scheme called the ASEAN Industrial Cooperation (AICO) Scheme. The AICO is envisioned as a critical component of ASEAN economic cooperation that aimed to foster technology-based investments and industrial joint ventures between ASEAN-based enterprises. The AICO scheme's primary objective is to encourage collaborative manufacturing activity among ASEAN-based enterprises through the provision of a variety of tariff and non-tariff incentives. In comparison to BRICS, China, India, and Russia have advanced technological capabilities and the capacity to establish a robust industrial base. Additionally, these countries are at the cutting edge of research and development (R&D), and they have an abundance of high-quality human resources. These countries have the financial resources required for accelerating industrial development; thus, BRICS should be able to build industrial cooperation or mutually beneficial initiatives. Other aspects that could bolster industrial cooperation among BRICS are research and development (R&D) and technical advancement, which are critical areas of focus for China, Russia, and India. A cross-disciplinary approach to R&D or a partnership in R&D activities could result in a concrete industrial cooperation. Conflicts over market share and influence within BRICS, on the other hand, have slowed industrial cooperation. Concerns over China's expansion and motivations have also harmed industrial cooperation among member states. A summary of BRICS and ASEAN's strengths and weakness are provided in Table 7, while a comparison summary between these two entities is provided in Table 8.

Table 7 Strengths and Weaknesses

Bloc/Region	*Strengths (success)*	*Weaknesses (failure)*
BRICS	• **Boosting economic cooperation** • **Developing mechanism** • **Encouraging global governance** • **People-to-people exchanges** • **Working well in domains of energy, research and technology, finance, and trade** • **New Development Bank (in financial cooperation)**	• **Lack of human capital** • **Lack of balanced development**
ASEAN	• **Persistent cooperation endeavours in form of agreements such as PTAs, AIP, AIC, AIJV, BBC, and AICO**	• **Lack of technological capacity** • **Lack of expertise & know-how** • **Lack of productive capital** • **Lack of skilled human capital**

Apart from the fact that the BRICS bloc is the world's third largest economic bloc after the European Union and the United States, BRICS are too dissimilar to one another and have few collaborations required to build a strong economic power. There are several factors that restrict BRICS's global impact potential. These factors include China's economic dominance (for example, bilateral trade between South Korea and China is equal to that amongst BRICS nations), a lack of common economic interests, cultural diversity (including economic developments, ideologies, and divergent priorities and approaches), and their competition in third-world markets. Moreover,

BRICS members can reverse engineer and replicate one another's technologies, implying a limited capacity for collaborative R&D and innovation development. The main issue is that BRICS states are a multilateral organisation without a grand goal that recognises multiple areas of collaboration (Hooijmaaijers, 2019).

Table 8 Industrial Cooperation: ASEAN vs BRICS

	Building mechanism	Encouraging global governance	People-to-people exchanges	Achieving Millennium Development Goals (MDGs)	Human capital	Control of corruption, voice and accountability, and political instability	Level of openness and infrastructure facility	Infrastructure facility and market size	Co-investment, private-public, and tax incentives
BRICS	√	√	√	√	X				
				treaties and excellent track record of regional cooperation	biodiversity and abundant natural resources	robust production networks and flows of foreign direct investment (FDI)	location-specific advantages, which is real exchange rate, inflation rate, gross domestic product, tele-communication, level of openness, official development assistance (ODA) and loan		ODA and load excluded from ASEAN-5
ASEAN				√	√	√	√	√	√

ASEAN's advantage includes its strategic location in the dynamic Asian region, solid economic growth, and stronger macroeconomic fundamentals, especially in Brunei, Malaysia, Singapore, Thailand, Indonesia, and the Philippines. Additionally, biodiversity and abundant natural resources, a sizable market, diverse exports, and robust production networks affect the flow of foreign direct investment (FDI).

Finally, ASEAN bloc's series of treaties and excellent track record of regional cooperation are significant assets. In contrary, the ASEAN community has some flaws. The first vulnerability is the ASEAN members' disparate development of human capital, institutions, income, and infrastructure. Other ASEAN weaknesses include disparities in the rule of law and good governance, absence of regional distributive mechanisms, disparities in population growth, and large labour deficits and surpluses caused by disparities in economic growth, which could result in cross-border migration of illegal workers (Baldwin, Kawai and Wignaraja, 2015).

7. FDI Contributing Factors in BRICS and ASEAN

BRICS countries' cooperation was determined to be effective, and their HRD methods aid in the resolution of technological, cultural, ethical, and organisational difficulties. For example, Nadir Ali Kolachi and Haider Ali Shah (2013) identified three common HRD practises among BRICS countries in their eleven-point agenda for BRICS strategic human resources development (HRD), organisational development in Russia, China, and Brazil, career management in all BRICS countries, and training and development in India and South Africa. Furthermore, Institutional, political, and economic factors all play a role in drawing FDI to BRICS. For example, Jadhav (2012) found that market size, openness to trade, and the rule of law all play a role in attracting FDI to BRICS, whereas availability of natural resource hampered FDI inflow. As a result, the majority of FDI to BRICS countries is market-oriented, according to the study. Similarly, Jadhav and Katti (2012) discovered that polity, governance, and regulatory quality have a beneficial impact on FDI inflows to BRICS, but corruption control, voice and accountability, as well as political instability had negative implications.

Vijayakumar, Sridharan, and Rao (2010) identified probable factors that attract FDI to BRICS countries and argued that gross capital formation, infrastructure, market size, and labour costs all play a beneficial role. Inflation rates, industrial production index, trade openness, unemployment rates, real exchange rate, and labour costs are important in attracting FDI inflows, according to a longitudinal study by Priya Gupta and Archana Singh (2016) based on three decades of data on the determinants and factors that attract FDI inflows to BRICS.

FDI inflows are influenced by factors such as education, inflation, risk, rate of economic growth, degree of openness of the economy, and stock market performance (Nonnemberg and Mendonça, 2004). According to Mottaleb and Kalirajan (2010), who studied emerging countries, found that a business-friendly environment, stronger international commerce, and a better economic development rate all combine to attract FDI. Infrastructure, labour costs, market size, and trade openness, among other factors, influence FDI inflow (Wahid *et al.*, 2009; Hong, 2008; Nguyen and Nguyen, 2007; Ho, 2004; Kinoshita and Campos, 2003; Asiedu, 2002). In contrast, Rani and Kumar (2018) found that inward FDI has a negative association with economic growth among BRICS countries, but money supply, trade openness, and gross capital formation have a positive link with economic growth. The study found that FDI inflow discourage small enterprises and firms in India, South Africa, and Brazil, and the authors proposed that trade liberalisation and expansion of financial markets in BRICS countries are important for attracting more investment.

When developing economies in the Southeast Asian region accept foreign ownership, they reap greater economic benefits and attract bigger FDI inflows (World Bank, 2014). According to Bhatt (2008), ASEAN is a desirable investment destination for developing-world investors. The study also found that the size of the economy (GNI) has a

favourable impact on FDI inflow in Singapore and Indonesia, and infrastructure is important in luring FDI inflow to Malaysia and Indonesia. Furthermore, market size and currency devaluation drew FDI into ASEAN.

Irfan Ullah and Muhammad Arshad Khan (2017) found that GDP is adversely associated with FDI, but domestic investment, governance and economic freedom indices, and labour force are positively connected to FDI inflow. The quality of governance infrastructure, as well as the expansion of market size and domestic investments, are all essential factors that attract FDI inflow, according to the report. According to Muhammad Arshad Khan and Ghulam Samad (2010), intellectual property rights, labour force, GDP per capita, trade openness, and domestic investment all have a large and favourable impact on FDI inflow, however, economic freedom has a negative impact. The study concluded that intellectual property rights protection, as well as the soundness and integrity of institutions, are critical in attracting FDI inflow into Southeast Asian economies. According to Rammal and Zurbruegg (2006), ineffective investment regulations, such as excessive international trade regulation and disruptive price controls, have a negative influence on intra-ASEAN FDI. Adhikary (2017) looked at the factors that influence FDI in Bangladesh, India, Pakistan, Sri Lanka, and Nepal (five South Asian economies), and found that human capital and market size are the two most important factors. Xaypanya *et al.* (2015) examined factors impacting FDI in ASEAN-3 (Laos, Cambodia, and Vietnam) and ASEAN-5 (Indonesia, Philippines, Thailand, Malaysia, and Singapore), and concluded that FDI determinants differ in ASEAN-3 and ASEAN-5. This is due to differences in the nations' phases of development. According to the study, openness and infrastructure facilities have a favourable impact on FDI inflows, however, inflation has a negative impact on FDI inflow into ASEAN-3. The infrastructure

facilities and market size of ASEAN-5 are important factors in attracting FDI to the area.

According to UNCTAD, ASEAN countries drew all-time high FDI inflow in 2018, increasing FDI to US$155 billion from US$147 billion in 2017. Singapore, Vietnam, Indonesia, and Cambodia set this new record. ASEAN governments pushed for the use of 4th industrial revolution technology in industry, while venture capital firms and private equity firms played a significant role in attracting FDI due to their rapid growth in the area. ASEAN countries have also pushed investment options, such as co-investment, public-private partnerships, and tax advantages. According to the report, FDI inflows to the ASEAN region will continue to climb due to improved regional connectivity, investment climate, economic possibilities, and industrial development. According to Xaypanya *et al.* (2015), variables that determine ASEAN-3 countries' FDI are inflation, telephone lines, and trade ratio. In the case of ASEAN-5, inflation, GDP, telecommunications, and level of openness all play a role in FDI inflow. However, despite the fact that most countries have higher inflation rates and a lower degree of openness, foreign investors continue to be interested in investing in this region. Despite the global economic crisis, overseas investors continue to see ASEAN-5 as a promising investment destination.

Hong and Bui (2015) found that market size, trade openness, labour cost, human capital, labour productivity, political stability, inflation, real interest rate, financial development, infrastructure development, corruption, and currency exchange rate all have positive and statistically significant effects on trade openness and political stability. The coefficient of corruption control is similarly positive and statistically significant, according to the results. Finally, contrary to the hypothesis, the investigation found that nominal labour cost and labour productivity are positive and statistically significant (Hong and Bui, 2015).

According to Ismail *et al.* (2009), ASEAN5 invest less in each other than they do in the new ASEAN members. Empirical findings regarding extra-regional FDI reveal that European countries invest more in ASEAN than any other area in the sample. The inquiry also revealed that the United States and Japan invested more in ASEAN-5 than in Brunei and the new ASEAN. ASEAN-5 is recognised as comprising newly rising industrial countries. Findings of this study reveal that the five ASEAN countries' economic growth rates were low across the sample period when compared to growth rates in the early to mid-1990s. Singapore has the highest growth rate (5.15 per cent), followed by Malaysia (4.97 per cent), the Philippines (4.02 per cent), Indonesia (2.27 per cent), and Thailand (2.27 per cent). The study then indicates that the amount of FDI had declined considerably from 1996-1997 to 1998-2001, with Malaysia and Thailand suffering the most. Thailand's poor score implies post-Asian Financial Crisis disinvestment.

The strength of the rules in the host economy is a factor that influences Multinational Corporation (MNC) decision to invest in a nation or inflow, according to a study conducted by Rammal and Zurbruegg (2006). Regulations that promote market openness give host countries a competitive edge that they can exploit to attract inward FDI (Rammal and Zurbruegg, 2006). This conclusion is supported by a study which found that enormous potential markets and low tax rates in ASEAN countries are factors driving the inflow of FDI (Ma *et al.*, 2020). According to Hoang (2012), market size, economic openness, quality infrastructure, human capital, and labour productivity are the primary characteristics that influence positive FDI flows. FDI flows are also influenced by exchange rate policy, real interest rates, political risk, and institutional quality, according to these researches. Countries with higher exchange rates would choose to establish industrial sites in countries with lower exchange rates because of cheaper capital

requirements (Ahmad, Draz and Yang, 2018). ASEAN members lack technological capacity, expertise and know-how, productive capital and competent human capital for the promotion of any ASEAN industrial initiative.

8. Conclusion

Industrial cooperation is critical for economic growth, export expansion, and attracting FDI. Despite possessing all the capabilities, BRICS countries do not appear to have developed or signed any industrial cooperation agreement, whereas ASEAN nations have a long history of industrial cooperation agreements and have successfully realised the benefits of such arrangements. By analysing ASEAN's experience with industrial cooperation, this study examined the possibility of industrial collaboration in BRICS countries. To substantiate the comparison, facts and numbers pertaining to FDI inflows and outflows from both blocs were adduced.

Industrial cooperation is generally brought about by two forces, namely governments (through bilateral agreements, informal guidance, or collaborative projects) and market pressure (such as global demand, high development costs, marketing). Regional cooperation is mostly driven by industrial and economic development. International power dynamics also has an impact on the evolution of regional economic arrangements.

By promoting intra-regional trade and investment, ASEAN has facilitated and expanded economic integration. According to the 2019 ASEAN investment report, FDI inflows will continue to climb in the ASEAN region as a result of improved regional integration, a favourable investment climate, economic possibilities, and industrial development. Unlike the ASEAN countries, BRICS nations are still in the early stages

of industrial collaboration. Despite collaborative efforts, industrial cooperation amongst BRICS countries remains limited, as evidenced by data on cross-border or intra-BRICS investments. Despite numerous endeavours by BRICS nations, just a few intra-regional economic activities have materialised, thus, demotivating regional collaborations. Distances and geographical locations may be contributing to this lacklustre performance. Additionally, BRICS members' battle for market dominance acts as a dampener.

Nonetheless, this study recommends that research and development (R&D) as well as technical advancement be encouraged because they are important components of industrial collaboration. Cross-border research and development as well as partnerships in R&D activities can result in substantial industrial cooperation. Industrialisation policies and massive FDI inflows have elevated manufacturing to a dominant status, and in the case of China, they have boosted export sectors. The influence of industries and companies should be considered when stimulating regional economic arrangements in BRICS, and collaboration between states, industries, and business associations should be facilitated in order to establish cross-border industrial cooperation. Finally, BRICS countries have a higher level of technological progress, a higher quality of human capital, and a greater capacity for industrial development than ASEAN countries. Additionally, BRICS are leaders in research and development and have adequate financial capabilities to encourage industrial cooperation, which will further attract inter- and intra-BRICS FDI. This will ultimately help the BRICS member countries.

Notes

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