BRICS: PROMOTING TRADE, INVESTMENT AND BUSINESS COOPERATION

BRICS Business Council
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This Study has been undertaken by Export-Import Bank of India (India Exim Bank) in association with FICCI.

This paper is an attempt by India Exim Bank to disseminate the findings of research studies carried out in the Bank. The results of research studies can interest exporters, policy makers, industrialists, export promotion agencies as well as researchers. However, views expressed do not necessarily reflect those of the Bank. While reasonable care has been taken to ensure authenticity of information and data, India Exim Bank accepts no responsibility for authenticity, accuracy or completeness of such items.

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Executive Summary

The basic precept under which the BRICS as a formal association was forged was to primarily become a more constructive and progressive union in the developing world. Amidst heterogeneity amongst the member economies, the countries have continued to look forward towards having worked together in multiple areas, such as infrastructure, governance, domestic institutions, social programs, trade and investment, amongst many others that can gradually put them at an advantageous position as compared to developed countries. The five nations combined hold less than 15% voting rights in both the World Bank and the International Monetary Fund, yet cumulatively, these economies are predicted to surpass the cumulative size of G7 economies by 2032.

Economic Scenario

In the last decade, that is, during 2008 to 2018, the world GDP has grown by 2.5% on an average, every year. However, GDP growth in the BRICS nations has grown faster than the world GDP growth at 3.9%, during 2008-18, courtesy India and China, which grew on an average by 6.7% and 8.1%, respectively. On the other hand, Brazil, Russia, and South Africa registered an average GDP growth rate of 1.6%, 1.3%, and 1.7%, respectively. It may be noted that while the world grew at a faster pace in the second half, the BRICS nations grew faster in the first half.

Further, in per capita terms, amongst the BRICS nations, the highest GDP per capita (constant 2010 US$) recorded in 2019 was of Russia (US$ 12012), followed by Brazil (US$ 11122). Both these countries have a higher GDP per capita than the world average which was recorded at US$ 11076 in 2019. China, India, and South Africa had a per capita GDP of US$ 8254, US$ 2169, and US$ 7346, respectively.

With respect to the debt, the General government gross debt as a percent of GDP for the BRICS nations was recorded at 58.4% in 2019. However, this has increased from 41.6% in 2010. The general government gross debt as a percent of GDP increased for all five nations, during 2010 to 2019. Brazil's debt as a percent of GDP was highest amongst the BRICS nations. But the growth in BRICS debt percentage (debt/GDP) in the last decade is majorly on account of three nations- Brazil, China, and South Africa. Also, for the world, this figure stood at 57.8% in 2019, up from 44.1% in 2010.

Additionally, various shifts in the conduct of monetary policy have occurred in the BRICS countries over the past few years. Some countries, including Brazil, India, and South Africa, have officially adopted inflation targeting. The average policy interest rate for BRICS was 5.5% as on October 2019. This has sharply fallen from 9.5% in January 2008, a decade ago, signifying the efforts of these developing economies to pump in more liquidity into the system to drive the growth upwards. The standard deviation of the policy rates for Brazil and Russia during January 2008 to October 2019 were 2.61 and 2.08, respectively. Amongst the five BRICS economies, the least volatile policy rate was that of China.

Gross national savings as a percent of GDP, which is an important sign of a robust economy, shows that in the BRICS economies, the average rate of gross national savings as a percent of GDP has

reduced from 30.3% in 2008 to 26.6% in 2018. While this parameter was more than the BRICS average for China, India, and Russia, it was almost half for Brazil and South Africa.

BRICS and International Trade

While BRICS is a concept, there is little doubt that merchandise trade amongst BRICS economies holds the fulcrum towards greater engagement amongst them. Of all the BRICS economies, China has been far ahead vis-à-vis the other four nations in terms of trade.

The global exports in 2018 were valued at US$ 19.3 trillion, up from US$ 16.0 trillion in 2008, exhibiting an annual growth of 2.8% during the ten-year period. The major global exporters in 2018 were China (12.9%); USA (8.6%); Germany (8.1%); Japan (3.8%); and South Korea (3.1%).

As far as the BRICS cluster is concerned, the exports from the BRICS nations amounted to US$ 3.6 trillion in 2018, up from US$ 2.4 trillion in 2008, growing at an average of 5.4% annually during the period, double the growth of world exports. The contribution of BRICS in the global exports jumped by four percentage points, from 14.7% in 2008 to 18.7% in 2018. Imports by the BRICS nations amounted to US$ 3.2 trillion in 2018, up from US$ 2.0 trillion in 2008. It may be observed that the imports by the BRICS economies registered an AAGR of 6.2%, higher than its exports. The contribution of China in the total BRICS exports has increased from 60.8% in 2008 to 69.3% in 2018. Out of the other 4 nations, only India's share increased (7.7% to 9%), during this period.

Intra-BRICS exports have seen a very positive growth despite a significant lull in the global economy. During the 10-year period beginning 2008, intra-BRICS exports experienced a growth of 9.3%; while in the 5-year period beginning 2014 to 2018 the growth was slightly muted but still impressive at 6%. In the year 2018, intra-BRICS exports grew by 21.2% over the previous year.

Brazil

The total trade from Brazil has grown from US$ 370.9 billion in 2008 to US$ 421.1 billion in 2018, thereby registering an AAGR of 3%. Out of the total trade in 2018, exports had a contribution of US$ 239.9 billion while imports were US$ 181.2 billion. It may be observed that the trade surplus for Brazil has grown by more than twice during 2008 to 2018. It may be noted that China remains the top exporting destination for Brazil in six of the top ten exported items at HS 6 digit level. China was the largest source country for imports by Brazil with a share of 19.2% in 2018, followed by USA at 16.2%, and Argentina at 6.1%.

In its trade with other BRICS nations, Brazil's exports recorded an AAGR of 13% during 2008 to 2018 with exports to these nations growing from US$ 24 billion in 2008 to US$ 71.1 billion in 2018. During the same time, imports grew from US$ 28 billion to US$ 49.8 billion, however at a slower rate (9.9%) than exports. After registering a trade deficit of (-) US$ 3.9 billion in 2008, Brazil has consistently registered a cumulative trade surplus with other BRICS nations. It may be observed that the share of Brazil's exports to the BRICS nations in Brazil's total exports has increased from 12.1% in 2008 to 29.7% in 2018. The share in the case of imports has also increased from 16.2% in 2008 to 27.5% in 2018. Brazil's exports to other BRICS nations are significantly skewed towards China. Out of the total

exports of Brazil to other BRICS nations in 2018, over 90% went to China.

Russia

The total trade by Russia has fallen from US$ 735 billion in 2008 to US$ 687.5 billion in 2018, thereby registering an AAGR of 2.2%. Out of the total trade witnessed in 2018, exports had a contribution of US$ 449.3 billion, while imports were registered at US$ 238.2 billion. While the exports from Russia, during 2008-18, registered an AAGR of 2.6%, the imports recorded an AAGR of 1.9%. It may also be noted that China is the top exporting destination and top importing source for Russia.

With respect to the trade with its BRICS counterparts, Russia's exports recorded an AAGR of 11.3% during 2008 to 2018, with exports to these nations growing from US$ 28.5 billion in 2008 to US$ 66.7 billion in 2018. During the same time, imports grew from US$ 41.6 billion to US$ 58.7 billion, however, at almost the half rate (6.6%) of the export growth. Further, after registering a consistent trade deficit with BRICS nations during 2008 to 2017, Russia managed to record a trade surplus of US$ 8 billion in 2018. It may be observed that the share of Russia's exports to other BRICS nations in Russia's total exports has increased from 6.1% in 2008 to 14.8% in 2018. The same in the case of imports has increased from 15.6% in 2008 to 24.6% in 2018. Further, Russia's exports to other BRICS nations are significantly skewed towards China. Out of the total exports of Russia to other BRICS nations in 2018, over 84% went to China. In case of imports, China's share was 89%.

India

The total trade from India has increased from US$ 497.6 billion in 2008 to US$ 830.6 billion in 2018, thereby registering an AAGR of 6.4%. Out of the total trade in 2018, exports had a contribution of US$ 323.1 billion while imports touched US$ 507.6 billion. During this period, while the exports from India, during 2008-18, registered an AAGR of 7%, the imports recorded an AAGR of 6.3%. It may also be noted that USA is the top exporting destination for India with a share of 16% while China is the largest import source for India with a share of 14.5%.

With regards to trade with the BRICS nations, India's exports to other BRICS countries recorded an AAGR of 8% during 2008 to 2018, with exports to these nations growing from US$ 16.9 billion in 2008 to US$ 26.3 billion in 2018. During the same time, imports grew from US$ 42.7 billion to US$ 91.8 billion, however at a higher rate (8.8%) than exports. It is observed that the share of India's exports to other BRICS nations in India's total exports has decreased from 9.3% in 2008 to 8.1% in 2018. On the other hand, India imported 18.1% of its total imports from other BRICS nations in 2018, up from 13.5% in 2008. Over 60% of India's exports to other BRICS nations is directed towards China. A complete dominance of China is observed in India's imports from other BRICS nations with a share of over 80%.

China

The total trade from China was over US$ 4.6 trillion in 2018, which is an average annual growth of 7% during 2008-18. Out of the total trade in 2018, exports had a contribution of US$ 2494.2 billion while imports were registered at US$ 2135 billion. As a result, a trade surplus worth US$ 359.2 billion was

observed in the case of China in 2018.

In its trade with the BRICS nations, China's exports recorded an AAGR of 8.6% during 2008 to 2018 with exports to these nations growing from US$ 92.1 billion in 2008 to US$ 175 billion in 2018. During the same period, imports grew from US$ 83.2 billion to US$ 182.1 billion, however at a higher rate (10.4%) than exports. It is also observed that the share of China's exports to other BRICS nations in China's total exports has increased from 6.4% in 2008 to 7% in 2018. On the other hand, China imported 8.5% of its total imports from other BRICS nations in 2018, up from 7.3% in 2008. Unlike the exports where India was the major export destination for Chinese products among other BRICS nations, with regard to imports, China's major source was Brazil with a share of 42.4% in China's total imports from other BRICS countries, while India had the least share amongst the four BRICS countries.

South Africa

The total trade from South Africa was recorded at US$ 187.8 billion in 2018, which is an average annual growth of 3.3% during 2008-18. Out of the total trade in 2018, exports had a contribution of US$ 94.4 billion while imports were registered at US$ 93.4 billion. As a result, a trade surplus worth US$ 1 billion was recorded for South Africa in 2018.

With respect to the trade with other BRICS nations, South Africa's exports recorded an AAGR of 8.5% during 2008 to 2018 with the exports in absolute terms growing from US$ 7.5 billion in 2008 to US$ 14 billion in 2018. During the same time, imports grew from US$ 14.6 billion to US$ 23.3 billion, however at a lower rate (6.1%) than exports. South Africa's trade deficit with other BRICS nations increased from (-) US$ 7.1 billion to (-) US$ 9.3 billion, during 2008 to 2018. It is also observed that the share of South Africa's exports to other BRICS nations in South Africa's total exports has increased from 10.1% in 2008 to 14.8% in 2018. On the other hand, South Africa imported 25% of its total imports from other BRICS nations in 2018, up from 16.7% in 2008. Further, South Africa's exports to other BRICS nations are significantly skewed towards China. Out of the total exports of South Africa to BRICS nations in 2018, 62% went to China. As in the case of exports, the imports by South Africa from other BRICS nations are majorly sourced from China (73.4%).

Export Specialization in the BRICS Nations

An analysis has been undertaken using the concept of 'Export Specialisation Index' (ESI), to identify product groups using trade data in which the cooperation could be explored. The ESI provides product information on revealed specialization in the export sector of a country and is calculated as the ratio of the share of a product in a country's total exports to the share of the same product in the imports of specific markets or partners. The value of ESI less than unity would indicate a comparative disadvantage, and a value above unity would represent specialization in this market. An effort has been made to calculate the ESI for all the five BRICS markets individually, taking into consideration its trade with the other four BRICS partners. Going a step ahead, the Study attempts to identify the items whose shares in the importing country are significant and at the same time, the exporter holds a specialization to being capable to export that item to the importer's market. This exercise is covered in detail in chapter 3.

Global Value Chains (GVCs) in BRICS

Amidst global recession, BRICS countries have continued to accelerate, and in the process have pulled out thousands of people out of poverty in the last decade or so. By positioning themselves strategically in the GVCs, BRICS economies not only can effectively cater to the foreign final demands of their own mass, but can also play a crucial role in the value addition in the production processes despite being geographically fragmented. While GVCs are a source of gains for many economies, gains from GVC participation are not automatic. The benefits of GVCs depend on the level of operations that any economy is undertaking.

Agriculture, forestry, and fishing

In this category, the domestic value-added share of gross exports did not vary significantly from 2005 to 2016 for China, India, and Russia. However, the same for South Africa declined steadily from 84.9% in 2005 to 78.1% in 2016. The indicator also showed a decline for Brazil, falling from 93.3% in 2005 to 91.8% in 2016. This signifies the growing dependence of both the countries on imported inputs that are incorporated in the gross exports.

Backward linkages is calculated as the share of foreign value-added in gross exports. The backward linkages for China (6%) and India (3.7%) remained significantly below that of Russia (10.1%) and South Africa (21.9%), signifying relatively lower dependence on imports of intermediates for agriculture exports.

Further, forward linkages is calculated as the domestic value-added in exports of intermediate products as a share of total gross exports. Forward linkages reveal the share of industry exports that consists of domestic value-added destined for further processing within direct partners' economies – either to meet the partner's final demand or to be embodied in the exports by the direct partners. This is the highest for Brazil at 58.4%, followed by China at 56.6%.

Domestic value-added in the foreign final demand illustrates the full upstream impact of final demand in foreign markets to domestic output. It is observed that the domestic value added in foreign final demand for the agriculture sector is the highest for South Africa (38.5%), followed by Brazil in the BRICS grouping, in 2016. It is the lowest for India at 7.7%.

Manufacturing

A typical GVC activity would involve R&D and design at the beginning and distribution, marketing, and services at the end of the value chain whilst the core manufacturing (raw materials, processed inputs, and final assembly) takes place in the middle of the value chain. In order to analyse the level of GVCs in BRICS nations across the manufacturing sector, select three industries, namely, Chemicals and Pharmaceutical Products; Automobiles; and Electronics, are taken into account, which have some significant number of stages in their production.

In BRICS nations, barring South Africa, domestic value-added share of gross exports in manufacturing, in all other four nations showed an increase from 2005 to 2016.

With respect to the backward linkages in manufacturing, the BRICS nations have shown a declining trend from 2005 to 2016, with the only exception being South Africa. The backward linkages at 13%, was the least in Brazil and Russia among the BRICS nations in 2016. A substantial decline in the backward linkages for China is also noted during 2005 and 2016. This could largely be attributed to the boom in manufacturing, self-reliance, and the export orientation of electronics and other manufactured items in the Chinese economy.

Forward Linkages in manufacturing, across the BRICS nations too, have witnessed a steady decline from 2005 to 2015, with the only exception being China, where the forward linkages increased from 38% in 2005 to 44.5% in 2015.This essentially means that China is not just supplying the final products to the world but is also a major supplier of the intermediates.

Further, in domestic value in foreign final demand, South Africa stands at 45.8% in manufacturing sector, followed by Russia at 33.5%.

With respect to the select industries of focus, domestic value-added in foreign final demand for Brazil across all three industries has decreased significantly, during the analyzed period. Its forwards linkages in computer, electronic and electrical equipment has increased (increase of 5%). Across the five BRICS economies, Russia has observed the largest fall in the domestic value added in foreign final demand for chemicals and pharmaceuticals (fall of 18%). India has displayed a decent improvement in all three industries with respect to domestic value added in foreign final demand, signifying that it is also making products for final consumption which can eventually fetch higher revenue. Additionally, China's forwards linkages in computer, electronic and electrical equipment has increased by almost 10% in the last decade. Also, South Africa has observed significant double digit increase across all three industries in the parameter domestic value-added in foreign final demand.

Increasing importance of services in the GVCs

In 2017, the service sector accounted for a half to two-thirds of each BRICS economies. Except for Brazil, the impact of the service sector on national growth was the highest in 2017 for all other BRICS countries. There are two parameters, namely, domestic services value-added share in gross exports and foreign services value-added share in gross exports which have been used to ascertain the services contribution to a country's participation in GVCs.

It may be noted that within BRICS, India's total services value-added share of gross exports was the highest. The services sector contribution in the Indian exports by traditional method might be just one-third; however, in terms of value addition, India's strength in services sector is clearly reflected by its growing share in the domestic services value added in gross exports.

The increasing importance of the services can be ascertained from the fact that across all the segments mentioned, the total services value added share of gross exports (sum of domestic services value-added share of gross exports and foreign services value-added share of gross exports) has increased for all BRICS economies, from 2005 to 2016. Additionally, almost across all the segments and for all the BRICS economies, the domestic services value added share of gross exports has increased in

2016 vis-à-vis 2005. For Brazil, the highest increase in the total services value-added share of gross exports across the analysed segments is noted for motor vehicles, trailers and semi-trailers (31.5% in 2005 to 39.7% in 2016). An 8.4% increase in the share in the same segment is also noted for China, during the same period.

Intra-BRICS Investment

According to the United Nations Conference on Trade and Development (UNCTAD), the FDI into all the BRICS nations together amounted to US$ 261.2 billion in 2018, up from US$ 191.8 billion in 2009, thereby registering an AAGR of 4.3%, during this period. Out of the US$ 261.2 billion FDI in 2018 in BRICS nations, China accounted for almost US$ 139 billion, followed by Brazil at US$ 61.2 billion, and India at US$ 42.3 billion. With respect to the growth rates of FDI in the BRICS nations, the highest AAGR in FDI during 2009 to 2018 was recorded for Brazil at 21.3%.

Further, for a comprehensive analysis, the data from UNCTAD is supplemented by using the data from fDi Markets database of the Financial Times, which provides disaggregated data for each country. Accordingly, as per the fDi markets database, the envisaged foreign capex (EFC, herein after) by the BRICS nations to the world during 2009 to 2019 was US$ 1005.8 billion, which came through 12,991 projects. This investment is almost 10% of the total investment that the world received during the same period. It may also be noted that out of the US$ 1005.8 billion of investment, almost 57% came through China, thereby showing the significant role the country has been playing in global investments. This as a result also gets reflected in the context of intra-BRICS investments, where China's share stood at 78%. Intra-BRICS investment amounted to US$ 131.7 billion, during the same period.

Brazil

During 2009 to 2019, Brazil's total EFC in the BRICS partner countries was US$ 2.5 billion. This was just 4.9% of Brazil's total EFC in the world, during the same period. Brazil's EFC of US$ 2.5 billion in the BRICS economies came from 45 projects with an average of US$ 55.2 million per project Brazil's highest investment during the aforesaid period was in China of US$ 1.8 billion. With respect to the sectors in which Brazil has invested, the top sector by capex value was automotive OEM, in which an estimated US$ 615 million was invested. The top ten investing companies from Brazil in the partner BRICS economies, with respect to the envisaged capex, accounted for 78.4% of the total capex by Brazil in these four other economies.

Russia

During 2009 to 2019, Russia's total EFC in the BRICS partner countries was US$ 8.3 billion, which was just 5.7% of Russia's total EFC in the world. Russia's EFC of US$ 8.3 billion in the BRICS economies came from 145 projects with an average of US$ 57.3 million per project. Russia's highest investment during the aforesaid period was in China of US$ 4649 million. A sector-wise analysis of Russia's investment in the BRICS economies shows that the top sector by capex was received in coal, oil & gas in which US$ 1887 million is projected to have been invested through 12 projects spread across all

BRICS economies. The top ten investing companies from Russia in the partner BRICS economies, with respect to the envisaged capex, accounted for 61.1% of the total capex by Russia in these economies.

India

India's total EFC in the BRICS partner countries was US$ 14.7 billion, much above Brazil and Russia, during 2009 to 2019. India's EFC of US$ 14.7 billion in the BRICS economies came through 145 projects with an average of US$ 57.3 million per project. A sector-wise analysis of India's investment in the BRICS economies shows that the top sector by capex was automotive OEM in which US$ 2895 million was envisaged through 16 projects. A major chunk of this investment went to China. The top ten investing companies from India in the partner BRICS economies, with respect to the envisaged capex, accounted for half of the total capex by India in these economies.

China

In the last decade, China's total EFC in the BRICS partner countries was US$ 103.3 billion, much above the investment level of its BRICS partners. Even the share of BRICS in China's total EFC is over 18%, higher than the rest of the BRICS economies. China's EFC of US$ 103.3 billion in the BRICS economies came through 759 projects with an average of US$ 136 million per project. Amongst the BRICS partners, India received highest EFC intentions from China during in the aforesaid period, which was to the tune of US$ 40,791 million through 336 projects. Sector-wise analysis of China's investment in the BRICS economies reveals that the automotive OEM received the highest capex to the tune of US$ 17.5 billion through 79 individual projects. The top ten Chinese investing companies in the partner BRICS economies constituted 40.6% of the total capex by China in these economies.

South Africa

South Africa's EFC to the BRICS economies, during 2009 to 2019, was US$ 2937 million, which is 4.3% of its total EFC in the world. South Africa's EFC of US$ 2937 million in the BRICS economies came through 62 projects with an average of US$ 47.4 million per project. China received highest capex from South Africa in comparison with other BRICS partners during the aforesaid period. This capex was to the tune of US$ 1462 million. Sector-wise analysis of South Africa's investment in the BRICS economies reveals that over one-fourth of this investment went into the metals sector. The share of the top ten investing companies from South Africa in the BRICS economies, accounts for 75% of the total capex in these economies.

Industry Perspectives on BRICS Cooperation

In the global war against the novel coronavirus, emerging economies, including countries from BRICS, have reached out to other countries affected by the pandemic. At a time when all economies of the BRICS are reeling under the pressure of the global economic slowdown aggravated by the Covid-19 pandemic, more cooperation, greater economic integration and stronger partnerships within BRICS assumes a much greater importance today than it has ever been in the past. They need to intensify cooperation, forge ahead with new initiatives directed at revitalizing regional integration and contribute more to the world economy. Our businesses and our governments need to work

together to enhance intra-BRICS trade and investment.

Areas of policy cooperation amongst BRICS

Trade and Investment Facilitation

While it is important to accelerate intra-BRICS trade, it is also critical to reduce the cost of intra-BRICS trade. BRICS governments need to accelerate their trade facilitation programme to lower intra-BRICS trade costs and enhance trade effectiveness. Governments can facilitate trade through implementation of automated customs systems, electronic single windows and other digital customs, and trade facilitation initiatives. Some specific actions that can be taken are improving ease of doing business, exchange of best practices related to trade facilitation, engagement of BRICS customs authorities, and organizing regular workshops.

Digitising Trade

The Governments can facilitate digital trade through implementation of automated customs systems, electronic single windows and other digital customs, and trade facilitation initiatives. Improving digital infrastructure, broadband connectivity and internet penetration are also areas where BRICS can share experiences with each other. E-commerce is another potential area that can play an important role in promoting trade growth, and facilitate transformation and job creation, while giving MSMEs the opportunity to participate in and benefit from global value chains and international trade.

Trade in local currencies

BRICS governments have been discussing promotion of trade in local currency for a long period, but it is yet to gather momentum. Promoting greater trade in local currencies should continue as it will not only contribute to enhanced trade and investments among the five countries but would also facilitate economic growth in difficult economic times.

Harmonisation of trade standards and regulations

There is a need to harmonise the technical standards, rules, and regulations across the five member countries to promote greater trade amongst the BRICS businesses. The customs, standardisation, and regulatory bodies in the five countries should engage in regular dialogues to achieve such harmonisation.

Diverse Areas for Cooperation amongst BRICS Nations

Agriculture

The Covid-19 pandemic has also disrupted the agri-supply chain and innovative solutions are needed to ensure an efficient agri-supply chain mechanism in all BRICS countries. This would require joint cooperation and collaboration across all segments of the agri-food supply chain including raw material, production, harvesting, storage, infrastructure, logistics, marketing, technology as well as

agri-finance. Some of the specific areas where BRICS countries can collaborate include sustainable agriculture, knowledge sharing and training, harmonisation of standards, digital farming, agri start-ups, and sharing of Covid experience on agriculture.

Manufacturing

BRICS countries have different but complementary advantages in scientific and technological innovation in the realm of manufacturing; therefore, the importance of strengthening the cooperation in this field cannot be underestimated. If BRICS countries can cooperate and give full play to their complementary advantages in manufacturing, they can make their cutting-edge sectors stronger, besides narrowing the gap in the backward and forward linkages. Some of the specific areas where BRICS collaboration could be explored include industry 4.0, enhance trade facilitation, setting up BRICS Centre for Manufacturing Technology, joint R&D, and sustainable solutions.

Energy and Green Economy

BRICS countries have energy strategies that have proven to be complementary. Cooperation on energy holds common interest and represents win-win situation for BRICS countries. It can open opportunities for enhanced intra-BRICS energy cooperation to foster domestic and global energy security and stimulate economic growth. Some of the specific areas of BRICS collaboration in green economy and energy can include garnering NDB's support in clean energy projects undertaken by the private sector, exchanging information on low carbon technologies, ISA cooperation, energy integration in BRICS region, and setting up repository of energy data.

Financial services

Banking and financial services is an important area and its spread and extension plays a critical role in furthering the goal of financial inclusion. BRICS countries can collaborate in the financial services sector to facilitate economic expansion, availability of credit, and greater flow of capital to its businesses, especially the MSMEs. Innovative financial products, tools, and mechanisms can be developed jointly by the private sector in BRICS for mutual benefit in financial payments, transactions, and debt. Some areas of cooperation could be New International Payment System / BRICS Pay, BRICS Rating Agency, BRICS Reinsurance pool, BRICS Insurance Connect, and Infrastructure Financing.

Start-Ups

As the world confronts the health crisis of a generation in the form of the fast-spreading Covid-19, start-ups across the globe are pivoting their technology to tackle the pandemic. The governments are also turning to this segment in a big, bold way. Innovative solutions need to be generated in the areas of manufacture of low-cost masks which can capture virus from the air and absorb respiratory droplets; cost-effective thermal scanning devices and rapid diagnostic kits, critical-care equipment – including portable oxygenators and home-based ventilators to monitor and control the spread of the new coronavirus, among others. BRICS countries can also share their experience in water management and sanitation as facilitated by start-up firms in those areas. Two possible solutions in this category could be setting up a BRICS Start-ups bridge, and creating a platform for exchange

program for Start-up funding.

Digital Economy

Overall digitalisation of the BRICS economies is still lower than that of the advanced economies, and there is scope for further improving the level of digitisation in BRICS economies. This is more important in the current times, when Covid-19 pandemic has necessitated social distancing and remote working. Given the growth potential in this area, BRICS economies can devise strategies for cooperation in several aspects of the digital economy. There is immense scope for cooperation among the five BRICS countries to share expertise and experiences to help develop a robust BRICS digital economy and reap its full potential. Promoting digital network infrastructure especially in remote areas, digital education and digital literacy, collaboration in 5G technologies, setting up digital platforms for education, healthcare and e-commerce, collaboration in cyber security are some of the areas that could be explored for strengthening BRICS cooperation.

Infrastructure

Some of the key issues that are faced in the context of developing this sector are developing a robust inventory of bankable projects, structuring financing and securing long term funds to support such projects, designing PPP contracts that balance the interest of all the stakeholders, and effective project monitoring and implementation to minimise time and cost overruns. BRICS member states can share their experience in these and related areas and promote useful collaborations and joint project development amongst members of the business community. BRICS cooperation in infrastructure development can be improved through initiatives such as easing government regulations, promoting PPP in infrastructure investments and implementation, improving logistics connectivity, promoting research and analysis for infrastructure collaboration, and planning for urban infrastructure in the post-Covid scenario.

Healthcare and Pharmaceuticals

BRICS countries represent nearly 40% of the world's population and about 40% of global disease burden, while playing an increasingly important role in global health affairs. The cooperation of the BRICS countries for healthcare is vital to the global disease prevention especially in the current Covid-19 scenario. The private sector of BRICS can play an important role in enhancing cooperation in health and also in combating the current health crisis caused by Covid-19. Specific areas, where greater business cooperation in healthcare and pharmaceuticals sectors, need to be explored. Some of them could be combating Covid-19 together, focusing on R&D, investing for innovations in medical technologies, digitalising health infrastructure, promoting telemedicine, collaborating for Universal Health Coverage, building training and capacity, setting up a BRICS pharma alliance, and promoting more trade in drugs and pharmaceuticals.

Education and Skill Development

Although the growth in BRICS has been temporarily disrupted consequent to the breakout of Covid-19 pandemic, going ahead sustained growth will be possible by ensuring a well-qualified workforce

that is adequately skilled for the new roles in post-Covid world. BRICS nations can jointly focus on innovation, solution design, build agility to respond quickly to changing markets & opportunities, identify new-emerging skills & job roles and drive the vocation list of education. Likewise, higher education institutions could work together to take lead in research & innovation to suggest transformative solutions for all the BRICS countries. Some of the specific areas of collaboration for BRICS economies in the field of education and skill development are joint R&D, faculty exchange, BRICS digital knowledge hub, capacity building and training of trainers program, periodic joint research on future skills demand, standardization of qualification framework for better mobility, financing for skill projects, and promoting junior skills competitions.

Aviation

In 2018, the BRICS countries signed a Memorandum of Understanding on Regional Aviation partnership, which inter alia identified cooperation in areas such as public policies and best practices in regional services, regional airports, airport infrastructure management and air navigation services, technical cooperation among regulatory agencies, environment sustainability, and qualification and training. Specific measures in the areas such as experience sharing on civil aviation, airport infrastructure and services, air connectivity amongst BRICS countries, BRICS aviation skills academy, BRICS hub for MRO, and access to funding can be implemented.

CHAPTER

BRICS: A Macro Perspective

BRICS remains largely heterogeneous in character with differences in socio-political-legal frameworks. The original BRIC acronym traces its origins to a 2001 Goldman Sachs paper which analyzed the emergence of Brazil, Russia, India, and China as economic powerhouses. This concept turned into reality when the leaders of the BRIC nations (Brazil, Russia, India, and China) agreed to hold regular summits starting in 2009 to discuss a broad range of issues. In late 2010, the BRIC countries invited South Africa to join in recognition of that country's natural resources and making it a part of the mutual development process.

The basic precept under which the BRICS as a formal association was forged was to primarily become a more constructive and progressive union in the developing world. BRICS grouping is important for each of the members in terms of the symbolism of creating for themselves an important role on the global stage. The members also share an alternate perspective on the global economic order, and a desire to wield greater influence over the rules governing international commerce and economic policy.

Amidst heterogeneity amongst the economies, the countries have continued to look forward towards having worked together in multiple areas, such as infrastructure, governance, domestic institutions, social programs, trade and investment, amongst many others that can gradually put them at an advantageous position as compared to developed countries. The five nations combined hold less than 15% voting rights in both the World Bank and the International Monetary Fund, yet cumulatively, these economies are predicted to surpass the cumulative size of G7 economies by 2032.

Economic Scenario

Gross Domestic Product

In the last decade, that is, during 2008 to 2018, the world GDP has grown by 2.5% on an average, every year. While during the second half of the decade (2013-18) the GDP grew by 2.8%, in the first half (2008-13) a low growth rate of 2.1% was recorded, majorly as a spillover of the global recession. The highest growth during the last decade was recorded at 4.3% in 2010, while the worst was at (-) 1.7% in 2009.

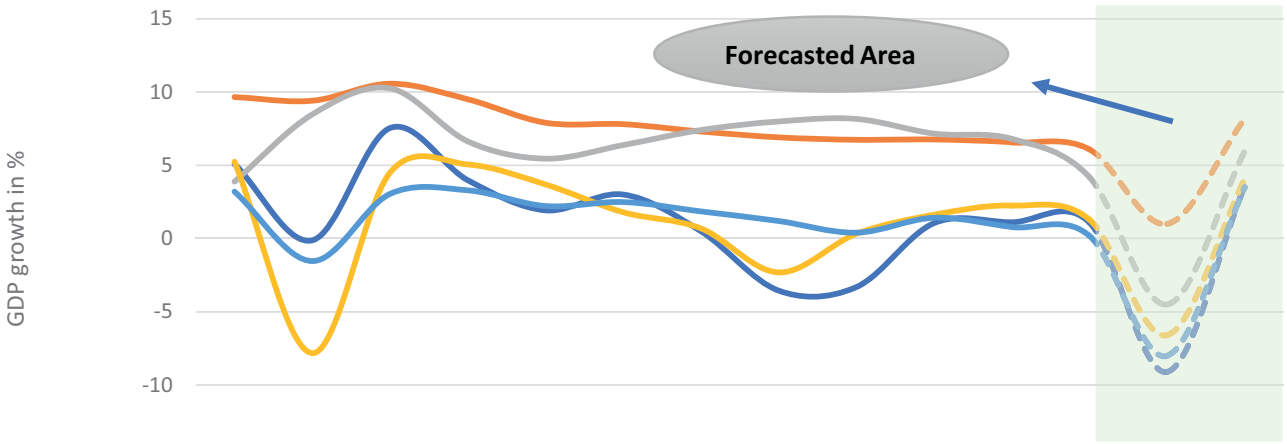
With respect to the GDP growth in the BRICS nations, they grew faster than the world GDP growth at 3.9%, during 2008-18, courtesy India and China, which grew on an average by 6.7% and 8.1%,

respectively, during the same time period. On the other hand, Brazil, Russia, and South Africa registered an average GDP growth rate of 1.6%, 1.3%, and 1.7%, respectively.

It is important to observe that while in the first half (2008-13) of the last decade, the BRICS economies grew at an average of 4.6%, the rate slowed down to 3.2% during the second half, primarily contributed by two negative GDP growth rates in Brazil (2015 and 2016) and one negative GDP growth rate in Russia (2015). Overall, while the world grew at a faster pace in the second half, the BRICS nations grew faster in the first half.

Further, as per the June 2020 World Economic Outlook of IMF, while the world real GDP growth was at 2.9% in 2019, the BRICS economies grew at a slower rate of 2.6%. Additionally, during 2020, BRICS nations are forecasted to have contracted growth rate of 5.4%, lower than the global growth rate of (-) 4.9%, and in 2021, BRICS is expected to have a positive growth rate (5.1%) but it will be lower than the global growth rate (5.4%). Amongst the BRICS nations, in 2019, China grew at the highest rate (6.1%), followed by India at 4.2%. India is expected to improve its performance in the coming years and grow at 6.0% in 2021, lower than projected growth rate of China (8.2%).

Figure 1: GDP Growth in BRICS Economies

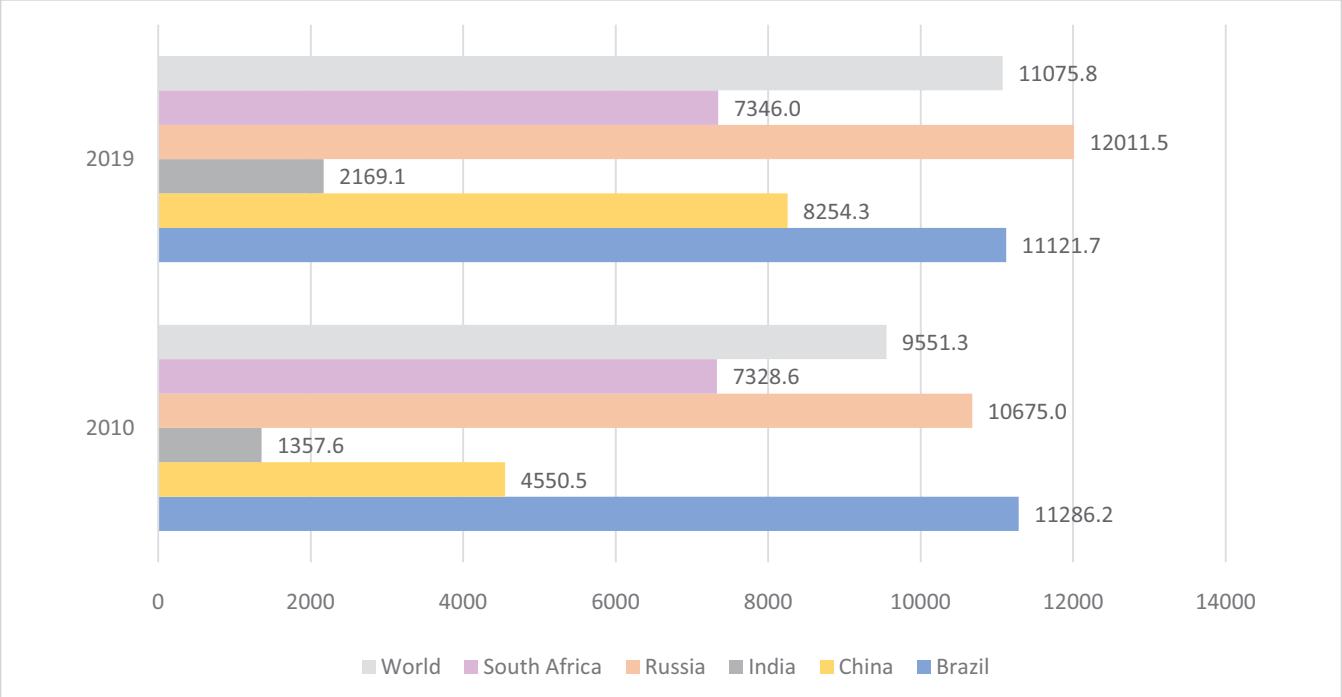


	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Brazil	5.1	-0.1	7.5	4.0	1.9	3.0	0.5	-3.6	-3.3	1.1	1.1	1.1	-9.1	3.6
China	9.7	9.4	10.6	9.5	7.9	7.8	7.3	6.9	6.7	6.8	6.6	6.1	1.0	8.2
India	3.9	8.5	10.3	6.6	5.5	6.4	7.4	8.0	8.2	7.2	6.8	4.2	-4.5	6.0
Russia	5.2	-7.8	4.5	5.1	3.7	1.8	0.7	-2.3	0.3	1.6	2.3	1.3	-6.6	4.1
South Africa	3.2	-1.5	3.0	3.3	2.2	2.5	1.8	1.2	0.4	1.4	0.8	0.2	-8.0	3.5

Source: IMF; India Exim Bank Research

Further, in per capita terms, amongst the BRICS nations, the highest GDP per capita (constant 2010 US$) recorded in 2019 was of Russia (US$ 12012), followed by Brazil (US$ 11122). Both these countries have a higher GDP per capita than the world average which was recorded at US$ 11076 in 2019. China, India, and South Africa had a per capita GDP of US$ 8254, US$ 2169, and US$ 7346, respectively.

Figure 2: GDP Per Capita (Constant 2010 US$) for BRICS Nations and World: 2019 vis-à-vis 2010



Source: World Bank; India Exim Bank Research

However, from the growth perspective, China registered the highest growth in per capita GDP, which grew at an average of 7.2%, followed by India at 5.5%, during 2010 to 2019. This can be observed from the fact that China's per capita GDP is almost 1.8 times in 2018, from its level of 2008 and for India, it has grown by 1.6 times, during the same period.

Table 1: Per Capita GDP Growth Rates for BRICS Nations (in %)

	Brazil	China	India	Russia	South Africa	World
2010	6.5	10.1	7.0	4.5	1.6	**3.1**
2011	3.0	9.0	3.9	4.2	1.7	**1.9**
2012	1.0	7.3	4.2	3.8	0.6	**1.3**
2013	2.1	7.2	5.1	1.5	0.9	**1.5**
2014	-0.4	6.9	6.2	-1.0	0.2	**1.6**
2015	-4.4	6.5	6.8	-2.2	-0.3	**1.7**
2016	-4.1	6.3	7.1	0.0	-1.1	**1.4**
2017	0.5	6.3	5.9	1.7	0.0	**2.1**
2018	0.5	6.3	5.0	2.5	-0.6	**2.0**
2019	0.4	5.7	4.0	1.4	-1.2	**1.4**
AAGR (2010 to 2019)	**0.5**	**7.2**	**5.5**	**1.7**	**0.2**	**1.8**

Source: World Bank; India Exim Bank Research

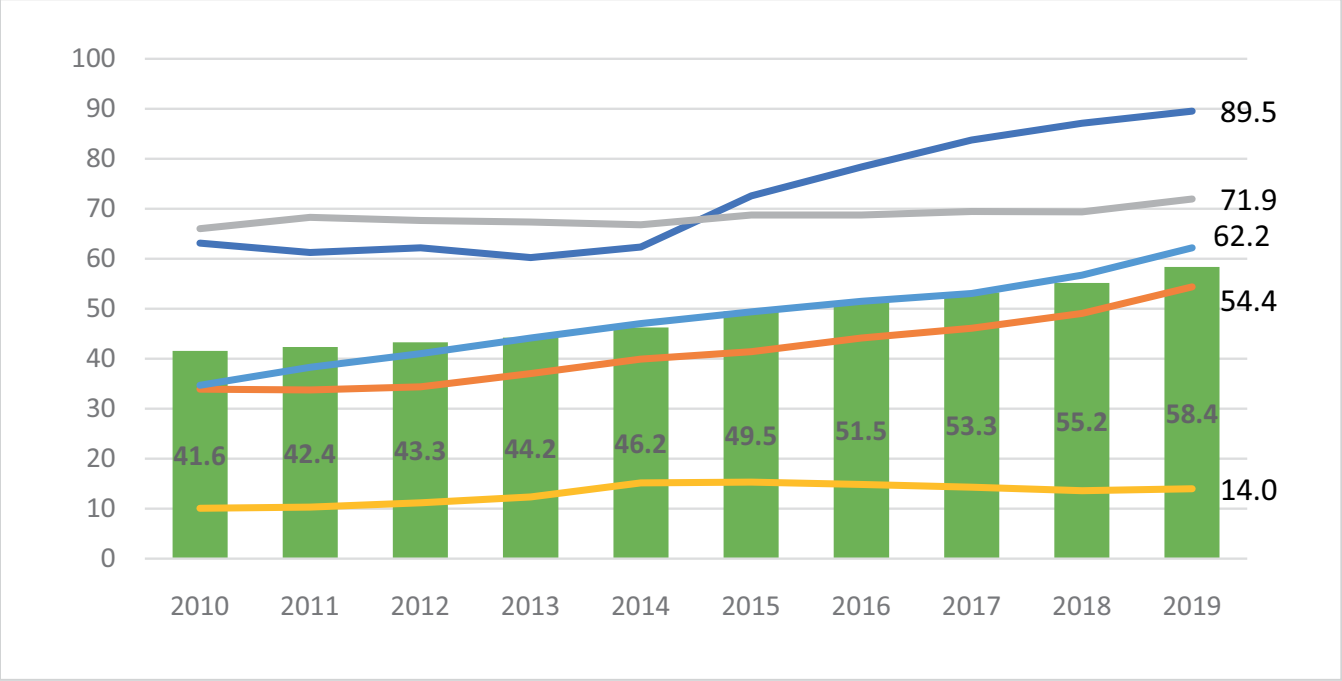
Debt

On an average, the General government gross debt as a percent of GDP for the BRICS nations was recorded at 58.4% in 2019. However, this has increased from 41.6% in 2010. The general government gross debt as a percent of GDP increased for all five nations, during 2010 to 2019. Brazil's debt as a percent of GDP was highest amongst the BRICS nations. But the growth in BRICS debt percentage (debt/GDP) in the last decade is majorly on account of three nations- Brazil, China, and South Africa. Also, for the world, this figure stood at 57.8% in 2019, up from 44.1% in 2010.

The general government gross debt as a percent of GDP increased from 63.1% to 89.5% for Brazil; 33.9% to 54.4% for China; and 34.7% to 62.2% for South Africa, from 2010 to 2019. It may be observed from Figure 3 that while India is placed way above the BRICS average, it has been quite successful in containing the debt situation.

Further, according to IMF projections, while the debt-GDP ratio is estimated to be 66.6% in 2020 and is projected to increase to 69% in 2021 for the BRICS nations, for the world, it is forecasted to be 63.7% by 2021. For Brazil, it is expected to reach a level of over 98% in 2021, while for China and South Africa, it is forecasted to touch 70.1% and 85.6%, respectively, in 2021.

Figure 3: Gross Debt Position as a percent of GDP for BRICS nations

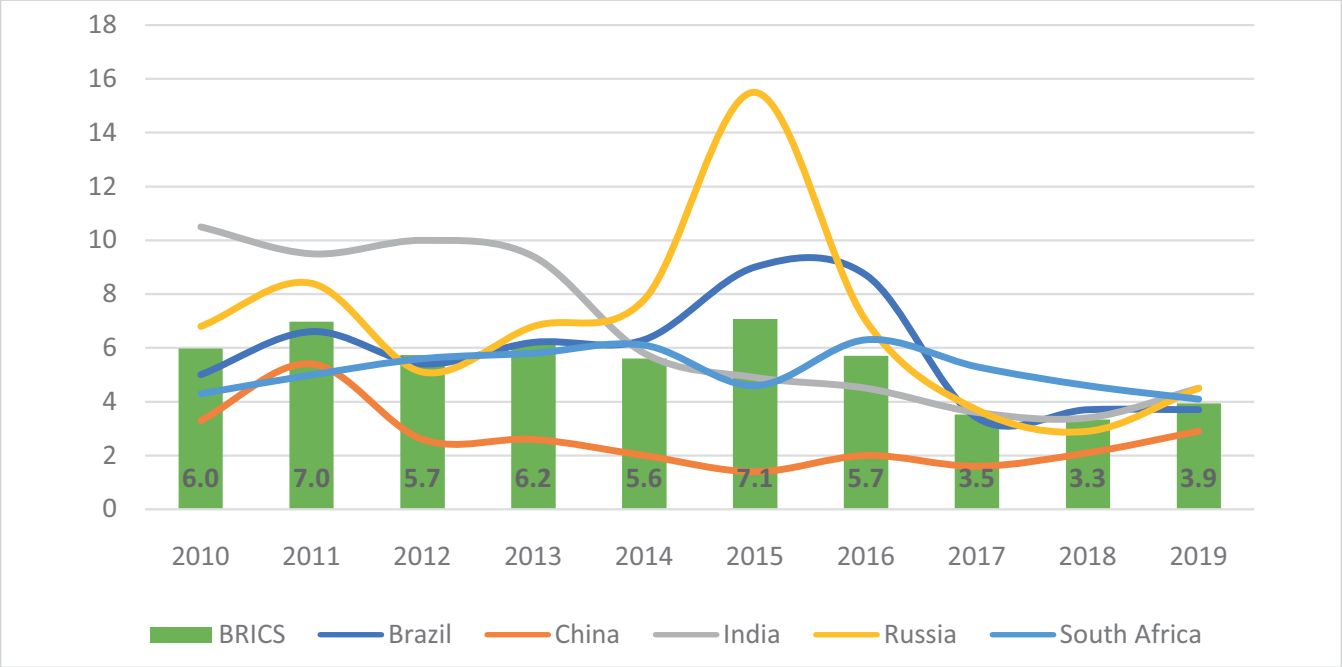


Source: IMF; India Exim Bank Research

Inflation

The consumer price average inflation has been in the control mode in the recent years for the BRICS nations. The inflation growth for BRICS has decreased by two percentage points during the last decade from 5.98% in 2010 to 3.94% in 2019.

Figure 4: Inflation Growth in the BRICS Economies (in %)



Source: IMF; India Exim Bank Research

It may be noted that the average inflation rate for BRICS reached as high as 7.1% in 2015. This was on account of high inflation in two nations in 2015- Brazil and Russia. Brazil recorded an inflation growth of 9%, while Russia's inflation rate was 15.5%. The high inflation in Brazil can be owed to adjustment of regulated prices and the sharp depreciation of the currency. On the other hand, in case of Russia, high inflation can be attributed to government's ban on the import of certain categories of food products.

Further, as per IMF's projections, the average consumer price inflation in BRICS nations is estimated to be 3.08% in 2020. This is expected to increase to 3.14% in 2021.

Policy rates

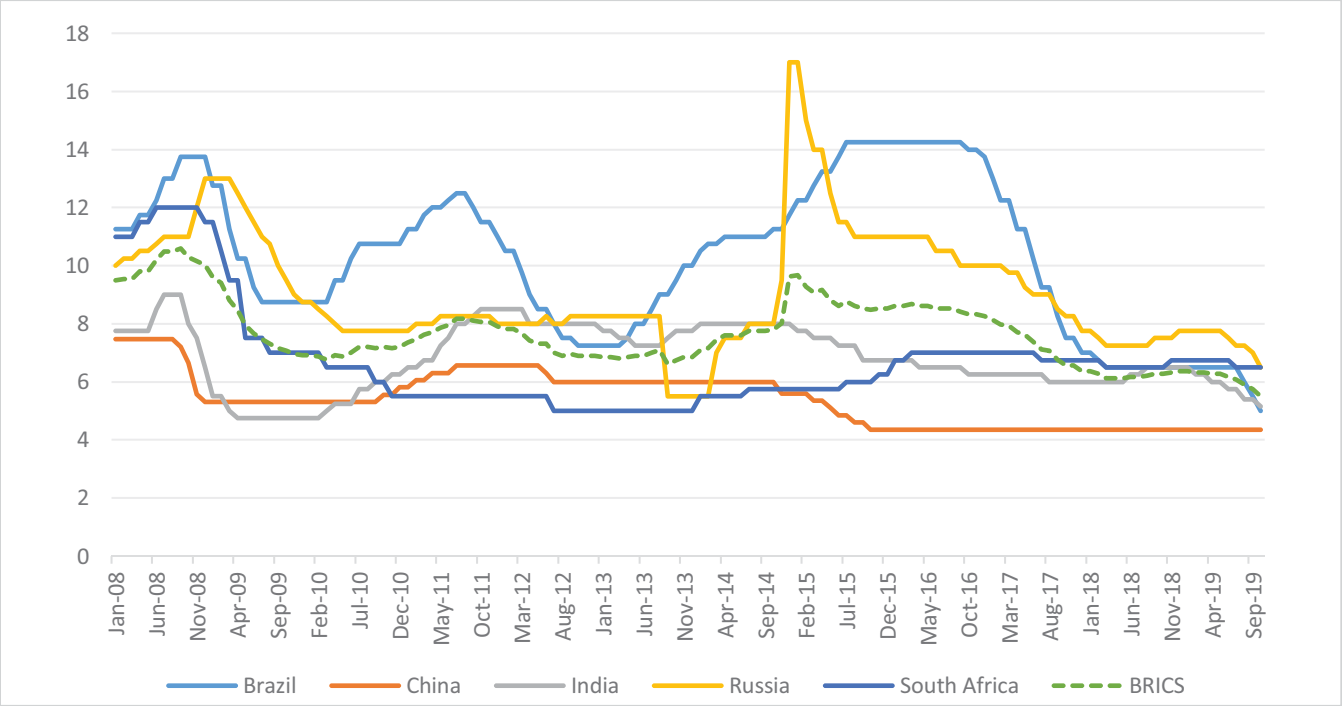
Various shifts in the conduct of monetary policy have occurred in the BRICS countries over the past few years. Although these have taken diverse forms, the shifts have been towards more systematic rules and less discretion in the conduct and implementation of monetary policy. Some countries, including Brazil, India and South Africa, have officially adopted inflation targeting[1].

The average policy interest rate for BRICS was 5.5% as on October 2019. This has sharply fallen from

[1] Monetary Policy and Industrial Output in the BRICS Countries: A Markov-Switching Model, Kutu (2017)

9.5% in January 2008, a decade ago, signifying the efforts of these developing economies to pump in more liquidity into the system to drive the growth upwards.

Figure 5: Policy Rates for BRICS Countries (in %)



Source: Bank for International Settlements; India Exim Bank Research

In January 2008, amongst the BRICS nations, the highest policy rate was that of Brazil at 11.25%. This was followed by South Africa (11%) and Russia (10%). It was comparatively lower for China (7.47%) and India (7.75%). While the rates in all these nations have shown various degrees of volatility during the last decade due to the respective central banks reacting to the various economic scenarios, the two most volatile policy rates were that of Brazil and Russia. The standard deviation of the policy rates for Brazil and Russia during January 2008 to October 2019 were 2.61 and 2.08, respectively. Amongst the five BRICS economies, the least volatile policy rate was that of China.

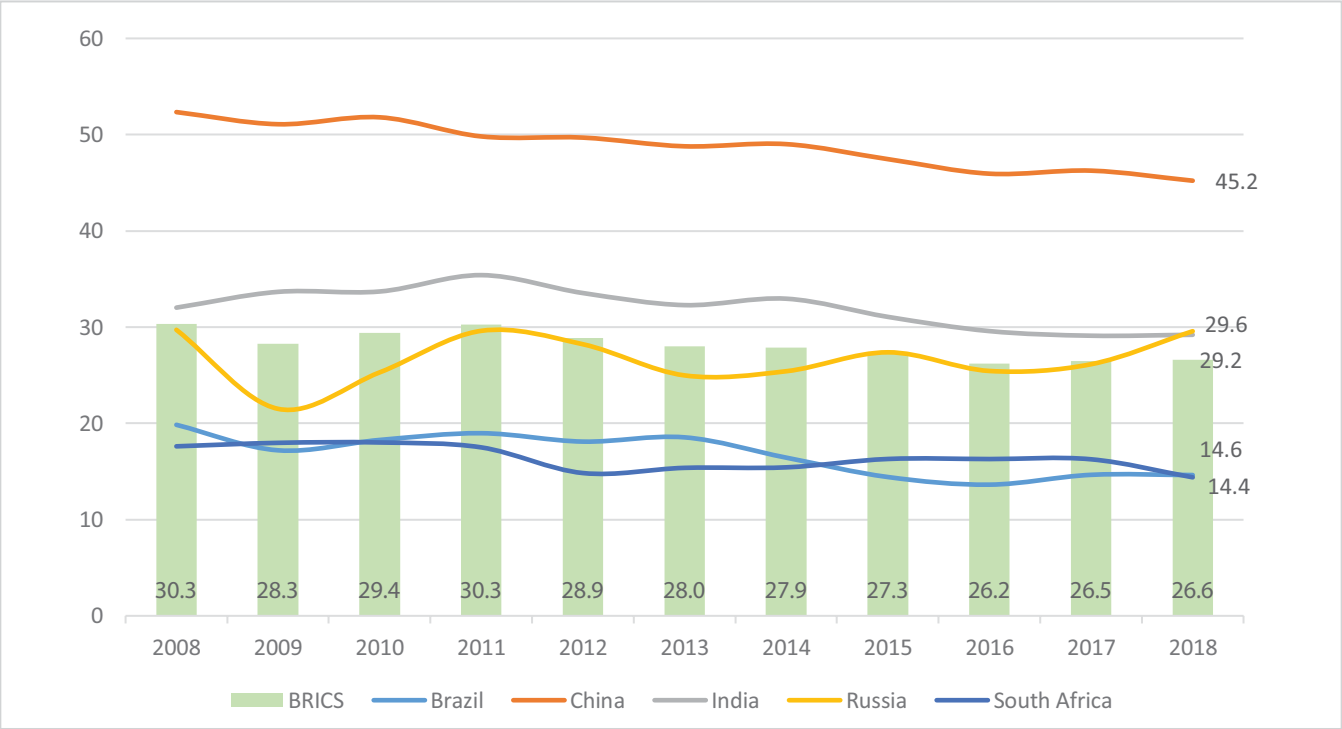
Gross National Savings

The national savings rate measures the amount of income that households, businesses, and governments save. It essentially looks at the difference between the nation's income and consumption and is a gauge of a nation's financial health, as investments are generated through savings. While unemployment, inflation, interest rates, and budget and trade deficits may indicate a lot about economy, national saving rates have a lot to do with shaping each of these variables[2].

In the BRICS economies, the average rate of gross national savings as a percent of GDP has reduced from 30.3% in 2008 to 26.6% in 2018. While this parameter was more than the BRICS average for China, India, and Russia, it was almost half for Brazil and South Africa. It may be noted that the savings rate was way high for China (45.2%) than the BRICS (26.6%).

[2] The Federal Reserve Board

Figure 6: Gross National Savings as a Percent of GDP for BRICS Economies



Source: IMF; India Exim Bank Research

Further, IMF projects these savings to further decrease to 25.9% in 2024. While for Brazil (16.5%), and India (30.8%), it is expected to increase, for the rest the three nations, a fall is forecasted from the 2018 level.

Scope of the Study

In the last decade, the economic growth of the BRICS nations has been impressively higher than the world, while contributing almost 50% to the world's economic growth. Given this background and despite the five economies geographic dispersion, they together have a huge opportunity to collaborate given their common aspirations and goals.

On the lines of this, the Study began with a section delineating the macroeconomic trends of the BRICS economies. This will be followed with a detailed section on trade and investment separately. The paper also dwells into identifying product opportunities to trade amongst the five developing BRICS economies. Global value chain is an essential conduit towards augmenting trade and investment – the Study, appreciating this fact, has analyzed the status of these individual economies in the GVC in sectors like agriculture, manufacturing and services. The Paper concludes with a forward-looking strategy towards making BRICS better and stronger.

CHAPTER

2

BRICS & International Trade

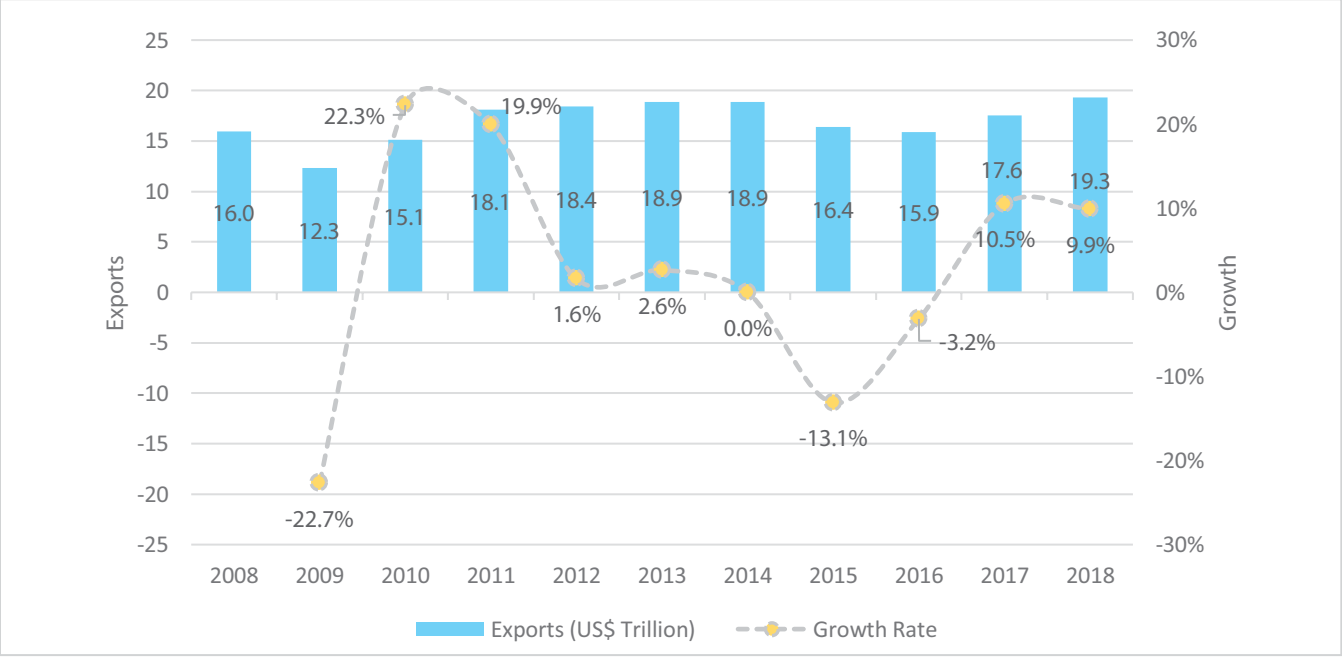
While BRICS is a concept, there is little doubt that merchandise trade amongst BRICS economies holds the fulcrum towards greater engagement amongst them. Of all the BRICS economies, China has been far ahead vis-à-vis the other four nations in terms of trade. This chapter evaluates the trade scenario of all five BRICS nations, both in the context of world in general and BRICS in particular.

Trade Scenario

The global exports in 2018 were valued at US$ 19.3 trillion, up from US$ 16.0 trillion in 2008, exhibiting an annual growth of 2.8% during the ten-year period. The major global exporters in 2018 were China (12.9%); USA (8.6%); Germany (8.1%); Japan (3.8%); and South Korea (3.1%).

The recessionary effects were observed in the global exports of 2009 when the world exports recorded a fall of (-) 22.7% over 2008, before rising back at almost the same rate in the subsequent year. After registering a low of US$ 15.9 trillion in 2016, the global exports recovered by growing at 10.5% and 9.9% in 2017 and 2018, respectively.

Figure 7: Trend in Global Exports: 2008-18

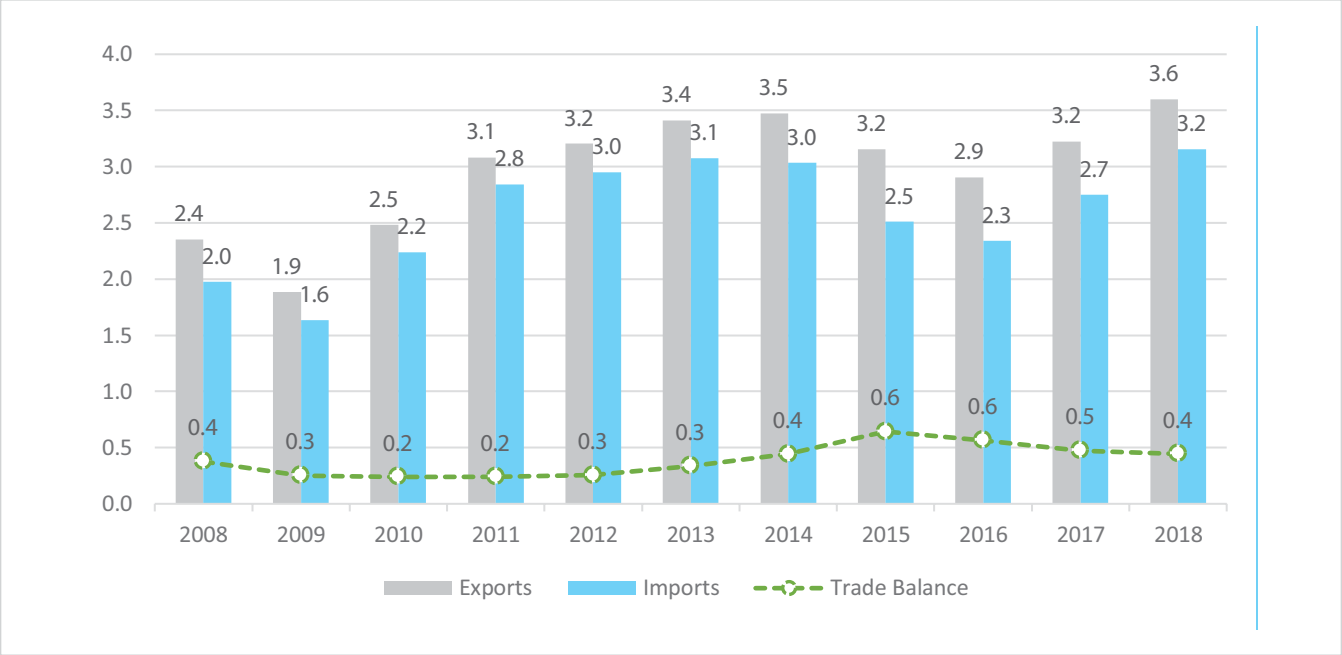


Source: Data accessed from ITC Trade Map in January 2020; India Exim Bank Research

As far as the BRICS cluster is concerned, the exports from the BRICS nations amounted to US$ 3.6 trillion in 2018, up from US$ 2.4 trillion in 2008, growing at an average of 5.4% annually during the period, double the growth of world exports. The contribution of BRICS in the global exports jumped by four percentage points, from 14.7% in 2008 to 18.7% in 2018.

Imports by the BRICS nations amounted to US$ 3.2 trillion in 2018, up from US$ 2.0 trillion in 2008. It may be observed that the imports by the BRICS economies registered an AAGR of 6.2%, higher than its exports. Overall, the trade surplus for BRICS nations in 2018 was almost at the same level as in 2008.

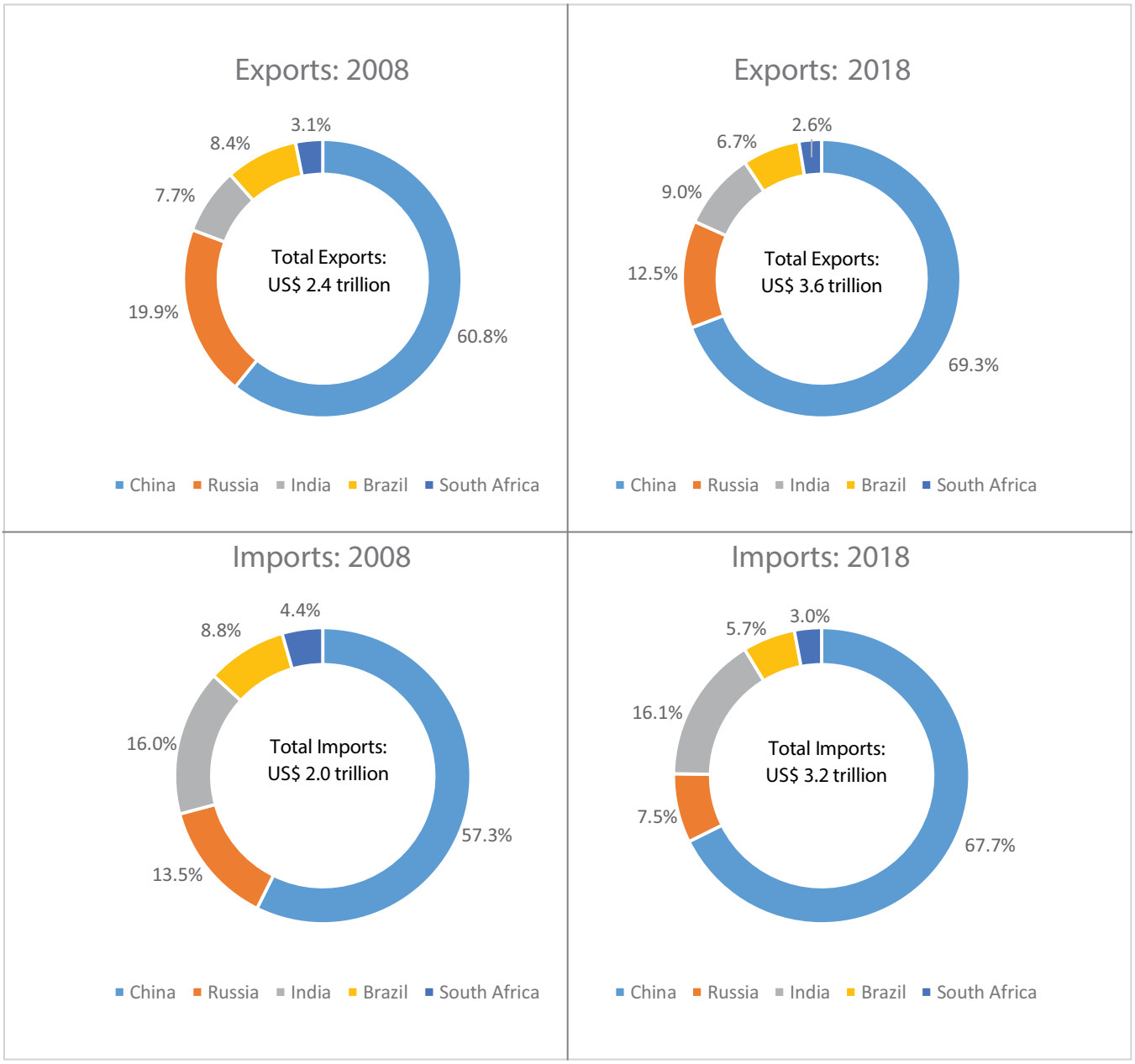
Figure 8: Trends in BRICS Trade: 2008-18 (US$ Trillion)



Source: Data accessed from ITC Trade Map in January 2020; India Exim Bank Research

However, it may be observed that China has been a major driving force in the BRICS trade with the world and has only grown stronger during the last decade. The contribution of China in the total BRICS exports has increased from 60.8% in 2008 to 69.3% in 2018. Out of the other 4 nations, only India's share increased (7.7% to 9%) during this period. With respect to the imports, a similar trend is observed. An increase of over 10 percentage point is seen for China during the last decade, while a marginal increase is observed for India.

Figure 9: Contribution of BRICS Nations in the BRICS Trade with the World



Source: Data accessed from ITC Trade Map in January 2020; India Exim Bank Research

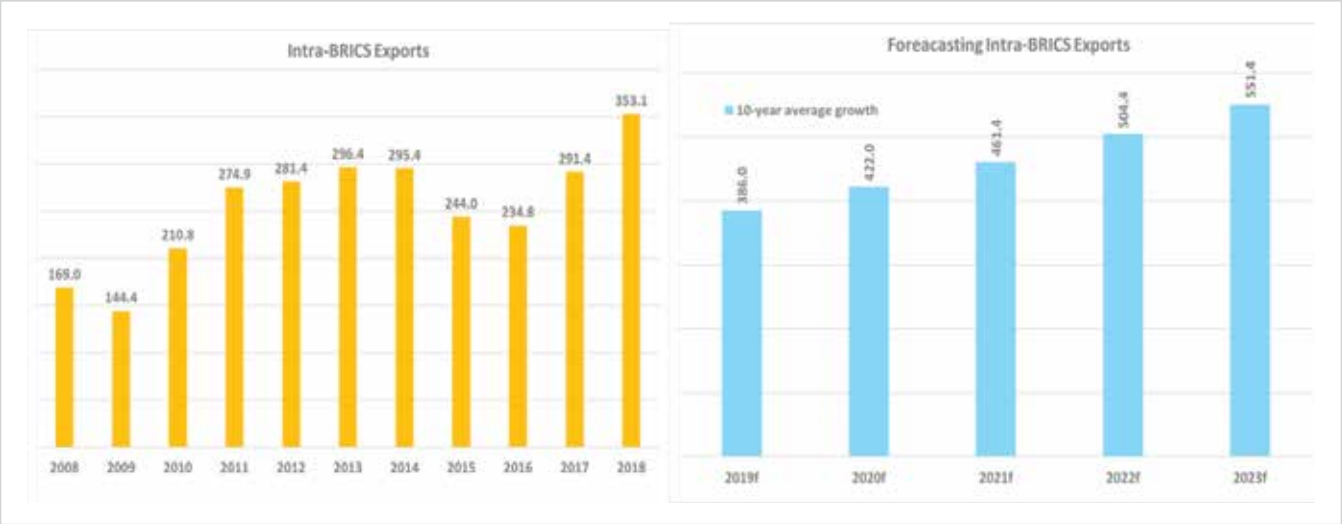
Intra-BRICS

Intra-BRICS exports have seen a very positive growth despite a significant lull in the global economy. During the 10-year period beginning 2008, intra-BRICS exports experienced a growth of 9.3%; while in the 5-year period beginning 2014 to 2018 the growth was slightly muted but still impressive at 6%.

Extrapolating the numbers, should the BRICS economies pull up and grows at its 10-year annualised average growth rate, by 2023 it is forecasted to reach approximately US$ 551 billion – which will be a 56% increase from the current level of US$ 353.1 billion. On the contrary, assuming the 5-year annualised growth of intra-BRICS exports, the figure would touch roughly around US$ 473 billion by 2023 – which would be US$ 120 billion increase.

It is interesting to note that in the year 2018, intra-BRICS exports grew by 21.2% over the previous year. While we anticipate a continued trade growth amongst BRICS nations, it is also important to keep in mind the evolving situation globally which exhibits protectionist tendencies, besides the breakout of certain novel diseases which could be a deterrent.

Figure 10: Intra-BRICS Export Trend (US$ billion)



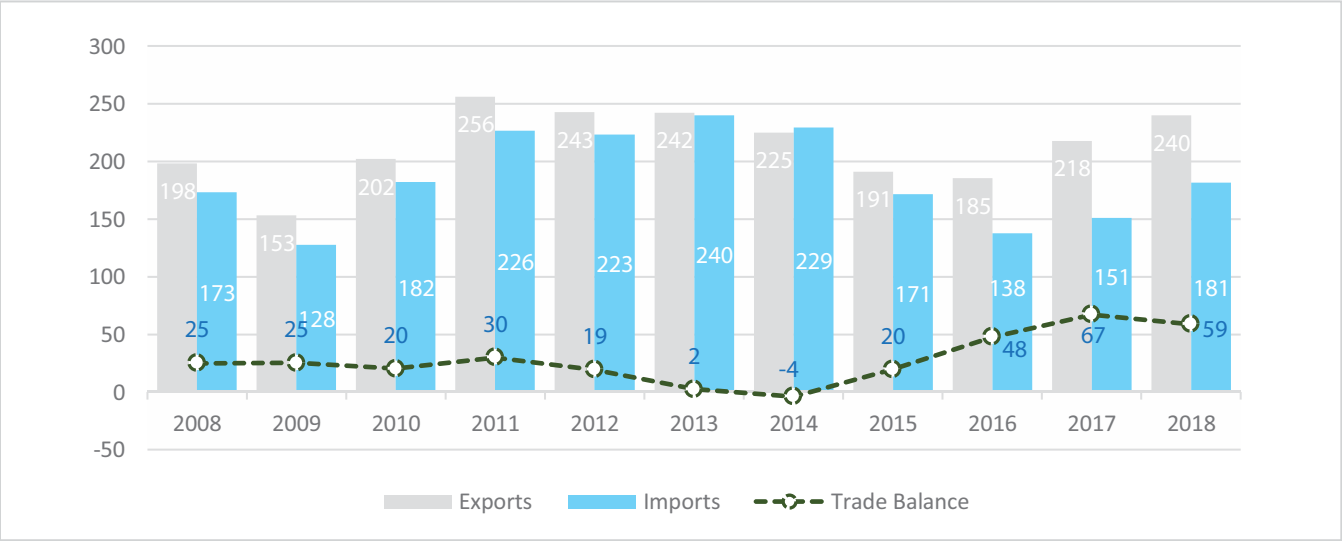
Source: Data accessed from ITC Trade Map in January 2020; India Exim Bank Research

Trade Scenario: Brazil

Global Trade

The total trade from Brazil has grown from US$ 370.9 billion in 2008 to US$ 421.1 billion in 2018, thereby registering an AAGR of 3%. Out of the total trade in 2018, exports had a contribution of US$ 239.9 billion while imports were US$ 181.2 billion. This resulted in a trade surplus worth US$ 58.7 billion in 2018. It may be observed that this trade surplus for Brazil has grown by more than twice during 2008 to 2018. A major reason of this growth is that while imports during the same period grew at an average annual rate of 2.7%, the exports grew at 3.3%. Further, during the same period, it was only once that a trade deficit was recorded for Brazil (- US$ 4.1 billion in 2014).

Figure 11: Trade Trends for Brazil: 2008-18 (US$ Billion)



Source: Data accessed from ITC Trade Map in January 2020; India Exim Bank Research

At a narrow level analysis of exports (at HS-6 digit level), it is observed that the product-mix of exports from Brazil has changed significantly during the last decade. During 2018, the top ten exported items at HS-6 digit level contributed 46.8% to the total exports from Brazil. The same items had a contribution of just 23.1% in 2008. It may also be noted that China remains the top exporting destination for Brazil in six of the top ten exported items.

Table 2: Brazil's Exports at HS-6 Digit to Major Export Destinations

HS code	Description	Exports in US$ Billion		AAGR (2008-18)	Share in %		Major Export Destinations: 2018
		2008	2018		2008	2018	
120190	Soya beans, whether or not broken (excluding seed for sowing)	0.0	33.2	-	0.0%	13.8%	China (82.4), Spain (2.2), Netherlands (1.6), Turkey (1.6), Iran (1.5)
270900	Petroleum oils and oils obtained from bituminous minerals, crude	13.7	25.1	13.3%	6.9%	10.5%	China (57), USA (12.2), Chile (8.2), Spain (8.1), Uruguay (4.9)
260111	Non-agglomerated iron ores and concentrates (excluding roasted iron pyrites)	11.1	16.7	11.5%	5.6%	7.0%	China (63.5), Malaysia (6.5), Japan (4.5), Netherlands (4.1), Oman (2.9)
470329	Semi-bleached or bleached non-coniferous chemical wood pulp, soda or sulphate	3.8	7.8	9.0%	1.9%	3.3%	China (40.4), USA (13.5), Netherlands (10.8), Italy (10.4), France (3.4)

230400	Oilcake and other solid residues, whether or not ground or in the form of pellets	4.4	6.7	5.3%	2.2%	2.8%	Netherlands (18), Thailand (13.8), Indonesia (10.1), South Korea (10), France (8.5)
170114	Raw cane sugar, in solid form, not containing added flavouring or colouring matter	0.0	5.4	-	0.0%	2.2%	Algeria (12.5), India (10), Bangladesh (9.8), Nigeria (7), UAE (6.4)
020230	Frozen, boneless meat of bovine animals	3.7	4.5	3.6%	1.9%	1.9%	China (32.9), Hong Kong (22.9), Egypt (11.3), Iran (7.3), Italy (3.6)
020714	Frozen cuts and edible offal of fowls of the species Gallus domesticus	3.6	4.4	2.9%	1.8%	1.8%	China (18.3), Japan (16.1), Hong Kong (7.6), Saudi Arabia (6.9), UAE (6.5)
090111	Coffee (excluding roasted and decaffeinated)	4.1	4.4	3.6%	2.1%	1.8%	USA (17.7), Germany (17.2), Italy (10.6), Japan (7.4), Belgium (7)
100590	Maize (excluding seed for sowing)	1.3	4.0	18.4%	0.7%	1.7%	Iran (27.2), Vietnam (12.8), Spain (9.6), Egypt (8.6), Malaysia (5.3)
Top 10		**45.6**	**112.2**	**11.9%**	**23.1%**	**46.8%**	-
Total		**197.9**	**239.9**	**3.3%**	**100.0%**	**100.0%**	**China (26.8), USA (12.1), Argentina (6.2), Netherlands (5.4), Chile (2.7)**

Source: Data accessed from ITC Trade Map in January 2020; India Exim Bank Research

Unlike the exports, the imports by Brazil are quite diversified with the top ten import items at HS-6-digit level contributing to just 22.7% of the total imports of Brazil in 2018. Further, overall, China was the largest source country for imports by Brazil with a share of 19.2% in 2018, followed by USA at 16.2%, and Argentina at 6.1%.

Table 3: Brazil's Imports at HS-6 Digit from Major Import Sources

HS code	Description	Imports in US$ Billion		AAGR (2008-18)	Share in %		Major Import Sources: 2018
		2008	2018		2008	2018	
271019	Medium oils and preparations, of petroleum or bituminous minerals	7.3	7.6	16.0%	4.2%	4.2%	USA (77.6), UAE (4.2), Netherlands (1.7), Switzerland (1.7), Singapore (1.6)
271012	Light oils and preparations, of petroleum or bituminous minerals which >= 90% by volume	0.0	5.3	-	0.0%	2.9%	USA (24.2), Algeria (19.5), Peru (9.3), Spain (9.3), Italy (5.6)
890590	Light-vessels, fire-floats, floating cranes and other vessels	0.0	5.3	-	0.0%	2.9%	Brazil* (69.3), China (30.7)
270900	Petroleum oils and oils obtained from bituminous minerals, crude	16.6	5.0	-2.4%	9.6%	2.8%	Saudi Arabia (32.6), Nigeria (27.1), Algeria (19.8), USA (13.6), Iraq (6.5)
890520	Floating or submersible drilling or production platforms	0.0	4.4	-	0.0%	2.4%	Brazil* (50.5), China (47.2), Japan (2.3)
310420	Potassium chloride for use as fertiliser (excluding that in tablets or similar forms)	3.8	3.1	1.6%	2.2%	1.7%	Canada (32.8), Russia (25.8), Belarus (18.6), Israel (10.8), Germany (8.4)
270112	Bituminous coal, whether or not pulverised, non-agglomerated	0.4	2.8	36.0%	0.2%	1.6%	USA (34), Australia (27.3), Colombia (18.5), Russia (8.5), Canada (7.2)
870421	Motor vehicles for the transport of goods, with compression-ignition internal combustion piston	0.9	2.6	14.2%	0.5%	1.4%	Argentina (87.7), Mexico (9), Uruguay (2.9), Italy (0.2), China (0.1)
851770	Parts of telephone sets, telephones for cellular networks or for other wireless networks	2.3	2.6	4.9%	1.4%	1.4%	China (52.5), Vietnam (35.9), South Korea (4.6), Mexico (1.2), Thailand (1.1)
300490	Medicaments consisting of mixed or unmixed products for therapeutic or prophylactic purposes	2.0	2.4	2.3%	1.1%	1.3%	USA (22.8), Germany (16.9), Switzerland (8.8), Italy (7.3), UK (6.3)

Top 10	**33.3**	**41.2**	**7.6%**	**19.3%**	**22.7%**	**-**
Total	**173.0**	**181.2**	**2.7%**	**100.0%**	**100.0%**	**China (19.2), USA (16.2), Argentina (6.1), Germany (5.8), South Korea (4.1)**

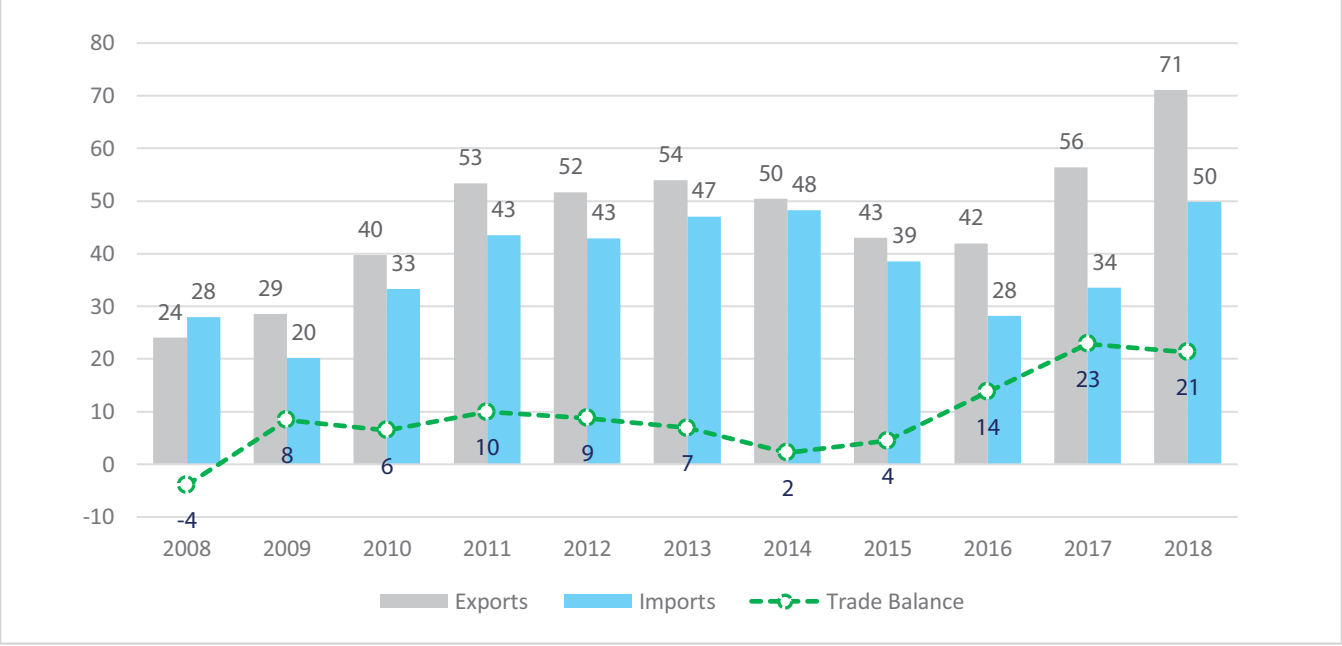
*Re-import activity[3]
Source: Data accessed from ITC Trade Map in January 2020; India Exim Bank Research

Trade with BRICS

With respect to the trade with other BRICS countries, Brazil's exports to other BRICS countries recorded an AAGR of 13% during 2008 to 2018 with exports to these nations growing from US$ 24 billion in 2008 to US$ 71.1 billion in 2018. During the same time, imports grew from US$ 28 billion to US$ 49.8 billion, however at a slower rate (9.9%) than exports. As a result, after registering a trade deficit of (-) US$ 3.9 billion in 2008, Brazil has consistently registered a cumulative trade surplus with other BRICS nations.

It may be observed that the share of Brazil's exports to the BRICS nations in Brazil's total exports has increased from 12.1% in 2008 to 29.7% in 2018. The share in the case of imports has also increased from 16.2% in 2008 to 27.5% in 2018.

Figure 12: Brazil's Trade with Other BRICS Nations (US$ Billion)



Source: Data accessed from ITC Trade Map in January 2020; India Exim Bank Research

[3] Re-imports refer to imports of goods in the same state as previously exported. The country of origin of the goods is in this case the compiling country itself, which is reflected as a country's trade with itself. Re-imports are included in the country imports. It is recommended that Customs Offices record them separately for analytical purposes; however this is rarely done in practice. Recording them separately may require the use of supplementary sources of information in order to determine the origin of re-imports, i.e. to determine that the goods in question are indeed re-imports rather than the import of goods that have acquired foreign origin through processing. It is not possible to determine through Trade Map how much would be the re-import data as most customs offices do not record re-imports separately.

Further, Brazil's exports to other BRICS nations are significantly skewed towards China. Out of the total exports of Brazil to other BRICS nations in 2018, over 90% went to China. In fact, China was the top destination for 8 out of the top 10 exported commodities (HS-6 digit) by Brazil to other BRICS nations.

Also, the product mix has changed significantly during the last decade. The top ten exported items at HS-6 digit contributed to 88.2% of Brazil's exports to other BRICS nations in 2018. However, the same items had a share of just 41.3% in 2008.

Table 4: Brazil's Exports to Other BRICS Nations at HS-6 Digit Level

HS code	Description	Exports in US$ Billion		AAGR (2008-18)	Share in %		Major Export Destination in BRICS (Share in 2018)
		2008	2018		2008	2018	
120190	Soya beans, whether or not broken (excluding seed for sowing)	0.0	27.8	-	0.0%	39.1%	China (98.2%)
270900	Petroleum oils and oils obtained from bituminous minerals, crude	1.7	15.5	33.6%	7.1%	21.8%	China (92.5%)
260111	Non-agglomerated iron ores and concentrates (excluding roasted iron pyrites)	4.2	10.7	17.1%	17.6%	15.0%	China (99.3%)
470329	Semi-bleached or bleached non-coniferous chemical wood pulp, soda or sulphate	0.6	3.2	19.3%	2.6%	4.5%	China (98.4%)
020230	Frozen, boneless meat of bovine animals	1.4	1.5	2.1%	5.9%	2.1%	China (99%)
020714	Frozen cuts and edible offal of fowls of the species Gallus domestic	0.4	1.2	17.8%	1.5%	1.6%	China (69.1%)
170114	Raw cane sugar, in solid form, not containing added flavouring or colouring matter	0.0	0.8	-	0.0%	1.2%	India (64.3%)
720293	Ferro-niobium	0.5	0.8	7.7%	1.9%	1.1%	China (91.3%)
150710	Crude soya-bean oil, whether or not degummed	1.1	0.7	1.2%	4.4%	1.0%	India (76.6%)
520100	Cotton, neither carded nor combed	0.0	0.5	75.2%	0.1%	0.7%	China (98.9%)
Top 10		**9.9**	**62.7**	**23.1%**	**41.3%**	**88.2%**	**-**
Total		**24.0**	**71.1**	**13.0%**	**100.0%**	**100.0%**	**China (90.3%)**

Source: Data accessed from ITC Trade Map in January 2020; India Exim Bank Research

As far as the imports are concerned, the top ten imports by Brazil from other BRICS nations contributed to 32.1% of Brazil's total imports from BRICS in 2018. The share of these ten items was 11.9% in 2008. Overall, the imports of the top ten items by Brazil from other BRICS nations registered an AAGR of 29.5% during 2008 to 2018. On similar lines of exports, the imports by Brazil from other BRICS nations are majorly sourced from China.

Table 5: Brazil's Imports from Other BRICS Nations at HS-6 Digit Level

HS code	Description	Imports in US$ Billion		AAGR (2008-18)	Share in %		Major Import Source in BRICS (Share in 2018)
		2008	2018		2008	2018	
890590	Light-vessels, fire-floats, floating cranes and other vessels	0.0	5.3	-	0.0%	10.6%	China (30.7%)*
890520	Floating or submersible drilling or production platforms	0.0	4.3	-	0.0%	8.6%	China (48.8%)*
851770	Parts of telephone sets, telephones for cellular networks or for other wireless networks	1.1	1.4	6.4%	3.9%	2.8%	China (99.9%)
852990	Parts suitable for use solely or principally with transmission and reception apparatus	0.5	1.1	14.9%	1.9%	2.2%	China (99.8%)
830710	Flexible tubing of iron or steel, with or without fittings	0.0	0.9	2678.6%	0.0%	1.7%	China (0.3%)*
310420	Potassium chloride for use as fertiliser	0.4	0.8	18.8%	1.4%	1.6%	Russia (100%)
854140	Photosensitive semiconductor devices, incl. photovoltaic cells	0.0	0.7	55.8%	0.1%	1.3%	China (100%)
847330	Parts and accessories of automatic data-processing machines or for other machines	0.8	0.7	1.1%	2.9%	1.3%	China (100%)
851762	Machines for the reception, conversion and transmission or regeneration of voice, images etc.	0.4	0.5	5.1%	1.4%	1.0%	China (99.7%)
848180	Appliances for pipes, boiler shells, tanks, vats or the like	0.1	0.5	45.8%	0.3%	1.0%	China (24.4%)*
Top 10		**3.3**	**16.0**	**29.5%**	**11.9%**	**32.1%**	**-**
Total		**28.0**	**49.8**	**9.9%**	**100.0%**	**100.0%**	**China (69.7%)**

*Brazil is the top import source as well, due to reimport activity

Source: Data accessed from ITC Trade Map in January 2020; India Exim Bank Research

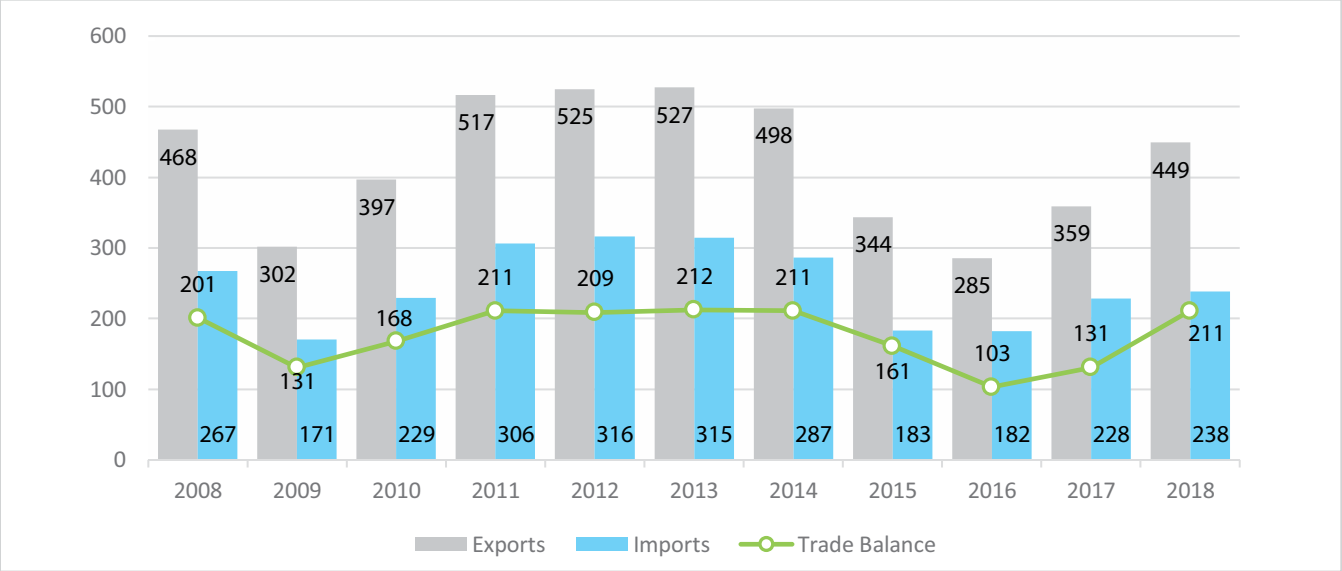
Trade Scenario: Russia

Global Trade

The total trade by Russia has fallen from US$ 735 billion in 2008 to US$ 687.5 billion in 2018, thereby registering an AAGR of 2.2%. Out of the total trade witnessed in 2018, exports had a contribution of US$ 449.3 billion, while imports were registered at US$ 238.2 billion. As a result, a trade surplus worth US$ 211.2 billion was recorded by Russia in 2018.

It may be observed that Russia's trade surplus has increased only marginally from US$ 200.9 billion in 2008 to US$ 211.2 billion in 2018. While the exports from Russia, during 2008-18, registered an AAGR of 2.6%, the imports recorded an AAGR of 1.9%.

Figure 13: Trade Trends for Russia: 2008-18 (US$ Billion)



Source: Data accessed from ITC Trade Map in January 2020; India Exim Bank Research

At a narrow level analysis of exports at HS-6 digit level, it is observed that the product-mix of exports from Russia has more or less remained the same, during the last decade. During 2018, the top ten exported items at HS-6 digit level contributed 56% to the total exports from Russia. The same items had a contribution of 51% in 2008. It may also be noted that China is the top exporting destination for Russia.

Table 6: Russia's Exports at HS-6 Digit to Major Export Destinations

HS code	Description	Exports in US$ Billion		AAGR (2008-18)	Share in %		Major Export Destinations: 2018
		2008	2018		2008	2018	
270900	Petroleum oils and oils obtained from bituminous minerals, crude	151.7	129.0	2.8%	32.4%	28.7%	China (27.2), Netherlands (16.1), Germany (8.8), Poland (6.6), South Korea (6.4)

271019	Medium oils and preparations, of petroleum or bituminous minerals, not containing biodiesel	66.1	61.4	4.6%	14.1%	13.7%	Netherlands (14.9), Turkey (8.7), Malta (6.9), Germany (5.8), UK (4.8)
271012	Light oils and preparations, of petroleum or bituminous minerals which >= 90% by volume	0.0	16.8	-	0.0%	3.7%	Netherlands (23.7), China (16.6), Belgium (9.2), South Korea (8.3), USA (5.5)
270112	Bituminous coal, whether or not pulverised, non-agglomerated	6.9	14.6	9.5%	1.5%	3.3%	South Korea (14.9), Japan (10.5), China (9.3), Ukraine (8.8), Poland (6.3)
100199	Wheat and meslin (excluding seed for sowing, and durum wheat)	0.0	8.3	-	0.0%	1.9%	Egypt (22.8), Turkey (10.6), Vietnam (5.5), Sudan (5.0), Nigeria (4.9)
271111	Natural gas, liquefied	0.0	5.3	25123.3%	0.0%	1.2%	Japan (55.6), Chinese Taipei (14.0), South Korea (13.2), France (4.6), Netherlands (4.5)
720712	Semi-finished products of iron or non-alloy steel containing, by weight, < 0,25% of carbon	5.8	4.5	7.2%	1.2%	1.0%	Mexico (29.6), Belgium (20.8), Chinese Taipei (12.2), Turkey (12.1), Denmark (7.5)
710231	Non-industrial diamonds unworked or simply sawn, cleaved or bruted	1.5	4.4	16.7%	0.3%	1.0%	Belgium (58.4), India (14.9), Israel (11.6), UAE (11.2), Hong Kong (2.4)
740311	Copper, refined, in the form of cathodes and sections of cathodes	1.2	4.0	21.2%	0.3%	0.9%	Netherlands (35.1), China (26.2), Germany (19.3), Switzerland (6.2), Egypt (5.8)
760110	Aluminium, not alloyed, unwrought	5.7	3.3	-4.2%	1.2%	0.7%	Switzerland (36.2), Netherlands (15.3), Turkey (10.2), Japan (8.6), USA (7.2)
Top 10		**238.9**	**251.6**	**4.7%**	**51.0%**	**56.0%**	**-**
Total		**468.0**	**449.3**	**2.6%**	**100.0%**	**100.0%**	**China (12.5), Netherlands (9.7), Germany (7.6), Belarus (4.9), Turkey (4.8)**

Source: Data accessed from ITC Trade Map in January 2020; India Exim Bank Research

Unlike the exports, the imports by Russia are quite diversified with the top ten import items at HS-6 digit level contributing to just 11.7% of the total imports of Russia in 2018. Interestingly, these items had a higher share of 14.6% in 2008. Further, China is the largest importing source for Russia with a share of 21.9% in 2018, followed by Germany at 10.7%, and USA at 5.3%.

Table 7: Russia's Imports at HS-6 Digit from Major Import Sources

HS code	Description	Imports in US$ Billion		AAGR (2008-18)	Share in %		Major Import Sources: 2018
		2008	2018		2008	2018	
851712	Telephones for cellular networks "mobile telephones" or for other wireless networks	5.2	6.3	5.3%	2.0%	2.6%	China (76.0), Vietnam (20.3), India (2.5), Hong Kong (0.5), Thailand (0.3)
300490	Medicaments consisting of mixed or unmixed products for therapeutic or prophylactic purposes	5.4	6.0	2.6%	2.0%	2.5%	Germany (22.9), France (8.6), Italy (7.3), Switzerland (6.5), USA (6.1)
870323	Motor cars and other motor vehicles principally designed for the transport of persons incl. station wagons and racing cars, with spark-ignition internal combustion reciprocating piston engine of a cylinder capacity > 1.500 cm^3 but <= 3.000 cm^3	16.8	2.7	6.1%	6.3%	1.1%	Japan (28.3), Germany (21.7), USA (8.9), Slovakia (5.5), UK (5.3)
847130	Data-processing machines, automatic, portable, weighing <= 10 kg	2.2	2.2	5.3%	0.8%	0.9%	China (94.9), Vietnam (3.2), Chinese Taipei (0.7), Hong Kong (0.7), Germany (0.2)
281820	Aluminium oxide (excluding artificial corundum)	2.1	2.1	3.1%	0.8%	0.9%	Ukraine (37.9), Australia (20.4), Kazakhstan (16.3), Brazil (7.0), Ireland (6.0)
870333	Motor cars and other motor vehicles principally designed for the transport of persons, incl. station wagons and racing cars, with compression-ignition internal combustion piston engine "diesel or semi-diesel engine" of a cylinder capacity > 2.500 cm^3	1.7	1.8	6.6%	0.6%	0.8%	Japan (37.7), USA (21.4), UK (16.6), Slovakia (11.5), Germany (8.0)

870829	Parts and accessories of bodies for tractors, motor vehicles for the transport of ten or more persons	1.3	1.8	12.2%	0.5%	0.8%	Japan (18.0), South Korea (14.8), Germany (13.5), Czech Republic (8.3), USA (7.2)
870710	Bodies for motor cars and other motor vehicles principally designed for the transport of persons	1.9	1.8	13.2%	0.7%	0.8%	South Korea (39.1), Slovakia (23.3), Japan (23.0), Czech Republic (7.4), USA (3.9)
851762	Machines for the reception, conversion and transmission or regeneration of voice, images etc.	1.5	1.6	7.9%	0.5%	0.7%	China (60.5), Chinese Taipei (5.3), USA (4.7), Malaysia (4.1), Israel (3.1)
848180	Appliances for pipes, boiler shells, tanks, vats or the like	1.0	1.5	7.7%	0.4%	0.6%	China (30.5), Italy (13.6), Germany (10.9), USA (4.8), Czech Republic (4.1)
Top 10		**39.1**	**27.9**	**1.4%**	**14.6%**	**11.7%**	**-**
Total		**267.1**	**238.2**	**1.9%**	**100.0%**	**100.0%**	**China (21.9), Germany (10.7), USA (5.3), Belarus (5.1), Italy (4.4)**

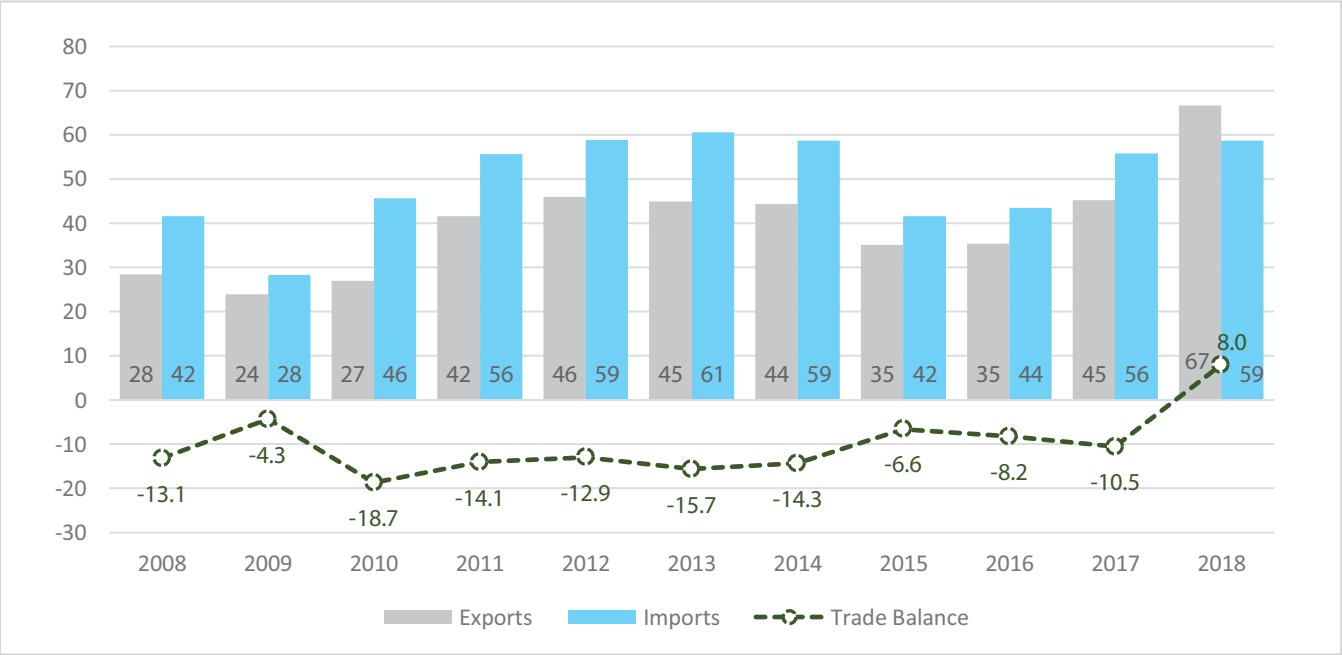
Source: Data accessed from ITC Trade Map in January 2020; India Exim Bank Research

Trade with BRICS

With respect to the trade with other BRICS nations, Russia's exports to other BRICS countries recorded an AAGR of 11.3% during 2008 to 2018 with exports to these nations growing from US$ 28.5 billion in 2008 to US$ 66.7 billion in 2018. During the same time, imports grew from US$ 41.6 billion to US$ 58.7 billion, however, at almost the half rate (6.6%) of the export growth. Further, after registering a consistent trade deficit with BRICS nations during 2008 to 2017, Russia managed to record a trade surplus of US$ 8 billion in 2018.

It may be observed that the share of Russia's exports to other BRICS nations in Russia's total exports has increased from 6.1% in 2008 to 14.8% in 2018. The same in the case of imports has increased from 15.6% in 2008 to 24.6% in 2018.

Figure 14: Russia's Trade with Other BRICS Nations (US$ Billion)



Source: Data accessed from ITC Trade Map in January 2020; India Exim Bank Research

Further, Russia's exports to other BRICS nations are significantly skewed towards China. Out of the total exports of Russia to other BRICS nations in 2018, over 84% went to China. In fact, China was the top destination for 9 out of the top 10 exported items (HS-6 digit) for Russia in its trade with other BRICS nations.

Also, the product mix has changed significantly during the last decade. The top ten exported items at HS-6 digit contributed to 72.4% of Russia's exports to other BRICS nations in 2018. However, the same items had a contribution of just 49.9% in 2008.

Table 8: Russia's Exports to Other BRICS Nations at HS-6 Digit Level

HS code	Description	Exports in US$ Billion		AAGR (2008-18)	Share in %		Major Export Destination in BRICS (Share in 2018)
		2008	2018		2008	2018	
270900	Petroleum oils and oils obtained from bituminous minerals, crude	8.4	36.3	24.0%	29.5%	54.4%	China (96.8%)
271012	Light oils and preparations, of petroleum or bituminous minerals which >= 90% by volume	0.0	3.1	-	0.0%	4.7%	China (87.2%)
270112	Bituminous coal, whether or not pulverised, non-agglomerated	0.0	1.7	236.3%	0.1%	2.6%	China (78.2%)

841112	Turbojets of a thrust > 25 kN	0.5	1.3	14.7%	1.8%	2.0%	China (88%)
440711	Pine "Pinus spp." sawn or chipped lengthwise, sliced or peeled, whether or not planed	0.0	1.1	-	0.0%	1.7%	China (99.8%)
740311	Copper, refined, in the form of cathodes and sections of cathodes	0.0	1.1	-	0.0%	1.6%	China (100%)
310420	Potassium chloride for use as fertiliser (excluding that in tablets or similar forms)	2.1	1.0	1.9%	7.5%	1.6%	Brazil (57.4%)
271019	Medium oils and preparations, of petroleum or bituminous minerals, not containing biodiesel	2.8	1.0	0.0%	9.8%	1.6%	China (78.4%)
440712	Fir "Abies spp." and spruce "Picea spp." sawn or chipped lengthwise, sliced or peeled	0.0	0.8	-	0.0%	1.2%	China (99.9%)
470321	Semi-bleached or bleached coniferous chemical wood pulp, soda or sulphate	0.3	0.8	9.9%	1.2%	1.1%	China (97.6%)
Top 10		**14.2**	**48.3**	**19.0%**	**49.9%**	**72.4%**	**-**
Total		**28.5**	**66.7**	**11.3%**	**100.0%**	**100.0%**	**China (84.1%)**

Source: Data accessed from ITC Trade Map in January 2020; India Exim Bank Research

As far as the imports are concerned, the top ten imports by Russia from other BRICS nations contributed to 21.6% of Russia's total imports from other BRICS nations in 2018. The share of these ten items was 13.7% in 2008. Overall, the imports of the top ten items by Russia from other BRICS nations registered an AAGR of 12.7% during 2008 to 2018. On similar lines that of exports, China secured a major share in Russia's imports from other BRICS nations.

Table 9: Russia's Imports from Other BRICS Nations at HS-6 Digit Level

HS code	Description	Imports in US$ Billion		AAGR (2008-18)	Share in %		Major Import Source in BRICS (Share in 2018)
		2008	2018		2008	2018	
851712	Telephones for cellular networks "mobile telephones" or for other wireless networks	1.8	4.9	15.3%	4.3%	8.4%	China (96.8%)
847130	Data-processing machines, automatic, portable, weighing <= 10 kg	1.9	2.1	6.1%	4.7%	3.6%	China (100%)
950300	Tricycles, scooters, pedal cars and similar wheeled toys; dolls' carriages; dolls; other toys	0.4	1.0	14.9%	1.0%	1.7%	China (99%)
852990	Parts suitable for use solely or principally with transmission and reception apparatus	0.3	1.0	21.6%	0.8%	1.7%	China (99.8%)
851762	Machines for the reception, conversion and transmission or regeneration of voice, images	0.4	1.0	18.2%	0.9%	1.6%	China (99.9%)
847330	Parts and accessories of automatic data-processing machines or for other machines	0.3	0.6	29.2%	0.6%	1.1%	China (100%)
847150	Processing units for automatic data-processing machines	0.1	0.6	28.8%	0.2%	1.0%	China (99.9%)
120190	Soya beans, whether or not broken (excluding seed for sowing)	0.0	0.5	-	0.0%	0.9%	Brazil (99.9%)
848180	Appliances for pipes, boiler shells, tanks, vats or the like	0.2	0.5	13.9%	0.4%	0.8%	China (94.5%)
850440	Static converters	0.2	0.4	16.8%	0.4%	0.8%	China (97.8%)
Top 10		**5.5**	**12.7**	**12.7%**	**13.2%**	**21.6%**	**-**
Total		**41.6**	**58.7**	**6.6%**	**100.0%**	**100.0%**	**China (89%)**

Source: Data accessed from ITC Trade Map in January 2020; India Exim Bank Research

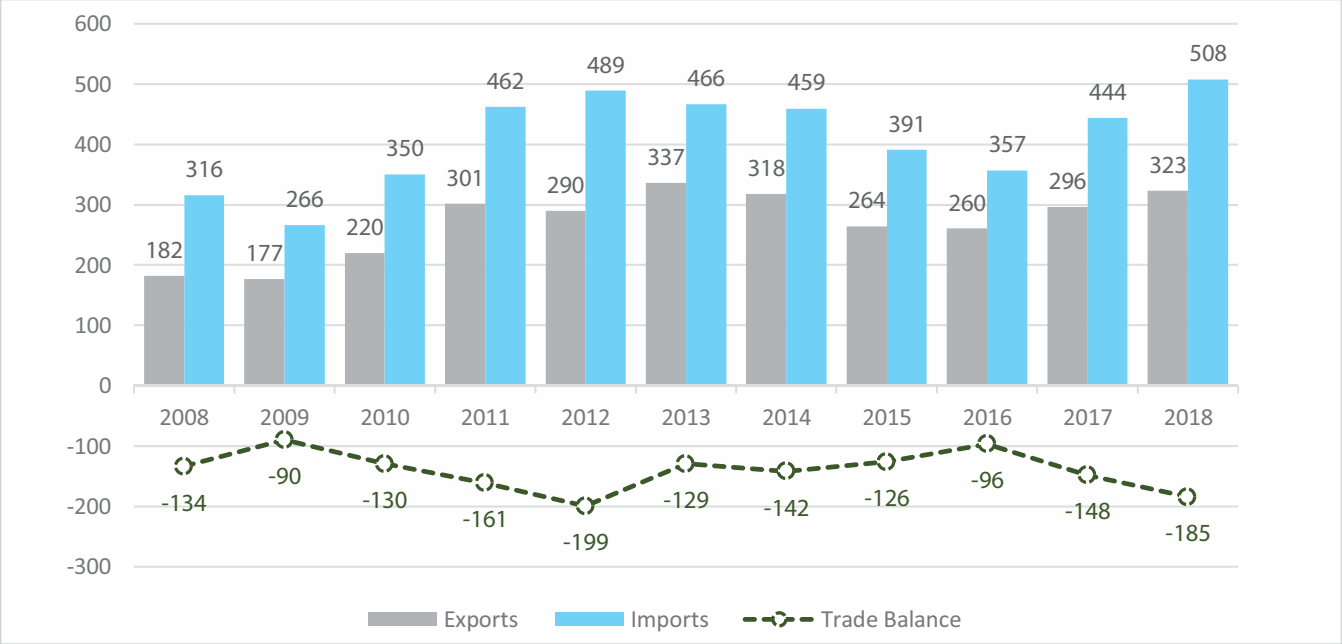
Trade Scenario: India

Global Trade

The total trade from India has increased from US$ 497.6 billion in 2008 to US$ 830.6 billion in 2018, thereby registering an AAGR of 6.4%. Out of the total trade in 2018, exports had a contribution of US$ 323.1 billion while imports touched US$ 507.6 billion – resulting in a trade deficit of US$ 184.5 billion in 2018.

It may be observed that the trade deficit for India in 2018 was the worst since 2012 when it was recorded at US$ 199.4 billion. While the exports from India, during 2008-18, registered an AAGR of 7%, the imports recorded an AAGR of 6.3%.

Figure 15: Trade Trends for India: 2008-18 (US$ Billion)



Source: Data accessed from ITC Trade Map in January 2020; India Exim Bank Research

At a narrower level analysis of exports at HS-6 digit level, it is observed that during 2018, the top ten exported items contributed 35.4% to the total exports from India. The same items had a contribution of 26.8% in 2008. It may also be noted that USA is the top exporting destination for India with a share of 16%, followed by UAE at 9%, and China at 5.1%.

Table 10: India's Exports at HS-6 Digit to Major Export Destinations

HS code	Description	Exports in US$ Billion		AAGR (2008-18)	Share in %		Major Export Destinations: 2018
		2008	2018		2008	2018	
271019	Medium oils and preparations, of petroleum or bituminous minerals, not containing biodiesel	21.8	32.0	11.7%	12.0%	9.9%	Singapore (15.9), Netherlands (13.3), Malaysia (6.5), Israel (4.9), UAE (4.8)
710239	Diamonds, worked, but not mounted or set (excluding industrial diamonds)	14.2	24.2	8.0%	7.8%	7.5%	Hong Kong (40.1), USA (34.6), Belgium (7.2), UAE (4.3), Israel (4.0)
271012	Light oils and preparations, of petroleum or bituminous minerals which >= 90% by volume	0.0	14.7	-	0.0%	4.6%	UAE (32.4), China (16.1), USA (15.7), Singapore (7.8), South Korea (4.7)
711319	Articles of jewellery and parts thereof, of precious metal other than silver	4.5	11.6	20.5%	2.5%	3.6%	UAE (66.2), USA (13.4), Hong Kong (6.5), UK (4.1), Singapore (3.0)
300490	Medicaments consisting of mixed or unmixed products for therapeutic or prophylactic purposes	2.6	10.7	15.9%	1.4%	3.3%	USA (39.3), UK (4.2), South Africa (4.2), Russia (3.3), Nigeria (2.4)
100630	Semi-milled or wholly milled rice, whether or not polished or glazed	2.8	6.9	13.0%	1.6%	2.1%	Iran (17.4), Saudi Arabia (14.6), UAE (7.5), Iraq (6.1), Bangladesh (4.9)
030617	Frozen shrimps and prawns, even smoked, whether in shell or not	0.0	4.4	-	0.0%	1.3%	USA (44.0), Vietnam (19.1), Japan (7.3), China (6.1), UAE (3.9)
020230	Frozen, boneless meat of bovine animals	1.1	3.3	15.6%	0.6%	1.0%	Vietnam (48.5), Malaysia (10.8), Indonesia (8.4), Iraq (5.3), Philippines (3.6)
870322	Motor cars and other motor vehicles principally designed for the transport of persons	1.6	3.3	8.1%	0.9%	1.0%	Mexico (22.4), South Africa (12.5), Saudi Arabia (9.0), Chile (5.2), UK (5.2)

841112	Turbojets of a thrust > 25 kN	0.0	3.2	560.4%	0.0%	1.0%	USA (25.5), Germany (21.3), Belgium (10.4), Singapore (10.3), UK (7.3)
Top 10		**48.7**	**114.3**	**11.7%**	**26.8%**	**35.4%**	**-**
Total		**181.9**	**323.1**	**7.0%**	**100.0%**	**100.0%**	**USA (16.0), UAE (9.0), China (5.1), Hong Kong (4.1), Singapore (3.2)**

Source: Data accessed from ITC Trade Map in January 2020; India Exim Bank Research

The imports of India are more concentrated than the exports. It is noted that the top ten import items at HS-6 digit level accounted for 45.4% of the total imports of India in 2018. These items had a share of 42.9% in 2008. Further, it is interesting to note that while China is the top import source for India for only one of the top ten imported items, overall, it is the largest import source for India with a share of 14.5% in 2018. This indicates how significantly China is present in India's imports across the sectors.

Table 11: India's Imports at HS-6 Digit from Major Import Sources

HS code	Description	Imports in US$ Billion		AAGR (2008-18)	Share in %		Major Import Sources: 2018
		2008	2018		2008	2018	
270900	Petroleum oils and oils obtained from bituminous minerals, crude	86.6	114.5	7.4%	27.4%	22.6%	Iraq (20.1), Saudi Arabia (18.5), Iran (11.3), Nigeria (8.4), UAE (7.8)
710812	Gold, incl. gold plated with platinum, unwrought, for non-monetary purposes	15.5	31.7	12.7%	4.9%	6.2%	Switzerland (48.4), Ghana (9.3), Peru (7.0), UAE (7.0), USA (6.6)
270119	Coal, whether or not pulverised, non-agglomerated (excluding anthracite and bituminous coal)	8.9	22.7	12.6%	2.8%	4.5%	Australia (40.3), Indonesia (27.8), South Africa (12.2), USA (7.2), Canada (3.7)
710231	Non-industrial diamonds unworked or simply sawn, cleaved or bruted (excluding industrial diamonds)	6.3	16.8	12.5%	2.0%	3.3%	Belgium (34.2), UAE (27.5), Russia (8.5), Hong Kong (7.2), Botswana (6.1)
271111	Natural gas, liquefied	3.0	10.9	20.7%	1.0%	2.1%	Qatar (50.4), Nigeria (12.0), Australia (6.8), Angola (6.1), Oman (4.7)

710239	Diamonds, worked, but not mounted or set (excluding industrial diamonds)	5.8	9.8	26.9%	1.9%	1.9%	USA (42.7), Hong Kong (22.1), Belgium (3.6), UAE (2.6), Thailand (1.4)
851770	Parts of telephone sets, telephones for cellular networks or for other wireless networks	0.0	9.7	-	0.0%	1.9%	China (64.8), Hong Kong (19.3), Vietnam (7.5), South Korea (3.5), Chinese Taipei (1.5)
851762	Machines for the reception, conversion and transmission or regeneration of voice, images etc.	0.0	5.7	-	0.0%	1.1%	Vietnam (27.1), China (24.4), Hong Kong (11.0), Mexico (8.2), Singapore (7.2)
271019	Medium oils and preparations, of petroleum or bituminous minerals, not containing biodiesel,	7.8	4.6	0.9%	2.5%	0.9%	UAE (19.5), South Korea (17.4), Singapore (12.8), Algeria (8.9), Saudi Arabia (7.7)
271113	Butanes, liquefied (excluding of a purity of >= 95% of N-butane or isobutane)	1.6	4.1	18.0%	0.5%	0.8%	Saudi Arabia (35.1), Qatar (29.9), UAE (18.6), Kuwait (10.7), Singapore (2.7)
Top 10		**135.4**	**230.3**	**8.4%**	**42.9%**	**45.4%**	**-**
Total		**315.7**	**507.6**	**6.3%**	**100.0%**	**100.0%**	**China (14.5), USA (6.4), Saudi Arabia (5.6), UAE (5.3), Iraq (4.5)**

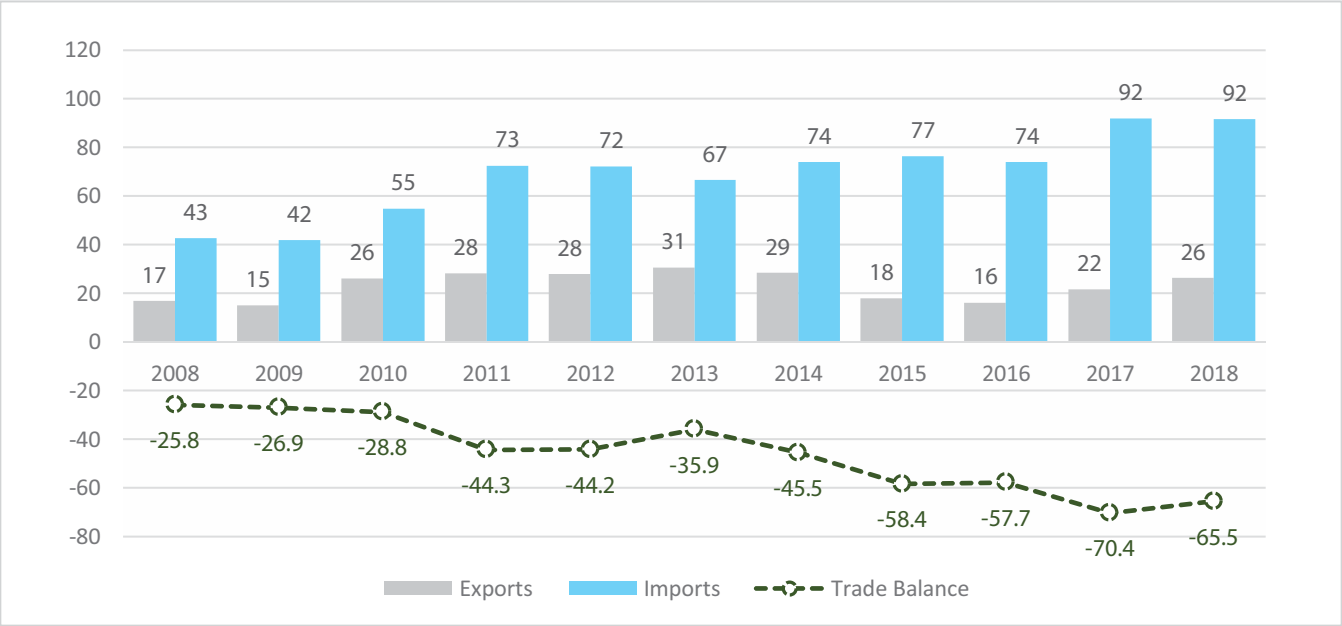
Source: Data accessed from ITC Trade Map in January 2020; India Exim Bank Research

Trade with BRICS

With respect to the trade with other BRICS nations, India's case is quite different vis-à-vis that of Brazil and Russia. India's exports to other BRICS countries recorded an AAGR of 8% during 2008 to 2018 with exports to these nations growing from US$ 16.9 billion in 2008 to US$ 26.3 billion in 2018. During the same time, imports grew from US$ 42.7 billion to US$ 91.8 billion, however at a higher rate (8.8%) than exports. As a result, India's trade deficit with other BRICS nations increased drastically from (-) US$ 25.8 billion to (-) US$ 65.5 billion, during 2008 to 2018.

It is observed that the share of India's exports to other BRICS nations in India's total exports has decreased from 9.3% in 2008 to 8.1% in 2018. On the other hand, India imported 18.1% of its total imports from other BRICS nations in 2018, up from 13.5% in 2008.

Figure 16: India's Trade with Other BRICS Nations: 2008-18 (US$ Billion)



Source: Data accessed from ITC Trade Map in January 2020; India Exim Bank Research

Over 60% of India's exports to other BRICS nations is directed towards China. China was the top destination for 8 out of the top 10 exported items (HS-6 digit) by India to other BRICS nations. The top ten exported items at HS-6 digit level contributed to 34.3% of India's exports to other BRICS nations in 2018. However, the same items had a contribution of 23% in 2008.

Table 12: India's Exports to Other BRICS Nations at HS-6 Digit Level

HS code	Description	Exports in US$ Billion		AAGR (2008-18)	Share in %		Major Export Destination in BRICS (Share in 2018)
		2008	2018		2008	2018	
271012	Light oils and preparations, of petroleum or bituminous minerals which >= 90% by volume	0.0	2.5	-	0.0%	9.3%	China (96.8%)
290243	P-Xylene	0.0	1.3	316.0%	0.2%	5.1%	China (100%)
271019	Medium oils and preparations, of petroleum or bituminous minerals, not containing biodiesel	2.7	1.2	20.2%	15.9%	4.7%	China (50.9%)
300490	Medicaments consisting of mixed or unmixed products for therapeutic or prophylactic purposes	0.4	1.0	12.6%	2.1%	3.8%	South Africa (44.7%)

260112	Agglomerated iron ores and concentrates (excluding roasted iron pyrites)	0.3	0.7	936.9%	1.9%	2.6%	China (99.2%)
740311	Copper, refined, in the form of cathodes and sections of cathodes	0.1	0.6	100.9%	0.7%	2.4%	China (99.8%)
390110	Polyethylene with a specific gravity of < 0,94, in primary forms	0.0	0.5	167.4%	0.0%	1.9%	China (99.5%)
870322	Motor cars and other motor vehicles principally designed for the transport of persons	0.1	0.4	33.4%	0.4%	1.6%	South Africa (100%)
151530	Castor oil and fractions thereof, whether or not refined, but not chemically modified	0.1	0.4	25.0%	0.4%	1.5%	China (95.5%)
251611	Granite, crude or roughly trimmed	0.2	0.4	6.5%	1.4%	1.4%	China (100%)
Top 10		**3.9**	**9.0**	**26.7%**	**23.0%**	**34.3%**	**-**
Total		**16.9**	**26.3**	**8.0%**	**100.0%**	**100.0%**	**China (62.3%)**

Source: Data accessed from ITC Trade Map in January 2020; India Exim Bank Research

As far as the imports are concerned, the top ten imported items by India from other BRICS nations contributed to 26.9% of India's total imports from other BRICS nations in 2018. The share of these ten items was 9.2% in 2008. Overall, the imports of the top ten items by India from other BRICS nations registered an AAGR of 28.3% during 2008 to 2018. However, a complete dominance of China is observed in India's imports from other BRICS nations.

Table 13: India's Imports from Other BRICS Nations at HS-6 Digit Level

HS code	Description	Imports in US$ Billion		AAGR (2008-18)	Share in %		Major Import Source in BRICS (Share in 2018)
		2008	2018		2008	2018	
851770	Parts of telephone sets, telephones for cellular networks or for other wireless networks	0.0	6.3	-	0.0%	6.8%	China (100%)
270119	Coal, whether or not pulverised, non-agglomerated (excluding anthracite and bituminous coal)	1.1	3.1	11.9%	2.6%	3.4%	South Africa (89.2%)
270900	Petroleum oils and oils obtained from bituminous minerals, crude	0.3	2.7	64.6%	0.7%	2.9%	Brazil (55.5%)

847130	Data-processing machines, automatic, portable, weighing <= 10 kg	0.5	2.5	19.3%	1.2%	2.7%	China (100%)
854140	Photosensitive semiconductor devices, incl. photovoltaic cells	0.0	2.3	100.5%	0.1%	2.5%	China (100%)
710231	Non-industrial diamonds unworked or simply sawn, cleaved or bruted (excluding industrial diamonds)	0.1	1.9	46.5%	0.3%	2.0%	Russia (77.2%)
851712	Telephones for cellular networks "mobile telephones" or for other wireless networks	0.0	1.6	-	0.0%	1.8%	China (100%)
710812	Gold, incl. gold plated with platinum, unwrought, for non-monetary purposes	1.9	1.5	6.9%	4.4%	1.7%	South Africa (68.0%)
854231	Electronic integrated circuits as processors and controllers	0.0	1.5	-	0.0%	1.6%	China (99.9%)
851762	Machines for the reception, conversion and transmission or regeneration of voice, images etc.	0.0	1.4	-	0.0%	1.5%	China (99.8%)
Top 10		**3.9**	**24.7**	**28.3%**	**9.2%**	**26.9%**	**-**
Total		**42.7**	**91.8**	**8.8%**	**100.0%**	**100.0%**	**China (80.3%)**

Source: Data accessed from ITC Trade Map in January 2020; India Exim Bank Research

Trade Scenario: China

Global Trade

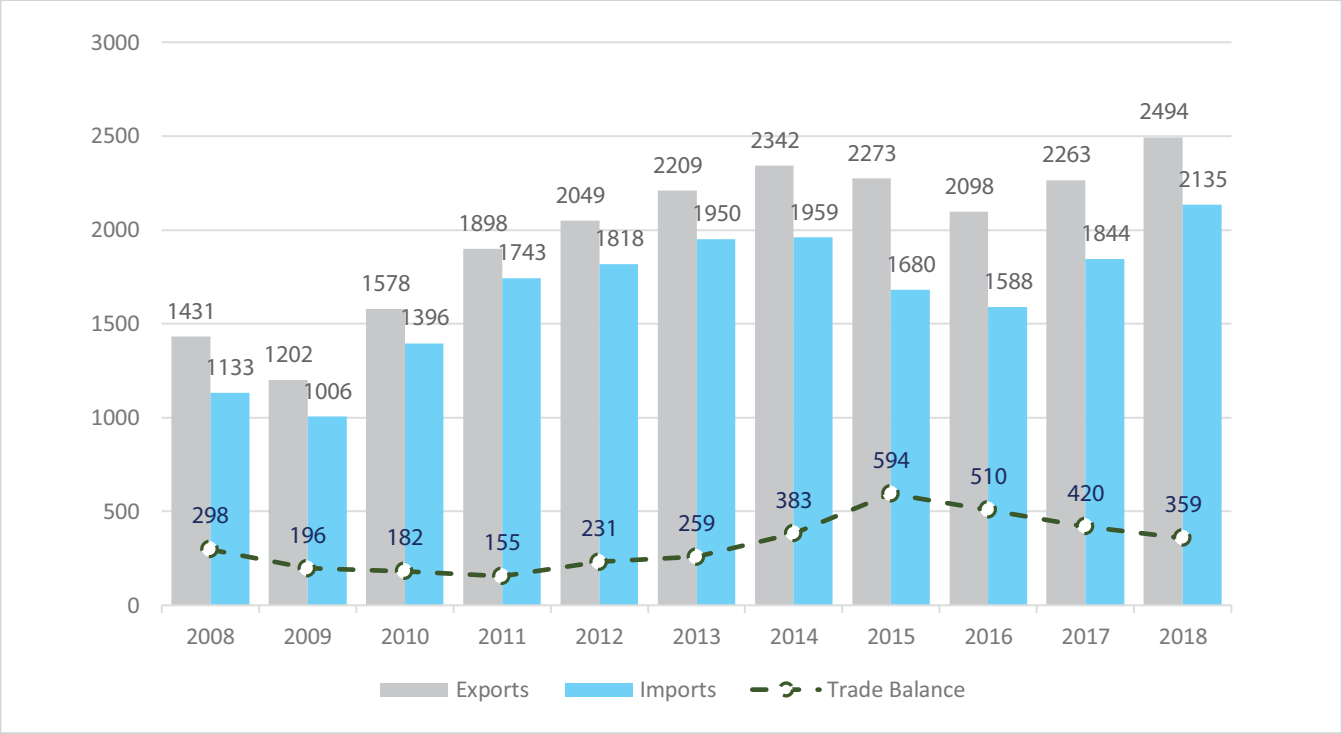
China is the largest contributor to the inter-BRICS trade as can be observed from the countries analysed in this chapter.

The total trade from China was over US$ 4.6 trillion in 2018, which is an average annual growth of 7% during 2008-18. Out of the total trade in 2018, exports had a contribution of US$ 2494.2 billion while imports were registered at US$ 2135 billion. As a result, a trade surplus worth US$ 359.2 billion was observed in the case of China in 2018.

It may be observed that the trade surplus for China reached as high as US$ 593.9 billion in 2015 before falling to US$ 359.2 billion in 2018. Some of the industries which observed a fall in the trade surplus in 2018 vis-à-vis 2015 were electrical machinery and equipment: HS 85 (US$ 165 billion in

2015 to US$ 143 billion in 2018); apparels: HS 61 & 62 (US$ 156 billion in 2015 to US$ 137 billion in 2018); footwear, gaiters and the like; parts of such articles: HS 64 (US$ 51 billion in 2015 to US$ 47 billion in 2018); amongst others. During 2014 to 2018, while the exports from China registered an AAGR of 1.9%, the imports recorded an AAGR of 3%.

Figure 17: Trade Trends for China: 2008-18 (US$ Billion)



Source: Data accessed from ITC Trade Map in January 2020; India Exim Bank Research

It may be observed that the exports from China seem quite diversified at a narrower and disaggregated level. The share of the top ten items exported by China at HS-6 digit level was 21.1% in 2018. However, it is vital to note that out of the top ten items, the top eight belong to either HS 84 or HS 85. A deeper analysis reveals that these two groups together made 44% of China's exports in 2018. Further, across all the top ten items, it is either the USA or Hong Kong which is the top exporting destination. Most of the top items at HS 6 digit level have significant market concentration – the USA and Hong Kong cumulatively accounted for over 40% in most of these cases.

Table 14: China's Exports at HS-6 Digit to Major Export Destinations

HS code	Description	Exports in US$ Billion		AAGR (2008-18)	Share in %		Major Export Destinations: 2018
		2008	2018		2008	2018	
851712	Telephones for cellular networks "mobile telephones" or for other wireless networks	38.9	141.7	14.4%	2.7%	5.7%	USA (24.7), Hong Kong (23.1), Japan (6.1), Netherlands (6.0), South Korea (5.9)

847130	Data-processing machines, automatic, portable, weighing <= 10 kg	65.6	95.9	4.9%	4.6%	3.8%	USA (36.7), Netherlands (10.3), Hong Kong (9.9), Germany (6.3), Japan (5.6)
851770	Parts of telephone sets, telephones for cellular networks or for other wireless networks	24.6	52.0	8.6%	1.7%	2.1%	Hong Kong (34.4), Vietnam (12.7), India (11.6), South Korea (6.9), USA (6.5)
847330	Parts and accessories of automatic data-processing machines or for other machines	31.4	44.3	4.8%	2.2%	1.8%	Hong Kong (33.6), USA (27.2), Netherlands (5.1), Mexico (4.3), South Korea (3.6)
854232	Electronic integrated circuits as memories	8.3	44.0	19.7%	0.6%	1.8%	Hong Kong (41.0), Vietnam (16.6), Malaysia (12.7), Chinese Taipei (9.7), Singapore (6.3)
851762	Machines for the reception, conversion and transmission or regeneration of voice, images etc.	19.4	42.3	8.4%	1.4%	1.7%	USA (32.8), Hong Kong (19.3), Netherlands (7.3), Japan (3.0), UK (2.8)
854231	Electronic integrated circuits as processors and controllers	12.4	29.6	11.5%	0.9%	1.2%	Hong Kong (41.0), Vietnam (16.6), Malaysia (12.7), Chinese Taipei (9.7), Singapore (6.3)
271019	Medium oils and preparations, of petroleum or bituminous minerals, not containing biodiesel	10.6	27.3	11.9%	0.7%	1.1%	Hong Kong (22.8), Singapore (13.9), Philippines (8.3), Australia (6.3), South Korea (5.8)
950300	Tricycles, scooters, pedal cars and similar wheeled toys; dolls' carriages; dolls; other toys	8.6	25.5	12.0%	0.6%	1.0%	USA (28.5), UK (5.1), Hong Kong (3.8), Japan (3.7), Germany (3.6)
901380	Liquid crystal devices, n.e.s. and other optical appliances and instruments not elsewhere specified	22.7	23.4	1.6%	1.6%	0.9%	Hong Kong (27.3), Mexico (11.4), South Korea (9.1), Poland (6.1), Vietnam (4.8)
Top 10		**242.4**	**525.8**	**8.6%**	**16.9%**	**21.1%**	**-**
Total		**1430.7**	**2494.2**	**6.5%**	**100.0%**	**100.0%**	**USA (19.2), Hong Kong (12.1), Japan (5.9), South Korea (4.4), Vietnam (3.4)**

Source: Data accessed from ITC Trade Map in January 2020; India Exim Bank Research

The imports by China are significantly concentrated than the exports. The top imported item 'Petroleum oils and oils obtained from bituminous minerals, crude' contributes to over 10% of China's total imports. South Korea (9.6%) is the largest import source for China, followed by Japan (8.4%) and Chinese Taipei (8.3%).

Table 15: China's Imports at HS-6 Digit from Major Import Sources

HS code	Description	Imports in US$ Billion		AAGR (2008-18)	Share in %		Major Import Sources: 2018
		2008	2018		2008	2018	
270900	Petroleum oils and oils obtained from bituminous minerals, crude	129.3	239.2	11.4%	11.4%	11.2%	Russia (15.8), Saudi Arabia (12.4), Angola (10.4), Iraq (9.4), Oman (7.2)
854231	Electronic integrated circuits as processors and controllers	80.9	127.4	5.1%	7.1%	6.0%	Chinese Taipei (38.5), Malaysia (15.6), South Korea (8.9), USA (7.7), Vietnam (5.6)
854232	Electronic integrated circuits as memories	22.8	123.0	19.8%	2.0%	5.8%	South Korea (51.8), Chinese Taipei (22.0), Japan (5.5), Singapore (1.9), Malaysia (1.0)
260111	Non-agglomerated iron ores and concentrates (excluding roasted iron pyrites)	57.1	72.7	6.3%	5.0%	3.4%	Australia (61.9), Brazil (24.5), South Africa (4.4), Peru (1.4), Iran (1.4)
854239	Electronic integrated circuits (excluding such as processors, controllers, memories and amplifiers)	22.1	51.7	9.6%	1.9%	2.4%	Chinese Taipei (38.4), South Korea (9.8), Malaysia (7.3), Philippines (6.9), Japan (6.9)
710812	Gold, incl. gold plated with platinum, unwrought, for non-monetary purposes	0.0	43.1	-	0.0%	2.0%	Switzerland (42.1), Australia (19.0), Canada (10.6), South Africa (10.0), USA (6.1)
851770	Parts of telephone sets, telephones for cellular networks or for other wireless networks	13.6	42.4	13.1%	1.2%	2.0%	Vietnam (39.5), South Korea (9.6), Japan (4.9), Chinese Taipei (4.3), Thailand (2.8)
120190	Soya beans, whether or not broken (excluding seed for sowing)	0.0	38.1	-	0.0%	1.8%	Brazil (75.7), USA (18.5), Canada (2.0), Argentina (1.6), Uruguay (1.4)

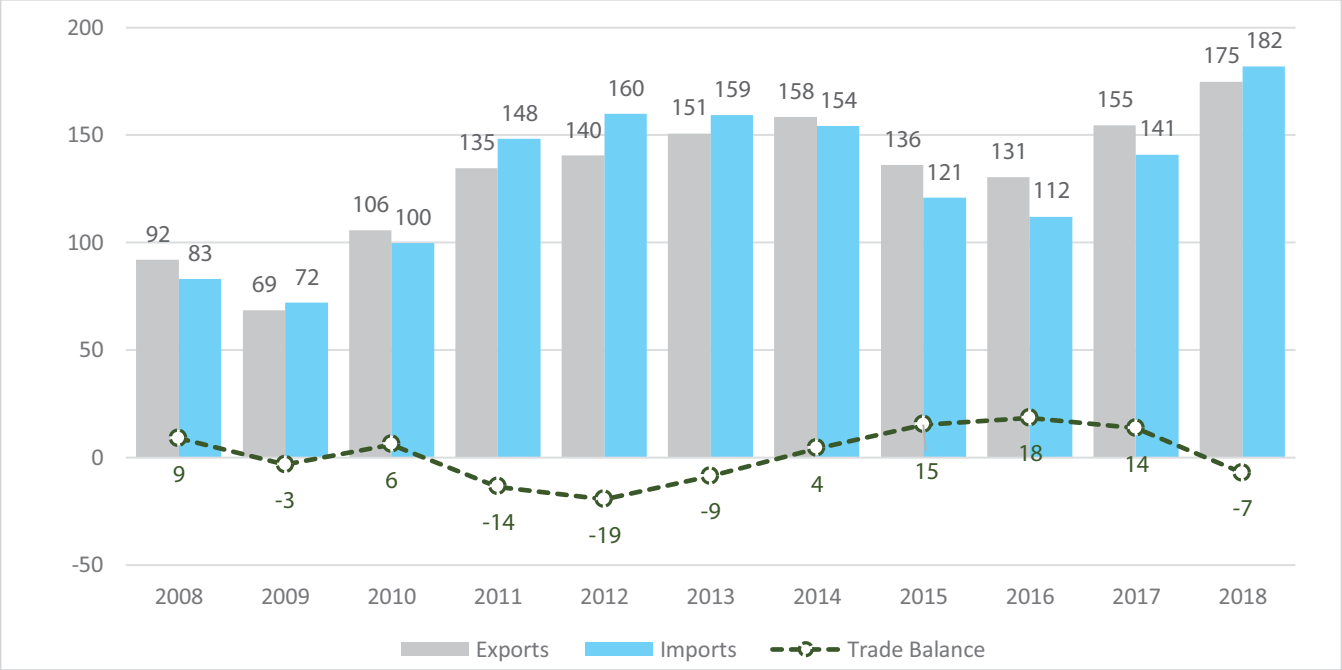
870323	Motor cars and other motor vehicles principally designed for the transport of persons	5.7	36.8	25.4%	0.5%	1.7%	Germany (34.4), USA (22.1), UK (11.7), Slovakia (11.0), Japan (10.4)
260300	Copper ores and concentrates	9.9	32.7	14.2%	0.9%	1.5%	Chile (30.0), Peru (27.8), Mongolia (6.3), Mexico (5.9), Australia (5.5)
Top 10		**341.4**	**807.1**	**10.4%**	**30.1%**	**37.8%**	**-**
Total		**1132.6**	**2135.0**	**7.7%**	**100.0%**	**100.0%**	**South Korea (9.6), Japan (8.4), Chinese Taipei (8.3), USA (7.3), Germany (6.9)**

Source: Data accessed from ITC Trade Map in January 2020; India Exim Bank Research

Trade with BRICS

With respect to the trade, China's exports to other BRICS countries recorded an AAGR of 8.6% during 2008 to 2018 with exports to these nations growing from US$ 92.1 billion in 2008 to US$ 175 billion in 2018. During the same period, imports grew from US$ 83.2 billion to US$ 182.1 billion, however at a higher rate (10.4%) than exports. China's trade balance with other BRICS nations has gone into deficit four times at a yearly level, during 2008 to 2018. It is also observed that the share of China's exports to other BRICS nations in China's total exports has increased from 6.4% in 2008 to 7% in 2018. On the other hand, China imported 8.5% of its total imports from other BRICS nations in 2018, up from 7.3% in 2008.

Figure 18: China's Trade with Other BRICS Nations: 2008-18 (US$ Billion)



Source: Data accessed from ITC Trade Map in January 2020; India Exim Bank Research

Table 16: China's Exports to Other BRICS Nations at HS-6 Digit Level

HS code	Description	Exports in US$ Billion		AAGR (2008-18)	Share in %		Major Export Destination in BRICS (Share in 2018)
		2008	2018		2008	2018	
851770	Parts of telephone sets, telephones for cellular networks or for other wireless networks	1.7	7.2	20.8%	1.8%	4.1%	India (83.2%)
851712	Telephones for cellular networks "mobile telephones" or for other wireless networks	3.4	6.3	9.3%	3.7%	3.6%	Russia (50.9%)
847130	Data-processing machines, automatic, portable, weighing <= 10 kg	1.4	4.6	17.0%	1.5%	2.6%	India (57%)
430310	Articles of apparel and clothing accessories of furskin	0.0	3.3	121.1%	0.0%	1.9%	Russia (100%)
854140	Photosensitive semiconductor devices, incl. photovoltaic cells	0.0	3.2	85.2%	0.0%	1.8%	India (73.7%)
901380	Liquid crystal devices, n.e.s. and other optical appliances and instruments not elsewhere specified	1.3	2.1	7.3%	1.4%	1.2%	Brazil (42.4%)
950300	Tricycles, scooters, pedal cars and similar wheeled toys; dolls' carriages; dolls; other toys	0.3	1.9	23.6%	0.4%	1.1%	India (41%)
851762	Machines for the reception, conversion and transmission or regeneration of voice, images etc.	1.4	1.7	2.9%	1.5%	1.0%	India (41.5%)
890590	Light-vessels, fire-floats, floating cranes and other vessels	0.0	1.7	-	0.0%	1.0%	Brazil (95.7%)
854232	Electronic integrated circuits as memories	0.0	1.6	100.9%	0.0%	0.9%	India (70.1%)
Top 10		9.6	33.6	14.6%	10.4%	19.2%	-
Total		92.1	175.0	8.6%	100.0%	100.0%	India (43.9%)

Source: Data accessed from ITC Trade Map in January 2020; India Exim Bank Research

Unlike the exports where India was the major export destination for Chinese products among other BRICS nations, with regard to imports, China's major source was Brazil with a share of 42.4% in China's total imports from other BRICS countries, while India had the least share amongst the four BRICS countries. In fact, India was not the top import source for any of the top 10 items imported by China from other BRICS countries. This also precisely explains the reasons for India's huge trade deficit with China.

The top ten imported items by China from other BRICS nations contributed to 72.5% of China's total imports from other BRICS nations in 2018. Almost 30% of the total imports came from 'Petroleum oils and oils obtained from bituminous minerals, crude' (HS 270900).

Table 17: China's Imports from Other BRICS Nations at HS-6 Digit Level

HS code	Description	Imports in US$ Billion		AAGR (2008-18)	Share in %		Major Import Source in BRICS (Share in 2018)
		2008	2018		2008	2018	
270900	Petroleum oils and oils obtained from bituminous minerals, crude	10.6	54.3	22.4%	12.7%	29.8%	Russia (69.7%)
120190	Soya beans, whether or not broken (excluding seed for sowing)	0.0	29.1	-	0.0%	16.0%	Brazil (99.1%)
260111	Non-agglomerated iron ores and concentrates (excluding roasted iron pyrites)	29.7	21.7	0.3%	35.7%	11.9%	Brazil (82.3%)
710239	Diamonds, worked, but not mounted or set (excluding industrial diamonds)	0.7	7.1	29.2%	0.9%	3.9%	South Africa (59.6%)
470329	Semi-bleached or bleached non-coniferous chemical wood pulp, soda or sulphate	0.9	4.7	18.7%	1.1%	2.6%	Brazil (95.4%)
710812	Gold, incl. gold plated with platinum, unwrought, for non-monetary purposes	0.0	4.3	-	0.0%	2.4%	South Africa (99.8%)
740311	Copper, refined, in the form of cathodes and sections of cathodes	0.2	3.6	51.8%	0.3%	2.0%	Russia (43.6%)
260200	Manganese ores and concentrates, incl. ferruginous manganese ores and concentrates	1.3	2.7	17.2%	1.6%	1.5%	South Africa (84.6%)

710813	Gold, incl. gold plated with platinum, in semi-manufactured forms, for non-monetary purposes	0.0	2.4	-	0.0%	1.3%	South Africa (100%)
261000	Chromium ores and concentrates	1.3	2.1	14.2%	1.6%	1.1%	South Africa (99%)
Top 10		**44.8**	**132.0**	**13.5%**	**53.8%**	**72.5%**	**-**
Total		**83.2**	**182.1**	**10.4%**	**100.0%**	**100.0%**	**Brazil (42.4%)**

Source: Data accessed from ITC Trade Map in January 2020; India Exim Bank Research

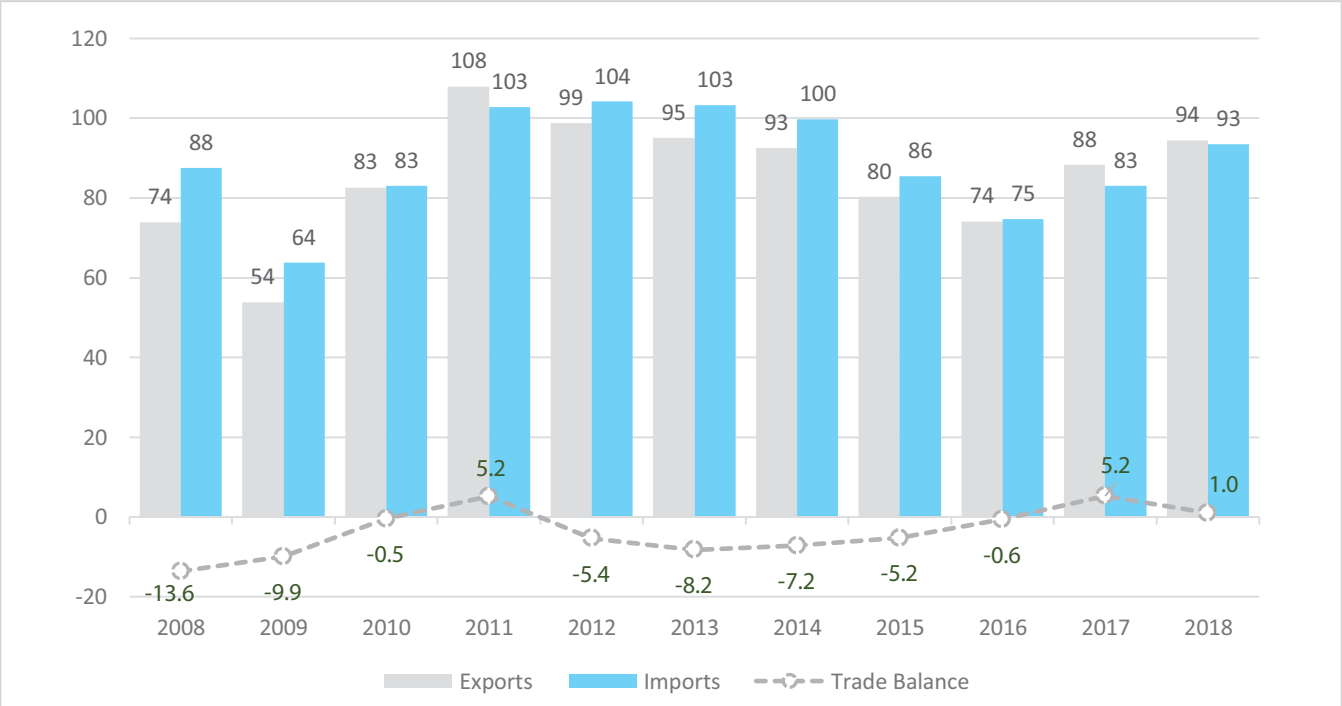
Trade Scenario: South Africa

Global Trade

The total trade from South Africa was recorded at US$ 187.8 billion in 2018, which is an average annual growth of 3.3% during 2008-18. Out of the total trade in 2018, exports had a contribution of US$ 94.4 billion while imports were registered at US$ 93.4 billion. As a result, a trade surplus worth US$ 1 billion was recorded for South Africa in 2018.

It may be observed that South Africa registered a trade deficit for all the years during 2008 to 2018 barring years 2011, 2017, and 2018. While South Africa's exports recorded an AAGR of 4.7%, its imported registered an AAGR of 2.1%, during the same period.

Figure 19: Trade Trends for South Africa: 2008-18 (US$ Billion)



Source: Data accessed from ITC Trade Map in January 2020; India Exim Bank Research

At HS-6 digit level, it is observed that during 2018, the top ten exported commodities from South Africa constituted 34.7% of the total exports. The same commodities had a contribution of 23.8% in 2008. It may be also be noted that China is the top exporting destination for South Africa with a share of 9.2%, followed by Germany at 7.5%, and USA at 6.8%.

Table 18: South Africa's Exports at HS-6 Digit to Major Export Destinations

HS code	Description	Exports in US$ Billion		AAGR (2008-18)	Share in %		Major Export Destinations: 2018
		2008	2018		2008	2018	
270112	Bituminous coal, whether or not pulverised, non-agglomerated	4.5	6.1	5.5%	6.1%	6.4%	India (43.5), Pakistan (12.9), South Korea (9.2), Netherlands (4.2), Chinese Taipei (3.9)
710813	Gold, incl. gold plated with platinum, in semi-manufactured forms, for non-monetary purposes	0.0	5.5	-	0.0%	5.8%	Area nes
260200	Manganese ores and concentrates, incl. ferruginous manganese ores and concentrates	1.9	3.6	23.4%	2.6%	3.8%	China (59.7), India (7.8), Japan (6.2), Malaysia (4.3), South Korea (3.8)
870421	Motor vehicles for the transport of goods, with compression-ignition internal combustion piston	1.3	3.1	14.4%	1.7%	3.3%	UK (19.0), Germany (14.5), Belgium (12.1), Spain (8.5), France (7.4)
720241	Ferro-chromium, containing by weight > 4% of carbon	3.4	3.1	2.0%	4.6%	3.3%	China (24.1), UAE (13.9), Indonesia (13.8), Japan (9.1), South Korea (7.0)
260112	Agglomerated iron ores and concentrates (excluding roasted iron pyrites)	2.3	2.7	6.2%	3.2%	2.8%	China (54.6), Japan (9.4), South Korea (9.1), Netherlands (6.3), Germany (4.7)
271012	Light oils and preparations, of petroleum or bituminous minerals which >= 90% by volume	0.0	2.5	-	0.0%	2.7%	Botswana (30.0), Namibia (7.7), Lesotho (7.0), Eswatini (6.0), Zimbabwe (4.1)

711019	Platinum, in semi-manufactured forms	2.6	2.3	2.5%	3.6%	2.4%	UK (39.1), Japan (20.6), Hong Kong (16.5), Switzerland (13.2), USA (3.8)
870332	Motor cars and other motor vehicles principally designed for the transport of persons	0.6	2.1	37.9%	0.8%	2.2%	Germany (51.5), UK (16.5), Belgium (8.2), South Korea (7.9), Spain (7.5)
261000	Chromium ores and concentrates	0.9	1.9	12.6%	1.2%	2.0%	China (51.3), Mozambique (31.4), Netherlands (3.7), Indonesia (2.3), USA (2.2)
Top 10		**17.6**	**32.8**	**9.8%**	**23.8%**	**34.7%**	**-**
Total		**74.0**	**94.4**	**4.7%**	**100.0%**	**100.0%**	**China (9.2), Germany (7.5), USA (6.8), UK (5.1), Japan (4.7)**

Source: Data accessed from ITC Trade Map in January 2020; India Exim Bank Research

The imports by South Africa are even less concentrated than the exports. The top imported item 'Petroleum oils and oils obtained from bituminous minerals, crude' (HS 270900) contributed 11.6% to South Africa's total imports. China (18.3%) is the largest import source for South Africa, followed by Germany (9.9%) and USA (5.9%).

Table 19: South Africa's Imports at HS-6 Digit from Major Import Sources

HS code	Description	Imports in US$ Billion		AAGR (2008-18)	Share in %		Major Import Sources: 2018
		2008	2018		2008	2018	
270900	Petroleum oils and oils obtained from bituminous minerals, crude	15.0	10.8	1.8%	17.1%	11.6%	Saudi Arabia (42.1), Nigeria (35.0), Angola (11.1), Ghana (5.9), UAE (3.9)
271012	Light oils and preparations, of petroleum or bituminous minerals which >= 90% by volume	0.0	4.5	-	0.0%	4.8%	Oman (24.3), UAE (13.0), Italy (11.1), India (10.1), Bahrain (7.8)
851762	Machines for the reception, conversion and transmission or regeneration of voice, images etc.	0.9	1.6	12.3%	1.0%	1.7%	China (45.8), Vietnam (18.9), India (7.5), USA (3.7), Malaysia (3.1)

300490	Medicaments consisting of mixed or unmixed products for therapeutic or prophylactic purposes	1.0	1.5	4.8%	1.2%	1.6%	India (33.3), Germany (11.8), France (7.8), USA (7.7), Ireland (4.9)
851712	Telephones for cellular networks "mobile telephones" or for other wireless networks	1.4	1.3	2.3%	1.6%	1.4%	China (92.2), Hong Kong (3.0), Vietnam (1.5), South Korea (0.4), Thailand (0.2)
490700	Unused postage, revenue or similar stamps of current or new issue in the country	0.0	1.2	364.0%	0.0%	1.3%	UK (66.4), Zambia (6.1), Switzerland (6.1), Zimbabwe (3.3), Mozambique (3.1)
870322	Motor cars and other motor vehicles principally designed for the transport of persons, incl. station wagons and racing cars, with spark-ignition internal combustion reciprocating piston engine of a cylinder capacity > 1.000 cm^3 but <= 1.500 cm^3	0.3	1.1	20.7%	0.3%	1.1%	India (39.1), Thailand (12.5), Germany (11.0), Indonesia (9.3), South Korea (4.8)
870323	Motor cars and other motor vehicles principally designed for the transport of persons, incl. station wagons and racing cars, with spark-ignition internal combustion reciprocating piston engine of a cylinder capacity 1.500 cm^3 but <= 3.000 cm^3	1.4	0.9	-1.4%	1.6%	1.0%	Germany (32.8), Japan (30.0), South Korea (9.9), India (4.9), Mexico (3.9)
847130	Data-processing machines, automatic, portable, weighing <= 10 kg	0.5	0.9	7.7%	0.6%	0.9%	China (93.4), Vietnam (2.9), USA (0.8), Chinese Taipei (0.7), Germany (0.5)
281820	Aluminium oxide (excluding artificial corundum)	0.6	0.7	6.1%	0.7%	0.7%	Australia (97.4), Germany (0.8), China (0.7), USA (0.4), Japan (0.2)

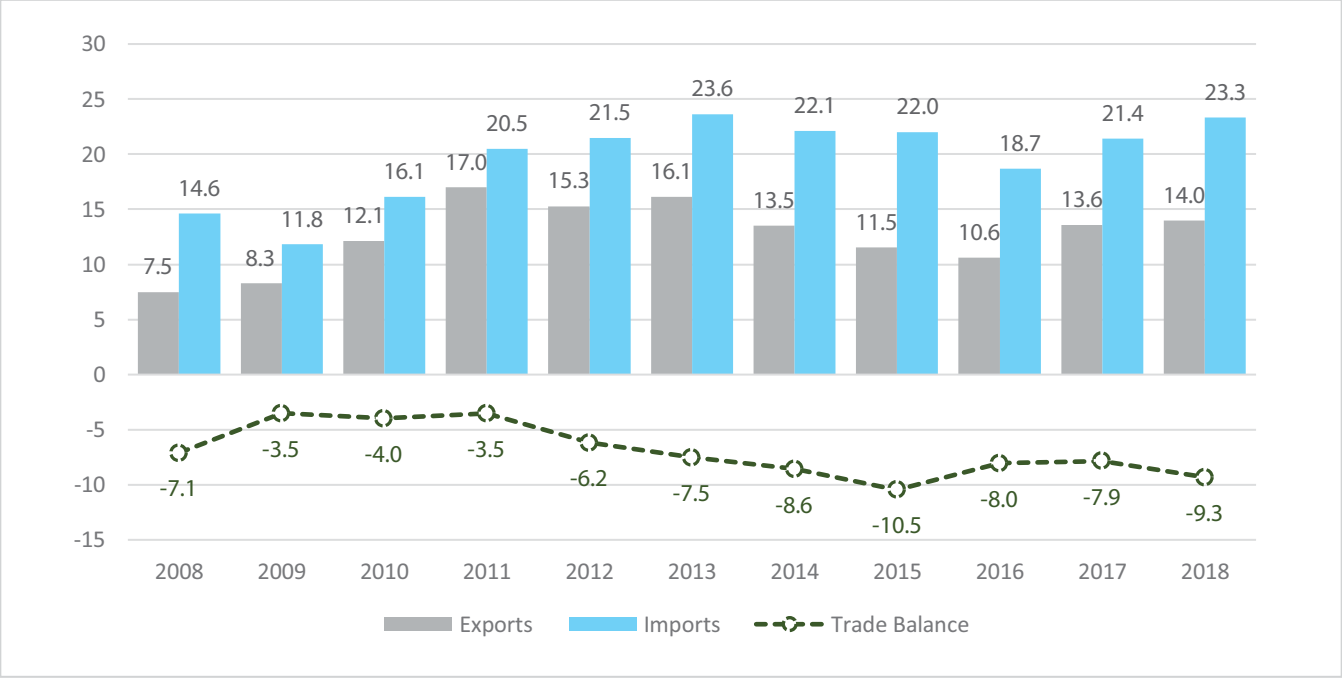
Top 10	**21.1**	**24.5**	**4.4%**	**24.1%**	**26.3%**	**-**
Total	**87.6**	**93.4**	**2.1%**	**100.0%**	**100.0%**	**China (18.3), Germany (9.9), USA (5.9), Saudi Arabia (5.7), India (4.1)**

Source: Data accessed from ITC Trade Map in January 2020; India Exim Bank Research

Trade with BRICS

With respect to the trade with other BRICS nations, South Africa's exports recorded an AAGR of 8.5% during 2008 to 2018 with the exports in absolute terms growing from US$ 7.5 billion in 2008 to US$ 14 billion in 2018. During the same time, imports grew from US$ 14.6 billion to US$ 23.3 billion, however at a lower rate (6.1%) than exports. South Africa's trade deficit with other BRICS nations increased from (-) US$ 7.1 billion to (-) US$ 9.3 billion, during 2008 to 2018.

Figure 20: South Africa's Trade with Other BRICS Nations (US$ Billion)



Source: Data accessed from ITC Trade Map in January 2020; India Exim Bank Research

It is also observed that the share of South Africa's exports to other BRICS nations in South Africa's total exports has increased from 10.1% in 2008 to 14.8% in 2018. On the other hand, South Africa imported 25% of its total imports from other BRICS nations in 2018, up from 16.7% in 2008.

Further, South Africa's exports to other BRICS nations are significantly skewed towards China. Out of the total exports of South Africa to other BRICS nations in 2018, 62% went to China. In fact, China was the top destination for 9 out of the top 10 exported items (HS-6 digit) by South Africa to other BRICS nations.

Also, the product mix has changed significantly during the last decade. The top ten exported items at HS-6 digit level contributed 77.3% of South Africa's total exports to other BRICS nations in 2018. However, the same items had a contribution of just 48.8% in 2008.

Table 20: South Africa's Exports to Other BRICS Nations at HS-6 Digit Level

HS code	Description	Exports in US$ Billion		AAGR (2008-18)	Share in %		Major Export Destination in BRICS (Share in 2018)
		2008	2018		2008	2018	
270112	Bituminous coal, whether or not pulverised, non-agglomerated	0.7	2.6	20.7%	8.7%	18.9%	India (99.7%)
260200	Manganese ores and concentrates, incl. ferruginous manganese ores and concentrates	0.8	2.6	23.6%	11.3%	18.4%	China (83.7%)
260112	Agglomerated iron ores and concentrates (excluding roasted iron pyrites)	1.0	1.6	13.6%	12.8%	11.1%	China (94.1%)
260111	Non-agglomerated iron ores and concentrates (excluding roasted iron pyrites)	0.1	1.2	68.9%	0.8%	8.5%	China (87.3%)
261000	Chromium ores and concentrates	0.6	1.0	9.7%	8.0%	7.4%	China (95.4%)
720241	Ferro-chromium, containing by weight > 4% of carbon	0.3	0.8	15.9%	4.4%	5.4%	China (97.2%)
470200	Chemical wood pulp, dissolving grades	0.1	0.4	21.4%	1.0%	2.9%	China (53.9%)
510111	Greasy shorn wool, incl. fleece-washed wool, neither carded nor combed	0.1	0.3	15.1%	1.2%	2.0%	China (97.1%)
261510	Zirconium ores and concentrates	0.0	0.2	26.5%	0.6%	1.5%	China (91.6%)
740200	Copper, unrefined; copper anodes for electrolytic refining	0.0	0.2	-	0.0%	1.1%	China (98.9%)
Top 10		**3.7**	**10.8**	**14.7%**	**48.8%**	**77.3%**	**-**
Total		**7.5**	**14.0**	**8.5%**	**100.0%**	**100.0%**	**China (61.9%)**

Source: Data accessed from ITC Trade Map in January 2020; India Exim Bank Research

As far as the imports are concerned, the top ten imports by South Africa from other BRICS nations contributed to 22.8% of South Africa's total imports from other BRICS nations in 2018. The share of these ten items was 13.6% in 2008. Overall, the imports of the top ten items by South Africa from other BRICS nations registered an AAGR of 6.1% during 2008 to 2018. As in the case of exports, the imports by South Africa from other BRICS nations are majorly sourced from China (73.4%).

Table 21: South Africa's Imports from Other BRICS Nations at HS-6 Digit Level

HS code	Description	Imports in US$ Billion		AAGR (2008-18)	Share in %		Major Import Source in BRICS (Share in 2018)
		2008	2018		2008	2018	
851712	Telephones for cellular networks "mobile telephones" or for other wireless networks	0.7	1.2	7.8%	4.7%	5.3%	China (100%)
851762	Machines for the reception, conversion and transmission or regeneration of voice, images etc.	0.1	0.8	36.0%	0.9%	3.6%	China (85.9%)
847130	Data-processing machines, automatic, portable, weighing <= 10 kg	0.4	0.8	9.3%	3.0%	3.4%	China (100%)
300490	Medicaments consisting of mixed or unmixed products for therapeutic or prophylactic purposes	0.1	0.5	17.1%	0.9%	2.3%	India (95.6%)
271012	Light oils and preparations, of petroleum or bituminous minerals which >= 90% by volume	0.0	0.5	-	0.0%	2.3%	India (86.3%)
870322	Motor cars and other motor vehicles principally designed for the transport of persons	0.1	0.5	28.9%	0.5%	2.0%	India (89.6%)
851770	Parts of telephone sets, telephones for cellular networks or for other wireless networks	0.0	0.3	45.9%	0.2%	1.4%	China (99.7%)
640299	Footwear with outer soles and uppers of rubber or plastics	0.2	0.2	2.2%	1.4%	0.9%	China (98.7%)

640419	Footwear with outer soles of rubber or plastics and uppers of textile materials	0.1	0.2	14.7%	0.4%	0.9%	China (98.1%)
020714	Frozen cuts and edible offal of fowls of the species Gallus domesticus	0.1	0.2	21.6%	0.8%	0.8%	Brazil (100%)
Top 10		**1.9**	**5.3**	**13.6%**	**12.7%**	**22.8%**	**-**
Total		**14.6**	**23.3**	**6.1%**	**100.0%**	**100.0%**	**China (73.4%)**

Source: Data accessed from ITC Trade Map in January 2020; India Exim Bank Research

CHAPTER

Export Specialization in the BRICS Nations

The previous sections amplified the increasing contribution of BRICS countries to the global growth as well as their trade with the world and amongst themselves. While so be the case, the countries' large geographical aloofness remains a challenge to some extent. BRICS economies need to explore the opportunities for mutually beneficial cooperation in trade, investment and financing.

An analysis has been undertaken using the concept of 'Export Specialisation Index' (ESI), to identify product groups using trade data in which the cooperation could be explored.

Methodology

The ESI provides product information on revealed specialization in the export sector of a country and is calculated as the ratio of the share of a product in a country's total exports to the share of the same product in the imports of specific markets or partners.

$$ESI = (X_i / X_t)/ (M_i / M_t)$$

Where:

X_i is the export value of product i from country x to the world;
X_t is the total export value from country X to the world;
M_i is the import value of product i by country M from the world; and
M_t is the total import value of country M from the world

The value of ESI less than unity would indicate a comparative disadvantage, and a value above unity would represent specialization in this market.

An effort has been made herein to calculate the ESI for all the five BRICS markets individually, taking into consideration its trade with the other four BRICS partners. To make the analysis more robust, a threshold limit is applied with top export items cumulatively reaching at 90% of the total export value at HS-6 digit level. It may be noted that the number of shortlisted products, thus, would differ for each nation, depending on the export diversification of these countries.

Analysis

A quadrant-based analysis is made for each BRICS nation which will signify the number of items with export specialisation, the exporters from the analysed country will have with regard to the other four BRICS partners.

For instance, in Exhibit 1 for Brazil's case, the top 258 items at HS-6 digit contribute to 90% of Brazil's exports in 2018 and hence, have been considered for the ESI analysis. The four quadrants in Exhibit-1 represent the number of items in which Brazil has export specialization in the markets of other four BRICS nations – i.e. Brazil's capability to export these items being complemented by the import appetite of the other BRICS economies.

The quadrants also show the collective share of these items (258 in Brazil's case in Exhibit 1) in the country's exports, and the collective share of the same items in the imports of the rest of the four BRICS nations,

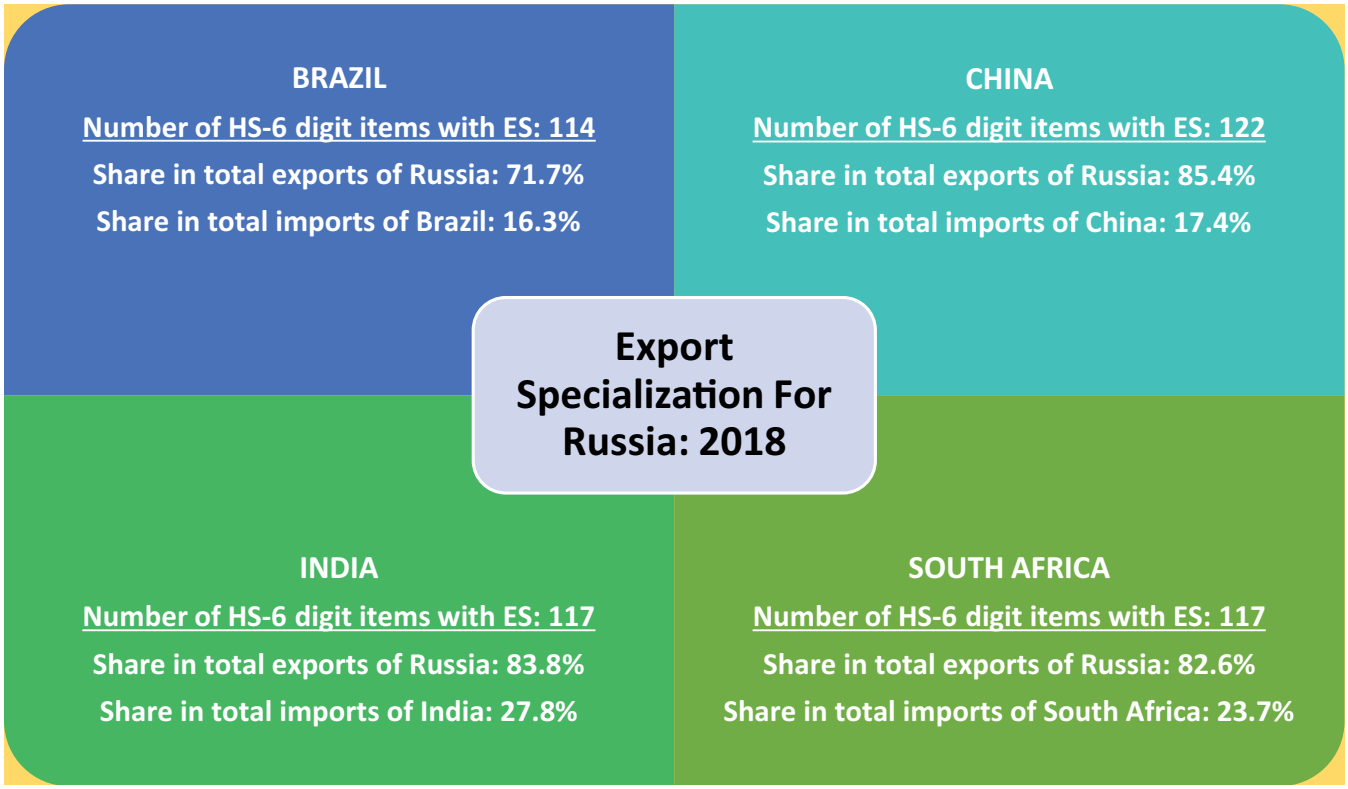
A similar exercise has been undertaken for each of the other four BRICS nations, and the same has been delineated in Exhibit 2, 3, 4, and 5.

While in Brazil's case, top 258 items at HS-6 digit level represented 90% of Brazil's exports in 2018, the number of items was 156 for Russia (contributing 90% of its total exports); 785 items for India (contributing 90% its total exports); 1153 items for China (contributing 90% its total exports); and 538 items for South Africa (contributing 90% its total exports).

Exhibit 1: Export Specialization for Brazil in BRICS Countries in 2018 (in 258 items)

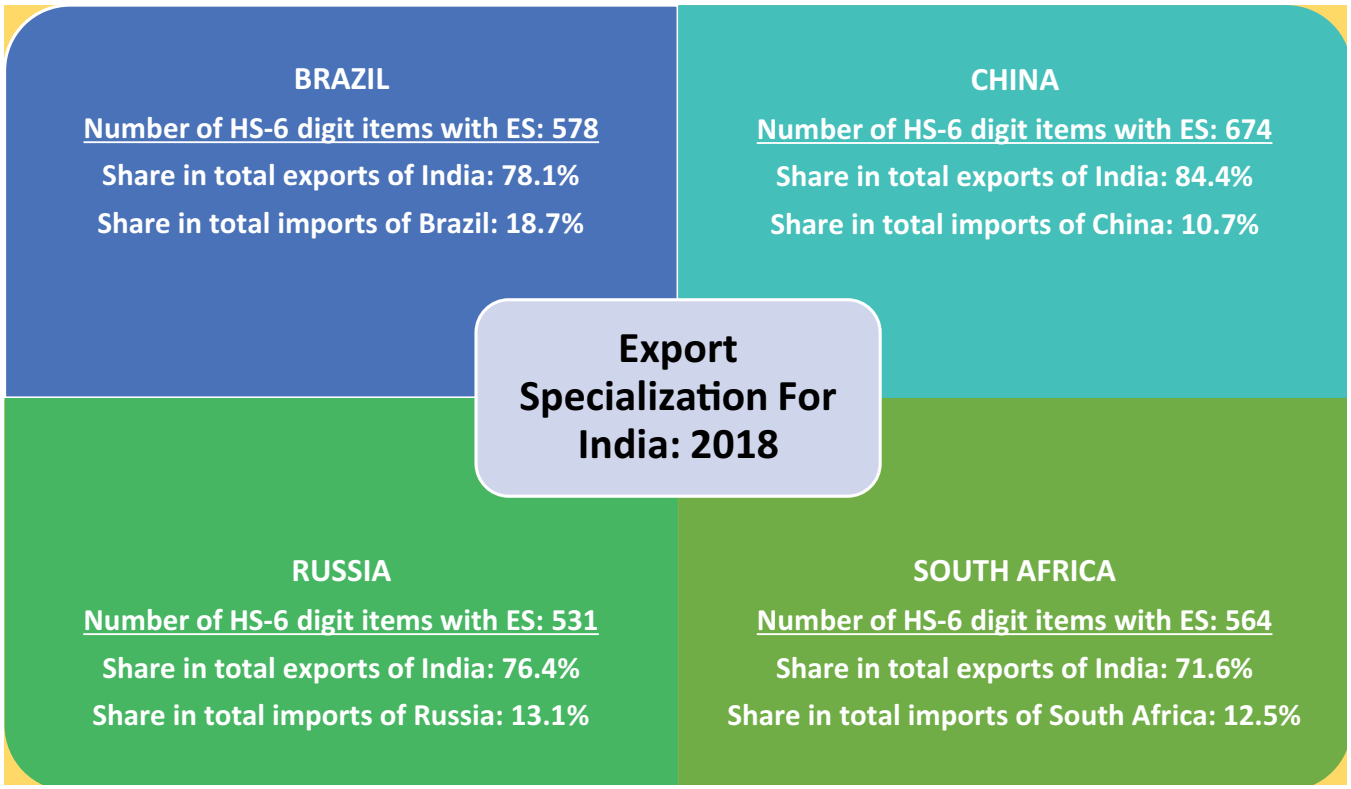
Source: Data accessed from ITC Trade Map in January 2020; India Exim Bank Research

Exhibit 2: Export Specialization for Russia in BRICS Countries in 2018 (in 156 items)



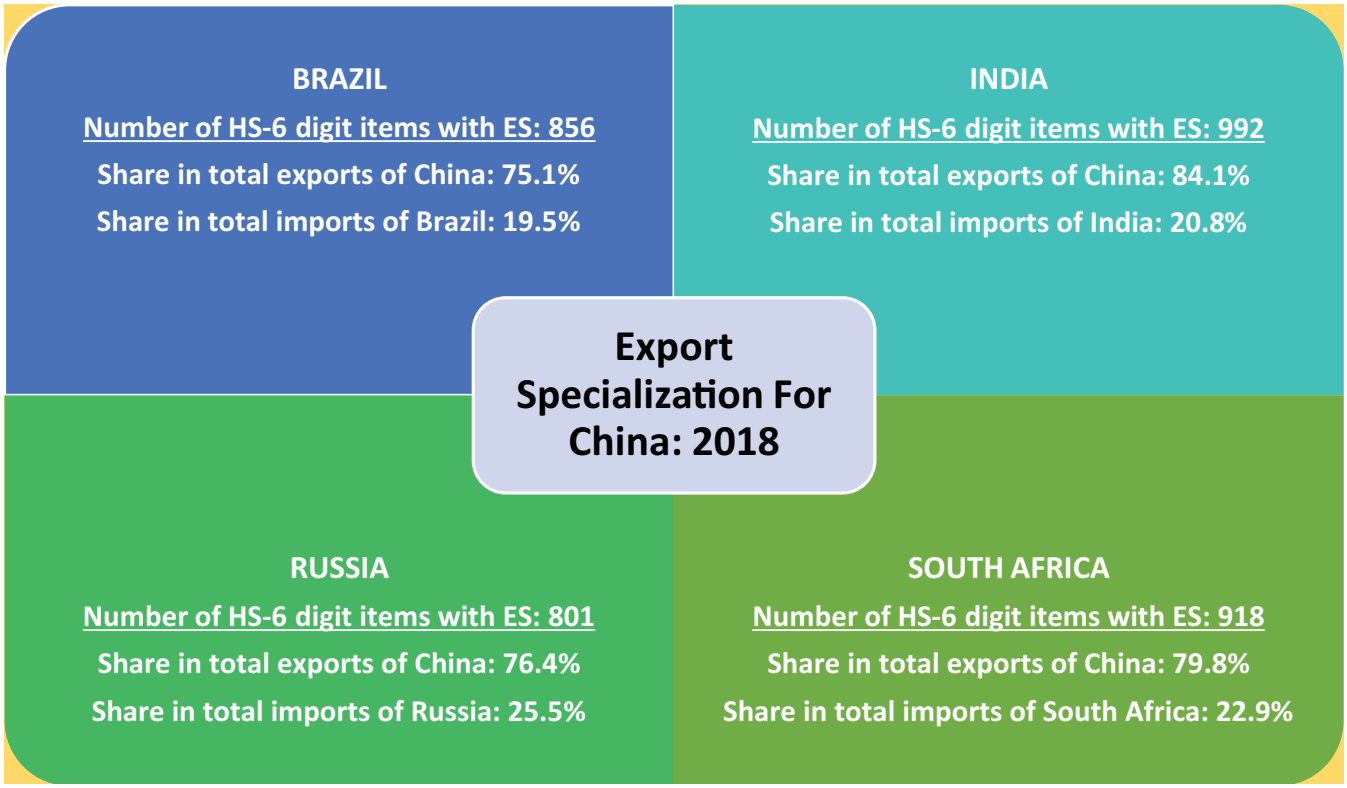
Source: Data accessed from ITC Trade Map in January 2020; India Exim Bank Research

Exhibit 3: Export Specialization for India in BRICS Countries in 2018 (in 785 items)



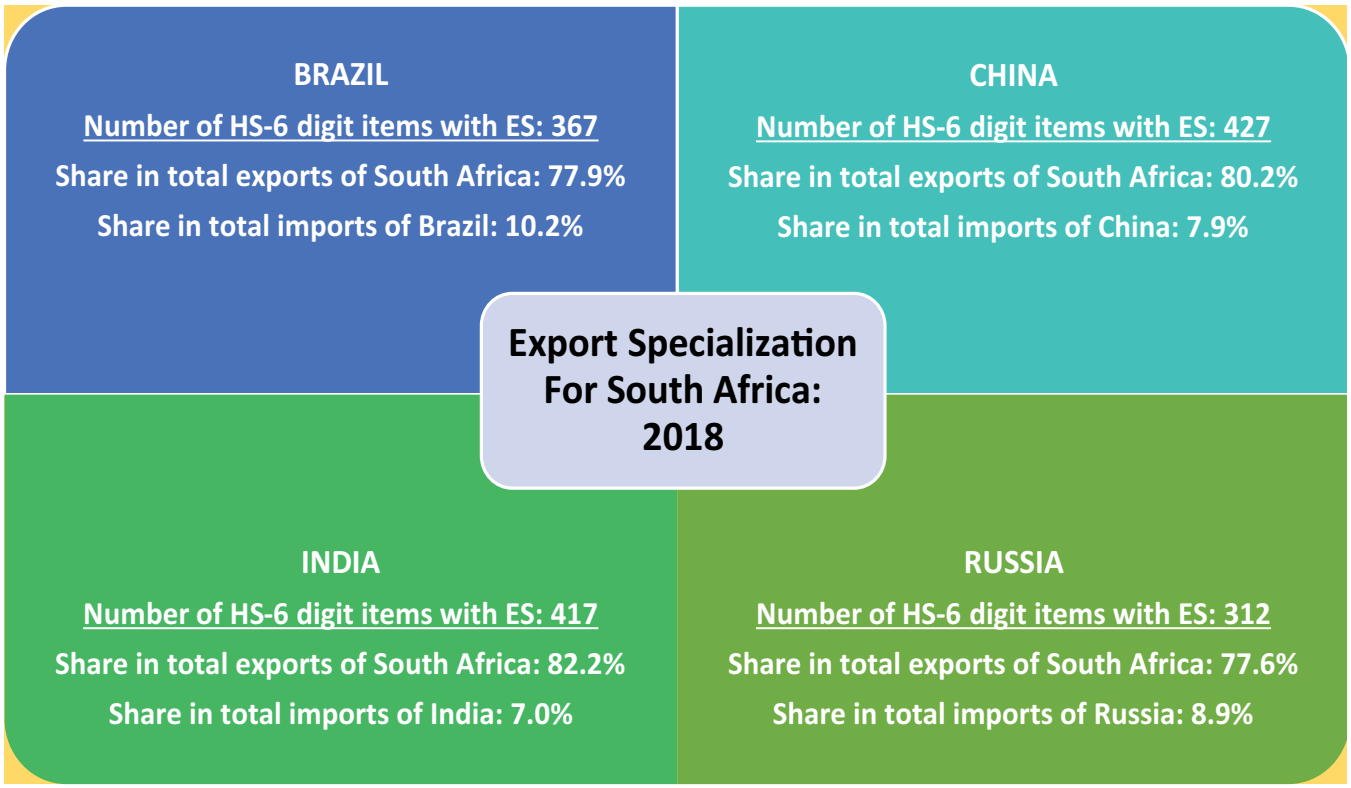
Source: Data accessed from ITC Trade Map in January 2020; India Exim Bank Research

Exhibit 4: Export Specialization for China in BRICS Countries in 2018 (1153 items)



Source: Data accessed from ITC Trade Map in January 2020; India Exim Bank Research

Exhibit 5: Export Specialization for South Africa in BRICS Countries in 2018 (538 items)



Source: Data accessed from ITC Trade Map in January 2020; India Exim Bank Research

It may be noted that the ESI is calculated with two components - share of a given item in the exporter's total exports and share of the same item in the importer's total imports. In an instance, where the export share of a product is too high (numerator) and the import share is too low (denominator), the ESI value will be skewed towards the higher side. If this be the case, the item is not essentially demanded by the importer, as the item's share in the total imports is low.

As a measure to address the above stated limitation, the Study attempts to identify the items whose shares in the importing country are significant and at the same time, the exporter holds a specialization to being capable to export that item to the importer's market.

The methodology herein, involves taking top 20 imported items for each importing country and mapping them with the list of shortlisted items. For instance, in Brazil's case, 258 items, which accounts for 90% of its exports were shortlisted, and for each of the four BRICS partner nations their top 20 imported items were considered to map with the 258 items shortlisted. Only those highly imported items by the partner BRICS nations were matched with the list of ESI exhibited items identified for Brazil (given in Table 1). Similar exercises have been undertaken to identify potential items for other BRICS nations as well and presented in subsequent Tables (Table 2 to 4). In these products, there are possibilities of cooperation arrangements, among the BRICS nations, not only for trade, but also for investment and financing.

Table 22: Product Groups in which Brazil holds Potential for Cooperation with Other BRICS Nations

HS code	Description
China	
260111	Non-agglomerated iron ores and concentrates (excluding roasted iron pyrites)
120190	Soya beans, whether or not broken (excluding seed for sowing)
271019	Medium oils and preparations, of petroleum or bituminous minerals, not containing biodiesel
470329	Semi-bleached or bleached non-coniferous chemical wood pulp, soda or sulphate
271012	Light oils and preparations, of petroleum or bituminous minerals which >= 90% by volume
India	
271019	Medium oils and preparations, of petroleum or bituminous minerals, not containing biodiesel
260300	Copper ores and concentrates
890590	Light-vessels, fire-floats, floating cranes and other vessels
281820	Aluminium oxide (excluding artificial corundum)
271012	Light oils and preparations, of petroleum or bituminous minerals which >= 90% by volume
260111	Non-agglomerated iron ores and concentrates (excluding roasted iron pyrites)
880240	Aeroplanes and other powered aircraft of an of an unladen weight > 15000 kg
890520	Floating or submersible drilling or production platforms
848180	Appliances for pipes, boiler shells, tanks, vats or the like
390120	Polyethylene with a specific gravity of >= 0,94, in primary forms
Russia	
870323	Motor cars and other motor vehicles principally designed for the transport of persons, incl. station wagons and racing cars, with spark-ignition internal combustion reciprocating piston engine of a cylinder capacity > 1.500 cm^3 but <= 3.000 cm^3
281820	Aluminium oxide (excluding artificial corundum)
120190	Soya beans, whether or not broken (excluding seed for sowing)
020230	Frozen, boneless meat of bovine animals
271019	Medium oils and preparations, of petroleum or bituminous minerals, not containing biodiesel
South Africa	
870323	Motor cars and other motor vehicles principally designed for the transport of persons, incl. station wagons and racing cars, with spark-ignition internal combustion reciprocating piston engine of a cylinder capacity > 1.500 cm^3 but <= 3.000 cm^3
281820	Aluminium oxide (excluding artificial corundum)
020714	Frozen cuts and edible offal of fowls of the species Gallus domesticus
880240	Aeroplanes and other powered aircraft of an of an unladen weight > 15000 kg
710813	Gold, incl. gold plated with platinum, in semi-manufactured forms, for non-monetary purposes

Source: Data accessed from ITC Trade Map in January 2020; India Exim Bank Research

Table 23: Product Groups in which Russia holds Potential for Cooperation with Other BRICS Nations

HS code	Description
Brazil	
271019	Medium oils and preparations, of petroleum or bituminous minerals, not containing biodiesel
271012	Light oils and preparations, of petroleum or bituminous minerals which >= 90% by volume
270900	Petroleum oils and oils obtained from bituminous minerals, crude
270112	Bituminous coal, whether or not pulverised, non-agglomerated
100199	Wheat and meslin (excluding seed for sowing, and durum wheat)
740311	Copper, refined, in the form of cathodes and sections of cathodes
271111	Natural gas, liquefied
760110	Aluminium, not alloyed, unwrought
China	
270900	Petroleum oils and oils obtained from bituminous minerals, crude
270112	Bituminous coal, whether or not pulverised, non-agglomerated
271019	Medium oils and preparations, of petroleum or bituminous minerals, not containing biodiesel
271112	Propane, liquefied
271012	Light oils and preparations, of petroleum or bituminous minerals which >= 90% by volume
270799	Oils and other products of the distillation of high temperature coal tars; similar products
India	
270900	Petroleum oils and oils obtained from bituminous minerals, crude
271019	Medium oils and preparations, of petroleum or bituminous minerals, not containing biodiesel
270112	Bituminous coal, whether or not pulverised, non-agglomerated
310210	Urea, whether or not in aqueous solution
310420	Potassium chloride for use as fertiliser
South Africa	
270900	Petroleum oils and oils obtained from bituminous minerals, crude
710231	Non-industrial diamonds unworked or simply sawn, cleaved or bruted (excluding industrial diamonds)
100199	Wheat and meslin (excluding seed for sowing, and durum wheat)
271111	Natural gas, liquefied
310210	Urea, whether or not in aqueous solution
270112	Bituminous coal, whether or not pulverised, non-agglomerated

Source: Data accessed from ITC Trade Map in January 2020; India Exim Bank Research

Table 24: Product Groups in which India holds Potential for Cooperation with Other BRICS Nations

HS code	Description
Brazil	
271019	Medium oils and preparations, of petroleum or bituminous minerals, not containing biodiesel
271012	Light oils and preparations, of petroleum or bituminous minerals which >= 90% by volume
300490	Medicaments consisting of mixed or unmixed products for therapeutic or prophylactic purposes
870322	Motor cars and other motor vehicles principally designed for the transport of persons, incl. station wagons and racing cars, with spark-ignition internal combustion reciprocating piston engine of a cylinder capacity > 1.000 cm^3 but <= 1.500 cm^3
China	
290243	P-Xylene
271019	Medium oils and preparations, of petroleum or bituminous minerals, not containing biodiesel
300490	Medicaments consisting of mixed or unmixed products for therapeutic or prophylactic purposes
Russia	
300490	Medicaments consisting of mixed or unmixed products for therapeutic or prophylactic purposes
870899	Parts and accessories, for tractors, motor vehicles for the transport of ten or more persons, motor cars and other motor vehicles principally designed for the transport of persons, motor vehicles for the transport of goods and special purpose motor vehicles, n.e.s
South Africa	
300490	Medicaments consisting of mixed or unmixed products for therapeutic or prophylactic purposes
100630	Semi-milled or wholly milled rice, whether or not polished or glazed

Source: Data accessed from ITC Trade Map in January 2020; India Exim Bank Research

Table 25: Product Groups in which China holds Potential for Cooperation with Other BRICS Nations

HS code	Description
Brazil	
851770	Parts of telephone sets, telephones for cellular networks or for other wireless networks
854232	Electronic integrated circuits as memories
854231	Electronic integrated circuits as processors and controllers
India	
851770	Parts of telephone sets, telephones for cellular networks or for other wireless networks
851762	Machines for the reception, conversion and transmission or regeneration of voice, images
271019	Medium oils and preparations, of petroleum or bituminous minerals, not containing biodiesel
854231	Electronic integrated circuits as processors and controllers
847130	Data-processing machines, automatic, portable, weighing <= 10 kg, consisting
854140	Photosensitive semiconductor devices, incl. photovoltaic cells
851712	Telephones for cellular networks "mobile telephones" or for other wireless networks
847150	Processing units for automatic data-processing machines
Russia	
851712	Telephones for cellular networks "mobile telephones" or for other wireless networks
847130	Data-processing machines, automatic, portable, weighing <= 10 kg
851762	Machines for the reception, conversion and transmission or regeneration of voice, images
847150	Processing units for automatic data-processing machines
950300	Tricycles, scooters, pedal cars and similar wheeled toys; dolls' carriages; dolls; other toys
847170	Storage units for automatic data-processing machines
South Africa	
851762	Machines for the reception, conversion and transmission or regeneration of voice, images
851712	Telephones for cellular networks "mobile telephones" or for other wireless networks
847130	Data-processing machines, automatic, portable, weighing <= 10 kg
847150	Processing units for automatic data-processing machines
851770	Parts of telephone sets, telephones for cellular networks or for other wireless networks

Source: Data accessed from ITC Trade Map in January 2020; India Exim Bank Research

Table 26: Product Groups in which South Africa holds Potential for Cooperation with Other BRICS Nations

HS code	Description
Brazil	
270112	Bituminous coal, whether or not pulverised, non-agglomerated
870421	Motor vehicles for the transport of goods, with compression-ignition internal combustion piston engine "diesel or semi-diesel engine" of a gross vehicle weight <= 5 t
870323	Motor cars and other motor vehicles principally designed for the transport of persons, incl. station wagons and racing cars, with spark-ignition internal combustion reciprocating piston engine of a cylinder capacity > 1.500 cm^3 but <= 3.000 cm^3
China	
270112	Bituminous coal, whether or not pulverised, non-agglomerated
India	
270112	Bituminous coal, whether or not pulverised, non-agglomerated
Russia	
870323	Motor cars and other motor vehicles principally designed for the transport of persons, incl. station wagons and racing cars, with spark-ignition internal combustion reciprocating piston engine of a cylinder capacity > 1.500 cm^3 but <= 3.000 cm^3
870324	Motor cars and other motor vehicles principally designed for the transport of persons, incl. station wagons and racing cars, with spark-ignition internal combustion reciprocating piston engine of a cylinder capacity > 3.000 cm^3

Source: Data accessed from ITC Trade Map in January 2020; India Exim Bank Research

CHAPTER

Global Value Chains in BRICS

Amidst global recession, BRICS countries have continued to accelerate, and in the process have pulled out thousands of people out of poverty in the last decade or so. As mentioned earlier, BRICS today accounts for almost 50% of the world's economic growth. By positioning themselves strategically in the global value chains (GVCs), BRICS economies not only can effectively cater to the foreign final demands of their own mass, but can also play a crucial role in the value addition in the production processes despite being geographically fragmented.

Manufacturing in the 21st century is a lot more globalized with production, trade, and investment being increasingly organized within the GVCs, where different stages of production are located across different economies of the world. Labour, at the same time, is becoming increasingly mobile. Telecommunication, logistics, transportation, and computing services are increasingly revolutionizing the production processes. This has ensued in the reduction of trade costs across the borders and is further being facilitated through various trade agreements. In the current global context, countries are increasingly specializing at the various stages of value chains, rather than establishing a whole new production plant.

Further, services trade has also grown remarkably well in Brazil, India, and China. There are specific service subsectors where the BRICS are competitive. For instance, India is competitive in IT-ITeS services, China in transportation and logistics services, South Africa in tourism and financial services, Russia in energy services, and Brazil in retail services. This essentially portrays possible complementarities among BRICS in the services sector as well.

While GVCs are a source of gains for many economies, gains from GVC participation are not automatic. The benefits of GVCs depend on the level of operations that any economy is undertaking. Paradoxical concerns exist between developed and developing countries; developed countries tend to participate at high end manufacturing stages including product development, R&D, marketing, brand building and promotion whereas developing countries' participation is limited to mid to low manufacturing and assembly stages.

This section of the Study attempts to go beyond the direction and magnitude of exports, as has already been analyzed previously, and rather bring out the composition of foreign trade of the BRICS economies while examining their participation in the GVC.

In order to obtain a holistic picture of GVCs within the BRICS economies and ascertain where each stands vis-à-vis the partner nations, this Study uses four indicators, across the three broad domains

of Agriculture, Industry and Services:

- **Domestic value-added share of gross exports** - It is a "Domestic Value-Added intensity measure" and reflects how much value added, generated anywhere in the domestic economy, is embodied per unit of total gross exports by industry, 'i'.
- **Domestic value-added in the foreign final demand** - This captures the value added that industries export both directly, through exports of final goods or services and, indirectly via exports of intermediates that reach foreign final consumers. Additionally, it can be considered as a measure of an industry's reliance on foreign final demand. Further, this indicator also provides insight about a country's position in value chains, for instance, consider a country that has a very high value addition in final demand. This implies that the country is responsible for completing the last stages of value chains and has high interaction with final consumers.
- **Foreign value-added share of gross exports (backward linkages)** - A country can integrate with the world through imports of intermediates. This is called backward linkages. Simply put, it is also referred to as 'import content of exports'.
- **Domestic value-added in exports of intermediate products as a share of total gross exports(forwards linkages)**- A country can also link with global value chains by exporting inputs to the other economies, this is termed as forward linkages. It reveals the share of industry exports that consists of domestic value added destined for further production within direct partners' economies - either to meet partners' final demand or to be embodied in exports by direct partners.

Agriculture

The increasing trade in agriculture and its value-added products has internationalized its production and marketing, whilst making a big leap towards standardization in quality. Over the last few years, multiple value chain relationships have emerged and disrupted the traditional ways of how trade in agriculture has evolved.

In this regard, the application of the GVC framework has gained prominence, particularly considering the importance of promoting agricultural exports from developing countries (as in the case of coffee from Ghana to Europe). As agriculture in most of the developing countries, as also in BRICS nations, is dominated by the small and medium farms, poverty reduction through exports would require production shifts and access to the global agribusiness. In meeting the growing underlying challenges surrounding agribusiness, both in domestic and foreign markets, organizing value chains or integrated supply chains is necessary to maintain global competitiveness.

The Indian agri-business is largely unorganized at the production, trading and consumer levels and with trade and retailing gaining importance, structural shifts in agribusiness are taking place. With the exports are increasing, many food chains and companies are sourcing agricultural products from India to feed their outlets in different parts of the world. Similarly, under the organized retailing, several channels of procurement have developed to ensure efficiency in the value chain[4].

Brazil happens to be the largest producer of sugarcane and the second largest producer of soybean,

[4] "Global Value Chains and Indian Food Sector: A Preliminary Analysis of Issues and Options", Working Papers 1423, Indian Institute of Foreign Trade.

globally. Further, the agriculture sector in Brazil accounts for about one-third of the total employment in the country. In 2018, the agricultural sector in Brazil contributed with approximately 4.4% of the value added to the country's gross domestic product (GDP).

Russia, despite primarily being an industrial economy, has a huge agricultural sector, with 23 million hectares of cultivable land, accounting for about 6% of the total GDP. Further, the agriculture is also one of the largest employment providing industries in Russia, providing employment opportunities to more than 16% of the population.

China's agriculture sector has seen rapid growth over the past 70 years, with grain output expanding 4.8 times, according to a report from the National Bureau of Statistics (NBS).The country increased the diversity of food supply by developing the breeding industry, with the output of aquatic products ranking first in the world since 1989, which stood at 64.6 million tonnes in 2018, 143 times higher than 1949. The structure of the agriculture industry has continuously been optimized, with a modern pattern promoting all-round development of farming, forestry, animal husbandry and fishery replacing the traditional farming pattern.

South Africa's agricultural sector is one of the world's most diverse, consisting of corporate and private intensive and extensive crop farming systems, including vegetable, fruit, nuts and grain production. The well-developed commercial farming in South Africa is the backbone to the country's agricultural economy. Over the past 20 years, the agriculture sector has seen a move towards large-scale intensive farming, as well as a shift from the production of low-value food crops, such as wheat and milk, to high-value export products, including deciduous fruit, citrus and game.

Domestic Value-Added Share of Gross Exports

This parameter reflects how much value added, generated anywhere in the domestic economy, is embodied in per unit of total gross exports by a given industry. An increase in a country's Domestic Value-Added Share of Gross Exports indicates that the share of value added in the exports of a given item, which is created domestically, has risen vis-à-vis the foreign value-added share of the same.
With regards to 'Agriculture, forestry and fishing', the domestic value-added share of gross exports did not vary significantly from 2005 to 2016 for China, India and Russia. However, the same for South Africa declined steadily from 84.9% in 2005 to 78.1% in 2016. The indicator also showed a decline for Brazil, falling from 93.3% in 2005 to 91.8% in 2016. This signifies the growing dependence of both the countries on imported inputs that are incorporated in the gross exports.

Table 27: Domestic Value Added Share of Gross Exports (%) in Agriculture, Forestry and Fishing

	2005	2010	2016
OECD member countries	95.9	94.6	95.1
Brazil	93.3	92.9	91.8
China	93.7	94.4	94.0
India	96.5	96.3	96.3
Russia	89.4	88.4	89.9
South Africa	84.9	80.9	78.1

Source: Data accessed from OECD TiVA Principal Database, February 2020; India Exim Bank Research

Backward Linkages

This parameter is calculated as the share of foreign value-added in gross exports. Backward linkages describe the integration of an economy with the world through imports of intermediates. As can be observed, the backward linkages for China and India remained significantly below that of Russia and South Africa, signifying relatively lower dependence on imports of intermediates for agriculture exports.

Table 28: Backward Linkages in Agriculture, Forestry and Fishing

	2005	2010	2015
OECD member countries	4.1	5.4	4.8
Brazil	6.7	7.1	8.2
China	6.2	5.6	6.0
India	3.4	3.7	3.7
Russia	10.5	11.6	10.1
South Africa	15.0	19.0	21.9

Source: Data accessed from OECD TiVA Principal Database, February 2020; India Exim Bank Research

In line with the domestic value-added share of gross exports in agriculture, forestry and fishing, the foreign value-added share of gross exports for Brazil and South Africa showed a steady increase. It is to be noted that at 21.9%, the foreign value-added share of gross exports for South Africa stood higher than all other BRICS partners.

Forward Linkages

This parameter is calculated as the domestic value-added in exports of intermediate products as a share of total gross exports. Forward linkages reveal the share of industry exports that consists of domestic value-added destined for further processing within direct partners' economies – either to meet the partner's final demand or to be embodied in the exports by the direct partners.

Table 29: Forward Linkages in Agriculture, Forestry and Fishing

	2005	2010	2015
OECD member countries	51.2	49.1	53.0
Brazil	55.4	55.9	58.4
China	60.8	58.6	56.6
India	55.4	52.7	56.0
Russia	65.9	56.2	47.9
South Africa	49.8	46.7	45.3

Source: Data accessed from OECD TiVA Principal Database, February 2020; India Exim Bank Research

It may be noted that situations when forward linkages are greater than the backward linkages, there exist net value-added gains from integrating into GVCs, which is precisely the case with the BRICS economies.

Domestic Value-added in the Foreign Final Demand

The role of foreign final demand in a country's domestic production is exhibited by the indicator - 'Domestic value-added content in foreign final demand'. According to OECD-TiVA database this captures the value added that industries export both directly (through exports of final goods or services) and indirectly (via exports of intermediates that reach foreign final consumers namely households, government, and as investment) through other countries. The indicator, therefore, illustrates the full upstream impact of final demand in foreign markets to domestic output.

It is observed that the domestic value added in foreign final demand for the agriculture sector is the highest for South Africa, followed by Brazil in the BRICS grouping, in 2016.

Table 30: Domestic Value Added in Foreign Final Demand in Agriculture, Forestry and Fishing

	2005	2010	2016
OECD member countries	5.5	9.0	11.2
Brazil	28.7	23.3	31.3
China	13.4	10.2	9.3
India	8.6	9.5	7.7
Russia	17.1	12.8	16.0
South Africa	26.1	30.2	38.5

Source: Data accessed from OECD TiVA Principal Database, February 2020; India Exim Bank Research

Manufacturing

As has been discussed, a typical GVC activity would involve R&D and design at the beginning and distribution, marketing, and services at the end of the value chain whilst the core manufacturing (raw materials, processed inputs, final assembly) takes place in the middle of the value chain. At the same time, there are essential services like logistics that are required for the core production activity (and other services such as maintenance and repair of the production infrastructure or financial services), hence there is no clear distinction between the manufacturing and service production stages.

Manufacturing itself (the assembly of the final product, the production of all inputs, or both) can be outsourced (contract manufacturing) and become a service for some manufacturing firms. Moreover, each material input is also the result of its own value chain (as it also must be designed, marketed, distributed, etc.). Therefore, manufacturing and services are combined in all stages[5].

In order to analyze the level of GVCs in BRICS nations across the manufacturing sector, this Paper focuses on select three industries - Chemicals and Pharmaceutical Products; Automobiles; and Electronics - which have some significant number of stages in their production. Further, the same four indicators are used to ascertain the extent of growth in the value chains during 2005 to2016.

[5] ADBI Working Paper 927, S. Miroudot

Table 31: GVC Integration by BRICS Nations in Overall Manufacturing, 2016

	Domestic Value Added Share of Gross Exports (%)	Backward Linkages (%)	Forward Linkages (%)*	Domestic Value Added in Foreign Final Demand (%)
OECD member countries	90.2	9.8	50.3	15.3
Brazil	87.0	13.0	48.3	20.9
China	82.5	17.5	44.5	26.8
India	77.1	22.9	37.0	26.9
Russia	87.0	13.0	62.8	33.5
South Africa	70.5	29.5	44.4	45.8

* The data for forward linkages is available only till 2015
Source: Data accessed from OECD TiVA Principal Database, February 2020; India Exim Bank Research

With regards to *Domestic Value-Added Share of Gross Exports*, increased participation in GVCs typically leads to a considerable fall in domestic value-added share in exports, as countries increasingly engage in trade of intermediates.

However, in case of BRICS, barring South Africa, domestic value-added share of gross exports in manufacturing, in all other four nations showed an increase from 2005 to 2016. This clearly reflects the growing domestic value-added content in exports of Brazil, Russia, India and China. In China, for instance, the domestic value-added share of gross exports showed a noticeable increase for computer, electronic and optical products (56.9% in 2005 to 71.7% in 2016); electrical equipment (70.9% to 82.4%); and rubber and plastic products (73.6% to 84.9%). This could largely be attributed to the sharp expansion of high-tech products in electronics manufacturing as well as the low to mid-tech products between the reference years. This also exhibits China's increasing self-reliance while exporting.

A similar trend is noted for Brazil and India as well during the same period. In Brazil, a rise in domestic value-added share of gross exports for coke and refined petroleum products (77.5% to 83.7%); and rubber and plastic products (82.4% to 85.5%) is observed, whereas in India, the domestic content grew for coke and refined petroleum products (54.7% to 58.8%); computer, electronic and optical products (64% to 67.8%); and fabricated metal products (69.8% to 73.4%). However, the indicator shows a consistent decline across all major industries in South Africa.

With respect to the backward linkages in manufacturing, the BRICS nations have shown a declining trend from 2005 to 2016, with the only exception being South Africa. Though higher than the average of OECD member countries, the foreign value-added share of gross exports at 13%, was the least in Brazil and Russia among the BRICS nations in 2016. A substantial decline in the backward linkages for China is also noted during 2005 and 2016. This could largely be attributed to the boom in manufacturing, self-reliance, and the export orientation of electronics and other manufactured items in the Chinese economy. On the contrary, in South Africa, dependence on foreign imports (mostly from China) for exports has increased significantly from 2005 to 2016.

Forward Linkages in manufacturing, across the BRICS nations too, have witnessed a steady decline

from 2005 to 2015, with the only exception being China, where the forward linkages has increased from 38% in 2005 to 44.5% in 2015. This essentially means that China is not just supplying the final products to the world but is also a major supplier of the intermediates.

Table 32: GVC Integration of BRICS in Select Industries

Industry	Domestic Value Added Share of Gross Exports		Backward Linkages		Forward Linkages		Domestic Value Added in Foreign Final Demand		Country
	2005	2016	2005	2016	2005	2016*	2005	2016	
Chemicals and Pharmaceuticals	84.0	85.0	16.0	15.0	59.5	57.7	27.2	20.2	Brazil
Motor Vehicles, Trailers and Semi-Trailers	85.5	85.2	14.5	14.8	29.1	24.9	27.4	21.2	
Computer, Electronic and Electrical Equipment	80.5	82.3	19.5	17.7	36.6	41.6	22.5	10.9	
Chemicals and Pharmaceuticals	83.1	83.5	16.9	16.5	69.1	65.6	65.8	46.9	Russia
Motor Vehicles, Trailers and Semi-Trailers	70.9	70.9	29.1	29.1	27.7	16.6	21.8	17.2	
Computer, Electronic and Electrical Equipment	77.3	79.0	22.7	21.0	45.7	34.3	23.5	20.7	
Chemicals and Pharmaceuticals	76.8	78.1	23.2	21.9	53.4	47.5	32.6	38.8	India
Motor Vehicles, Trailers and Semi-Trailers	74.7	76.5	25.3	23.5	25.3	22.4	9.3	14.2	
Computer, Electronic and Electrical Equipment	65.4	68.9	34.6	31.1	33.3	33.9	16.6	22.5	
Chemicals and Pharmaceuticals	76.3	85.6	23.8	14.4	58.5	62.8	37.0	26.4	China
Motor Vehicles, Trailers and Semi-Trailers	78.0	84.2	22.0	15.8	31.8	25.8	21.1	11.9	
Computer, Electronic and Electrical Equipment	59.9	74.9	40.1	25.1	30.2	40.2	61.4	46.8	

Chemicals and Pharmaceuticals	72.2	64.4	27.8	35.6	56.2	45.7	44.5	60.2	South Africa
Motor Vehicles, Trailers and Semi-Trailers	68.5	60.0	31.5	40.0	25.0	20.6	37.5	63.7	
Computer, Electronic and Electrical Equipment	76.8	66.9	23.2	33.1	36.1	26.4	33.4	50.6	

* The data for forward linkages is available only till 2015
Source: Data accessed from OECD TiVA Principal Database, February 2020; India Exim Bank Research

Some conclusive insights from the table are:

- Domestic value-added in foreign final demand for Brazil across all three industries has decreased significantly. Its forwards linkages in computer, electronic and electrical equipment has increased (increase of 5%).
- Across the five BRICS economies, Russia has observed the largest fall in the domestic value-added in foreign final demand for chemicals and pharmaceuticals (fall of 18%).
- India has displayed a decent improvement in all three industries with respect to domestic value-added in foreign final demand, signifying that it is also making products for final consumption which can eventually fetch higher revenue.
- China's forwards linkages in computer, electronic and electrical equipment has increased by almost 10% in the last decade.
- South Africa has observed significant double digit increase across all three industries in the parameter domestic value-added in foreign final demand.

Increasing importance of services in the GVCs

The services sector is one area where the BRICS could potentially engage with each other through investments, trade, and collaborative ventures, and also learn from each other's experiences.

In 2017, the service sector accounted for a half to two-thirds of each BRICS economies. Except for Brazil, the impact of the service sector on national growth was the highest in 2017 for all other BRICS countries. For instance, the contribution of services to growth was about 60% (4.1 percentage points out of 6.9% growth) in China and 58% (3.9 percentage points out of 6.7 percent growth) in India, whereas contribution of industry to growth was about 36% (2.5 percentage points) in China and 24% (1.6 percentage points) in India.

OECD's TivA database provides two parameters to ascertain the services contribution to country's participation in GVCs, namely, domestic services value-added share in gross exports and foreign services value-added share in gross exports. Services, in this context, include construction, wholesale and retail, hotels and restaurants, transport and communications, finance, real estate and business services as well as public services.

It may be noted that the role of services in GVCs is multi-faceted. Services link the manufacturing activities across the countries. There are GVCs because companies can split production internationally and use transport, logistics, communication and a variety of other services to coordinate and manage activities that are geographically fragmented.

Figure 21: Services Value Added Share of Gross Exports

Source: Data accessed from ITC Trade Map, February 2020; India Exim Bank Research

However, services are not just the 'glue' in the value chains; they are also the essential inputs in key stages of the production process, starting with design and engineering at the beginning of the value chain, and finishing with marketing, distribution, sales and after-sales services[6].

It may be noted that within BRICS, India's total services value-added share of gross exports was the highest. The services sector contribution in the Indian exports by traditional method might be just one-third; however, in terms of value addition, India's strength in services sector is clearly reflected by its growing share in the domestic services value added in gross exports (as given in the table below).

[6] Miroudot et.al, 2017

Table 33: Services Value Added Share of Gross Exports for BRICS in Select Industries

	2005		2016		Country
	Domestic Services Value Added Share of Gross Exports	Foreign Services Value Added Share of Gross Exports	Domestic Services Value Added Share of Gross Exports	Foreign Services Value Added Share of Gross Exports	
Total	**34.8**	**4.0**	**40.7**	**5.4**	**Brazil**
Agriculture, forestry and fishing	**15.1**	**2.4**	**15.4**	**3.8**	
Manufacturing	**23.7**	**4.8**	**28.7**	**6.3**	
Chemicals and Pharmaceutical Products	23.0	5.8	28.9	7.3	
Motor Vehicles, Trailers and Semi-Trailers	25.6	5.5	32.1	7.6	
Computer, Electronic and Electrical Equipment	25.4	7.2	31.9	8.0	
Industry (mining, manufacturing and utilities)	**23.4**	**4.6**	**28.0**	**6.4**	
Total	**33.3**	**4.5**	**40.5**	**4.7**	**Russia**
Agriculture, forestry and fishing	**15.6**	**4.4**	**18.0**	**4.0**	
Manufacturing	**17.4**	**5.8**	**21.7**	**5.4**	
Chemicals and Pharmaceutical Products	19.3	7.4	22.2	6.9	
Motor Vehicles, Trailers and Semi-Trailers	21.2	11.6	27.2	11.0	
Computer, Electronic and Electrical Equipment	19.8	9.1	22.8	8.2	
Industry (mining, manufacturing and utilities)	**15.3**	**4.7**	**19.2**	**4.7**	
Total	**41.4**	**6.2**	**46.4**	**5.7**	**India**
Agriculture, forestry and fishing	**5.4**	**1.1**	**6.1**	**1.2**	
Manufacturing	**16**	**7.4**	**17.9**	**7.2**	
Chemicals and Pharmaceutical Products	14.7	7.3	15.1	7.1	
Motor Vehicles, Trailers and Semi-Trailers	17.5	9.0	20.9	8.6	
Computer, Electronic and Electrical Equipment	13.9	11.9	15.9	10.9	
Industry (mining, manufacturing and utilities)	**15.9**	**7.2**	**17.9**	**7.1**	

Total	**18.9**	**10.3**	**27.5**	**5.7**	**China**
Agriculture, forestry and fishing	**5.2**	**2.4**	**12.9**	**2.1**	
Manufacturing	**13.2**	**11**	**23.8**	**5.9**	
Chemicals and Pharmaceutical Products	13.1	9.1	24	4.9	
Motor Vehicles, Trailers and Semi-Trailers	12.9	8.6	24.3	5.6	
Computer, Electronic and Electrical Equipment	12.4	15.3	23.1	8.2	
Industry (mining, manufacturing and utilities)	**13.1**	**10.9**	**23.8**	**5.9**	
Total	**32**	**6.7**	**32.5**	**8.2**	**South Africa**
Agriculture, forestry and fishing	**16.1**	**5.6**	**18**	**7.8**	
Manufacturing	**18.3**	**7.9**	**19.3**	**10.2**	
Chemicals and Pharmaceutical Products	21.2	10.0	19.6	12.0	
Motor Vehicles, Trailers and Semi-Trailers	21.1	12.5	22.0	14.8	
Computer, Electronic and Electrical Equipment	13.4	9.1	19.6	12.3	
Industry (mining, manufacturing and utilities)	**16.6**	**7.0**	**17.9**	**9.0**	

Source: Data accessed from ITC Trade Map, February 2020; India Exim Bank Research

Select insights from the above table:

- The increasing importance of the services can be ascertained from the fact that across all the segments mentioned, the total services value added share of gross exports (sum of domestic services value-added share of gross exports and foreign services value-added share of gross exports) has increased for all BRICS economies, from 2005 to 2016.
- Almost across all the segments and for all the BRICS economies, the domestic services value-added share of gross exports has increased in 2016 vis-à-vis 2005.
- For Brazil, the highest increase in the total services value-added share of gross exports across the analyzed segments is noted for motor vehicles, trailers and semi-trailers (31.5% in 2005 to 39.7% in 2016).
- An 8.4% increase in the share in the same segment is also noted for China, during the same period.

Box: BRICS Countries: Emerging Players in Global Services Trade

BRICS countries have emerged as important players in global services trade in the past decade. BRICS services exports are growing faster than the developed countries; their share in global services markets is also expanding rapidly. Yet they still lag behind traditional major players and much potential remains to be tapped.

Dynamic services sectors, such as engineering services and research and development, have seen rapid productivity growth globally in the recent years. This has implications for policymakers, who need to have the right incentives to encourage high-productivity, and growth-supporting services. It also means that the manufacturing in developing countries, and also in BRICS countries is peaking at lower levels as a percentage of GDP, which is not necessarily negative for employment and development, provided the countries generate competitive offerings in dynamic services sectors.

One aspect of services trade which stands out for the BRICS countries is the so-called 'embodied' services trade – services used as inputs in the production of other tradable goods and services. Services account for just some 20% of global exports in gross terms, but nearly 50% in value-added terms, reflecting the fact that most of the world's cross-border services trade is in the intermediate, and not in final services.

BRICS' gross exports of manufactured goods incorporate between 30% and 40% of embodied services in value-added terms, primarily from domestic sources, but also from foreign suppliers. This emphasizes the importance of developing services, not only as a source of export earnings in a direct sense, but also to facilitate the ability of manufacturers to be competitive in world markets.

Most data available for global markets cover only pure cross-border services trade, known as Mode 1 in the General Agreement on Trade and Services (GATS). However, a review of the United States and the European Union data on Mode 3 – sales by foreign affiliates – indicates that the BRICS, particularly China, are the major sources of such demand. Trade via Mode 3 is likely to be concentrated in flows with the main developed markets, as indicated by the statistics on investment. The BRICS countries are taking initial steps in terms of Mode 3 exports; they are already well established as importers. Access to high-quality, reasonably priced services from the world market is important for consumer welfare and business productivity in BRICS countries.

For services trade involving the physical movement of people across the borders – people-to-people connections – there are important factors that make the BRICS countries as key players in this type of services trade, primarily GATS Mode 2 (as Mode 4 remains very restricted in most countries).

Natural advantages translate into vibrant tourism and travel economies in the BRICS countries. At the same time, BRICS, particularly India and China, are themselves generating (contributing to the global tourism market) an increasing number of tourists as the per-capita incomes rise.

The BRICS countries are also heavily involved in trade in educational services, primarily as sending economies. Their students study mostly in the developed markets such as the United States, Canada, Australia and the European Union (including the UK). Intra-BRICS exchanges are marginal.

Moving forward, the major challenge for BRICS is to improve productivity in services trade, which would benefit trade integration, consumer welfare and downstream productivity and competitiveness.

Globally, the costs are high in services trade, perhaps twice that of what is observed in goods. Policy plays a major role here. Although there are no explicit border restrictions, such as tariffs, non-tariff barriers and other policies – both horizontal and sector-specific – affect the ability of Foreign Service providers to contest in the local markets.

Source: Adapted from Trade Law Centre (Tralac)[7]

[7] https://www.tralac.org/news/article/11947-brics-countries-emerging-players-in-global-services-trade.html

CHAPTER

Intra-BRICS Investment

The BRICS seeks to deepen, broaden and intensify cooperation within the grouping and among the individual countries for more sustainable, equitable and mutually beneficial development. Given the objectives of the BRICS mechanism investment becomes crucial.

According to the United Nations Conference on Trade and Development (UNCTAD), the FDI into all the BRICS nations together amounted to US$ 261.2 billion in 2018, up from US$ 191.8 billion in 2009, thereby registering an AAGR of 4.3% during this period. Out of the US$ 261.2 billion FDI in 2018 in BRICS nations, China accounted for almost US$ 139 billion, followed by Brazil at US$ 61.2 billion, and India at US$ 42.3 billion. With respect to the growth rates of FDI in the BRICS nations, the highest AAGR in FDI during 2009 to 2018 was recorded for Brazil at 21.3%.

Table 34: FDI into BRICS Economies (US$ Billion)

Economy	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	AAGR (2009-2018)
Brazil	25.9	77.7	97.4	82.1	59.1	63.8	49.5	52.8	67.6	61.2	21.3%
China	95.0	114.7	124.0	121.1	123.9	128.5	135.6	133.7	134.1	139.0	4.5%
India	35.6	27.4	36.2	24.2	28.2	34.6	44.1	44.5	39.9	42.3	4.3%
Russia	27.8	31.7	36.9	30.2	53.4	29.2	11.9	37.2	26.0	13.3	13.3%
South Africa	7.5	3.6	4.2	4.6	8.3	5.8	1.7	2.2	2.0	5.3	15.4%
Total FDI into BRICS	**191.8**	**255.1**	**298.7**	**262.1**	**272.9**	**261.9**	**242.8**	**270.4**	**269.5**	**261.2**	**4.3%**

Source: UNCTAD; India Exim Bank Research

While the investment data from UNCTAD gives a real picture on how receptive a market is with respect to attracting foreign investments, it is not able to provide a complete picture. Various parameters such as the cross-country investments, number of projects, major sectors attracting investments, amongst others, are not captured through the UNCTAD database.

As a result, the data from UNCTAD is supplemented by using the data from fDi Markets database of the Financial Times, which provides disaggregated data for each country. The fDi Market database tracks cross-border investment in a new physical project or expansion of an existing investment

creating new jobs and capital investment. It may be noted that joint ventures are only included where they lead to a new physical operation[8].

However, to the extent that this database tracks investments announced, it is likely that the data may be an over estimation, given that not all announcements fructify into actual investments. Notwithstanding, the data from fDi Markets does throw up a strong indicative assessment of how an economy is perceived as an investment destination by foreign investors.

Accordingly, as per the fDi markets database, the envisaged foreign capex (EFC, herein after) by the BRICS nations to the world during 2009 to 2019 was US$ 1005.8 billion, which came through 12,991 projects. This investment is almost 10% of the total investment that the world received during the same period. It may also be noted that out of the US$ 1005.8 billion of investment, almost 57% came through China, thereby showing the significant role the country has been playing in global investments. This as a result also gets reflected in the context of intra-BRICS investments, where China's share stood at 78%. Intra-BRICS investment amounted to US$ 131.7 billion, during the same period.

Table 35: Intra-BRICS Investment in US$ Million (During 2009-2019)

Source Countries	Destination Countries					
	India	Russia	Brazil	China	South Africa	Total
China	40790.5	35791.9	14634.7	-	12037.1	**103254.2**
India	-	1274.5	2924.4	7920.7	2598.4	**14718**
Russia	2519.9	-	942.8	4649.2	200.3	**8312.2**
South Africa	416	156.7	902.3	1461.9	-	**2936.9**
Brazil	406.1	223.1	-	1804.4	49.8	**2483.4**
TOTAL	**44132.5**	**37446.2**	**19404.2**	**15836.2**	**14885.6**	**131704.7**

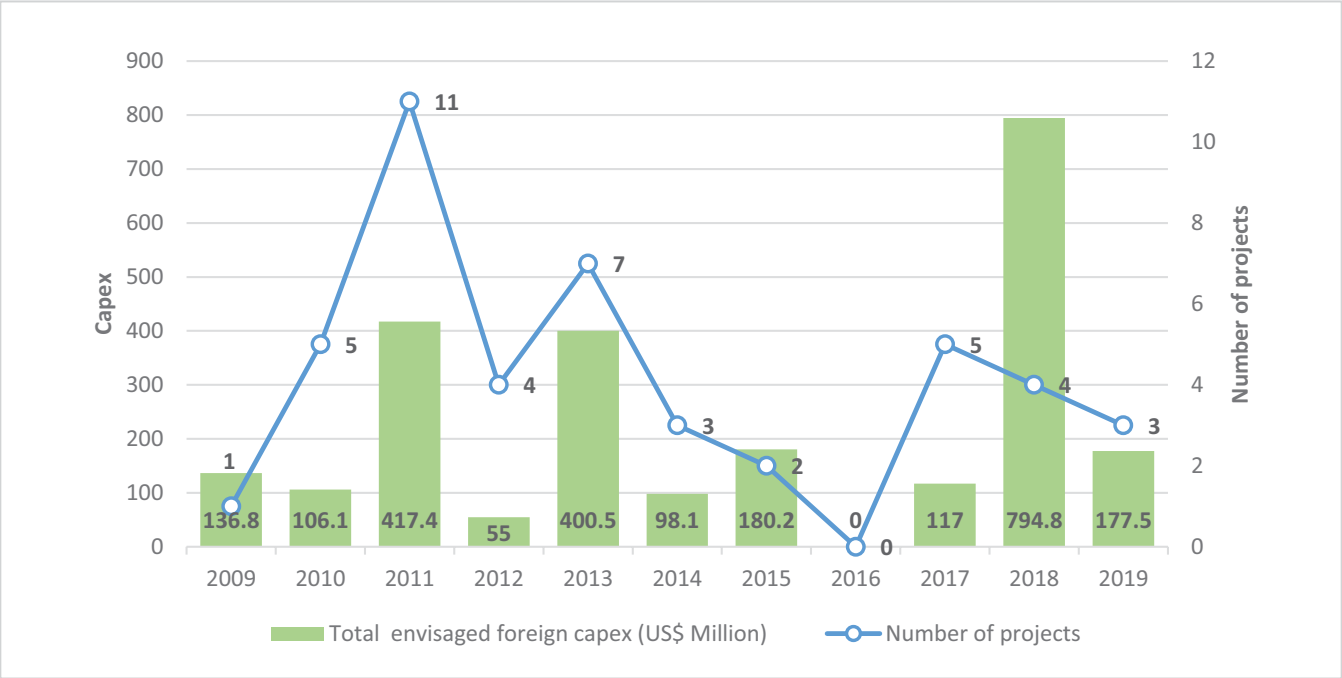
Source: fDi Intelligence from the Financial Times Ltd; India Exim Bank Research

Brazil

According to the fDi markets database, during 2009 to 2019, Brazil's total EFC in the BRICS partner countries was US$ 2.5 billion. This was just 4.9% of Brazil's total EFC in the world, during the same period. Brazil's EFC of US$ 2.5 billion in the BRICS economies came from 45 projects with an average of US$ 55.2 million per project, during 2009 to 2019. Through this capex, a total of 10,606 jobs are expected to have been created. In terms of purpose of the investment, 86.7% of projects are new investments, while the rest are in the category of expansion and co-location.

[8] The data on capital investment and job creation is based on the total investment the company is making at the time of the project announcement or opening. As companies can raise capital locally, phase their investment over a period of time, and can channel their investment through different countries for tax efficiency, the data is different to the official data on FDI flows.

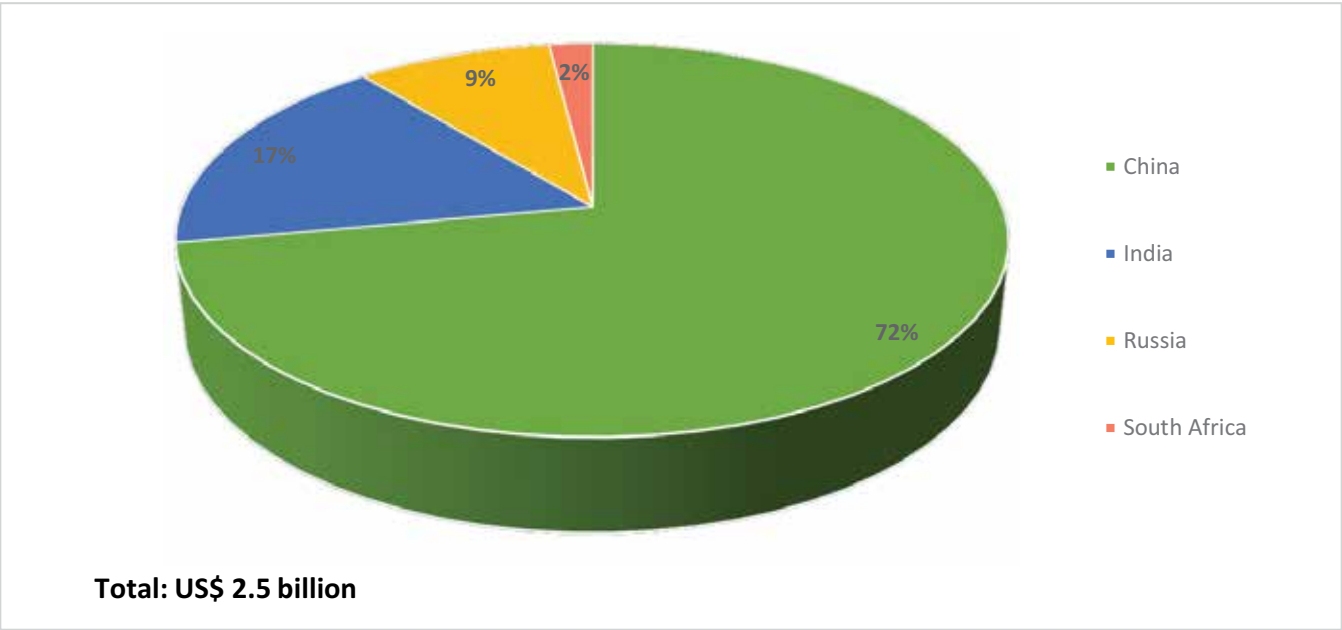
Figure 22: Brazil's Envisaged Capital Expenditure in the BRICS Partner Economies



Source: Data accessed from ITC Trade Map in January 2020; India Exim Bank Research

In the context of the EFC, Brazil's highest investment during the aforesaid period was in China of US$ 1804 million. This investment came through 26 projects and is estimated to have created 6230 jobs[9]. China was followed by India where Brazil's EFC during 2009 to 2019 was US$ 406 million, through 12 projects.

Figure 23: Brazil's Capex in BRICS Economies: By Country



Source: fDi Intelligence from the Financial Times Ltd; India Exim Bank Research

[9] fDi markets refers to it as estimated jobs and doesn't mention if there are direct or indirect.

With respect to the sectors in which Brazil has invested, the top sector by capex value was automotive OEM, in which an estimated US$ 615 million was invested through one project. This project was in China in 2018 with an investment intention by the company Marcopolo, which is a Brazilian bus and coach manufacturer. The automotive OEM sector was followed by food and beverages segment wherein US$ 469 million of capex has been envisaged through 8 projects and 2 companies. 7 of these 8 projects were by the company Keystone foods and all were in China.

Table 36: Sector Wise Capex by Brazil in Partner BRICS Economies

Industry	Projects	Capex (US$ Million)	Share in Total Capex
Automotive OEM	1	615.0	24.8%
Food & Beverages	8	468.6	18.9%
Electronic components	3	337.5	13.6%
Metals	3	170.3	6.9%
Chemicals	2	158.1	6.4%
Transportation & Warehousing	2	121.5	4.9%
Automotive components	4	120.6	4.9%
Textiles	4	119.1	4.8%
Space & defence	1	78.8	3.2%
Aerospace	2	56.3	2.3%
Consumer products	1	50.9	2.0%
Industrial equipment	1	46.3	1.9%
Pharmaceuticals	1	40	1.6%
Business machines & equipment	1	37.6	1.5%
Business services	2	23.5	0.9%
Software & IT services	4	14.7	0.6%
Medical devices	2	11.6	0.5%
Financial services	2	10.5	0.4%
Non-automotive transport OEM	1	2.5	0.1%
Total	**45**	**2483.4**	**100.0%**

Source: fDi Intelligence from the Financial Times Ltd; India Exim Bank Research

The top ten investing companies from Brazil in the partner BRICS economies, with respect to the envisaged capex, accounted for 78.4% of the total capex by Brazil in these four other economies.

According to fDi markets database, the objective for Brazilian companies to invest in BRICS shows that – 80% was so due to the 'domestic market growth' (i.e. recipient market growth opportunities), followed by 30% due to policy support, and 20% was because of skilled workforce availability.

Table 37: Top Investing Companies from Brazil in Partner BRICS Economies

Investing company	Projects	Capex (US$ Million)	Share in Total Capex
Marcopolo	1	615	24.8%
WEG	3	337.5	13.6%
Keystone Foods	7	331.8	13.4%
JBS	1	136.8	5.5%
US Zinc	1	117.7	4.7%
Gerdau	2	107.8	4.3%
Iochpe-Maxion	2	95.8	3.9%
StumppSchuele Casings	1	78.8	3.2%
TAM	1	69.9	2.8%
Embraer (Embraer-EmpresaBrasileira de Aeronautica)	2	56.3	2.3%
Others	24	536.0	21.6%
Total	**45**	**2483.4**	**100.0%**

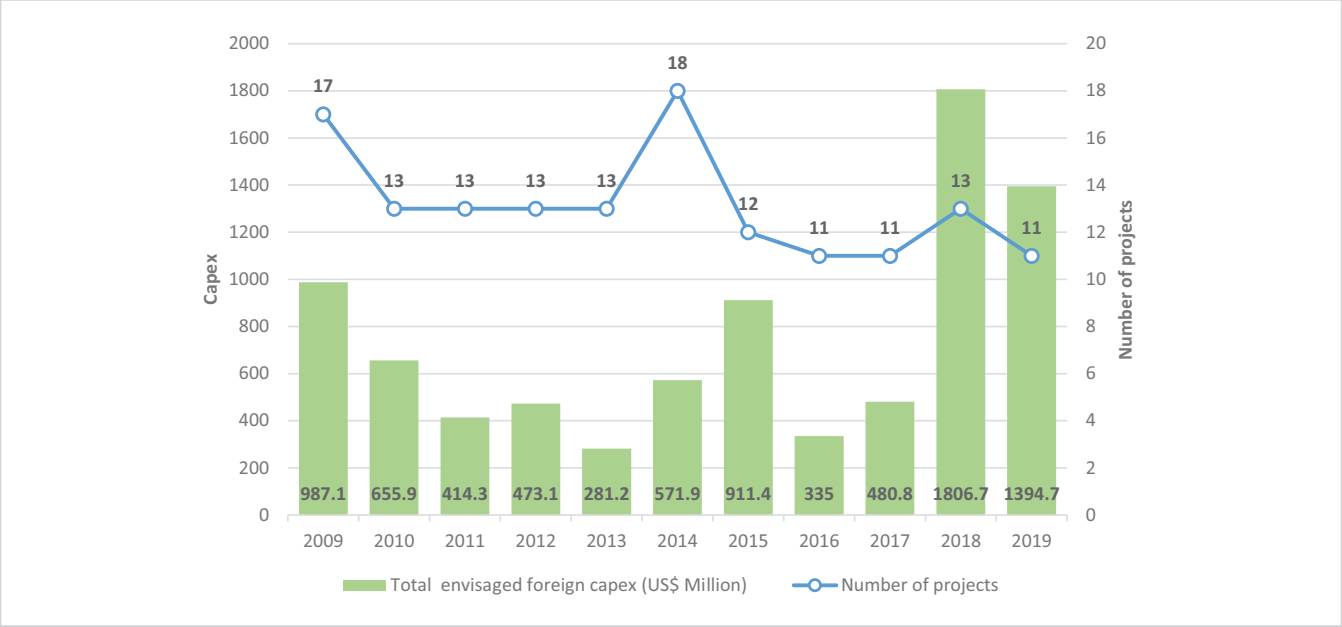
Source: fDi Intelligence from the Financial Times Ltd; India Exim Bank Research

Russia

According to the fDi markets database, during 2009 to 2019, Russia's total EFC in the BRICS partner countries was US$ 8.3 billion, which was just 5.7% of Russia's total EFC in the world.

Russia's EFC of US$ 8.3 billion in the BRICS economies came from 145 projects with an average of US$ 57.3 million per project, during 2009 to 2019. Through this capex, a total of 20,342 jobs are expected to have been created. In terms of purpose of the investment, 89.1% of projects are new investments, while the rest are in the category of expansion and co-location.

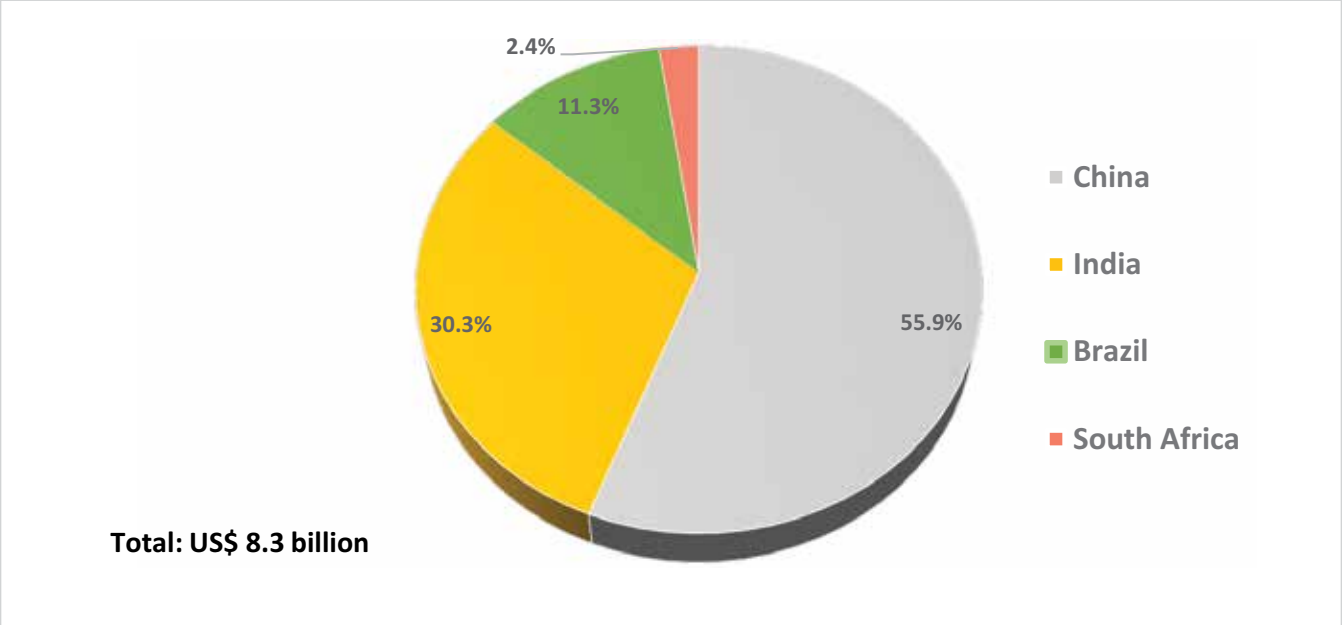
Figure 24: Russia's Envisaged Capital Expenditure in the BRICS Partner Economies



Source: fDi Intelligence from the Financial Times Ltd; India Exim Bank Research

In the context of the EFC, Russia's highest investment during the aforesaid period was in China of US$ 4649 million. This investment came through 57 projects and is estimated to have created 9493 jobs. Russia's EFC during 2009 to 2019 were found to be largest in China, followed by India – these two economies accounted for US$ 2520 million through 44 projects.

Figure 25: Russia's Capex in BRICS Economies: By Country



Source: fDi Intelligence from the Financial Times Ltd; India Exim Bank Research

A sector-wise analysis of Russia's investment in the BRICS economies shows that the top sector by capex was received in coal, oil & gas in which US$ 1887 million is projected to have been invested through 12 projects spread across all BRICS economies. However, the major chunk came out of two projects; first, Essar oil's investment worth US$ 850 million in India (manufacturing sector) in January 2019, and second, Gazprom Energoholding's capex in China worth US$ 739.6 million (electricity sector) in China in May 2018.

The second largest sector in which Russia had invested in the BRICS economies was the financial services. Capex to the tune of US$ 1575.5 million has been made through 22 projects. The two largest expenditures came in June 2009 (US$ 280.9 million) by Alpari in Brazil and in July 2019 (US$ 255.5 million) by Grand Capital in Brazil.

Table 38: Sector Wise Capex by Russia in Partner BRICS Economies

Industry	Projects	Capex (US$ Million)	Share in Total Capex
Coal, oil & gas	12	1887	22.7%
Financial services	22	1575.5	19.0%
Transportation & Warehousing	19	881.3	10.6%
Real estate	2	750.5	9.0%
Aerospace	16	739.6	8.9%
Automotive OEM	1	615	7.4%
Metals	9	301.8	3.6%
Building materials	3	236	2.8%
Space & defence	4	182.2	2.2%
Communications	10	165.2	2.0%
Renewable energy	1	117.5	1.4%
Food & Beverages	2	108	1.3%
Software & IT services	17	103.2	1.2%
Chemicals	6	94.6	1.1%
Rubber	1	91.3	1.1%
Minerals	4	81.1	1.0%
Business services	6	75.4	0.9%
Non-automotive transport OEM	1	72.6	0.9%
Pharmaceuticals	1	71.6	0.9%
Industrial equipment	4	53.4	0.6%
Consumer products	1	50.9	0.6%
Biotechnology	1	40	0.5%
Medical devices	1	12.4	0.1%
Textiles	1	6	0.1%
Total	**145**	**8312.2**	**100.0%**

Source: fDi Intelligence from the Financial Times Ltd; India Exim Bank Research

The top ten investing companies from Russia in the partner BRICS economies, with respect to the envisaged capex, accounted for 61.1% of the total capex by Russia in these economies. According to fDi markets, domestic market growth is at least one of the motives for all the projects by Russia in the BRICS economies.

Table 39: Top Investing Companies from Russia in Partner BRICS Economies

Investing company	Projects	Capex (US$ Million)	Share in Total Capex
Sberbank	4	972.4	11.7%
Gazprom Energoholding	2	857.1	10.3%
Essar Oil	1	850	10.2%
Kamaz	2	628	7.6%
Alpari	3	379.5	4.6%
Grand Capital	5	331.1	4.0%

Russian Helicopters	7	293.8	3.5%
Severstal	1	280.3	3.4%
Gefco	7	266.7	3.2%
Rostvertol	1	224	2.7%
Others	112	3229.3	38.9%
Total	**145**	**8312.2**	**100.0%**

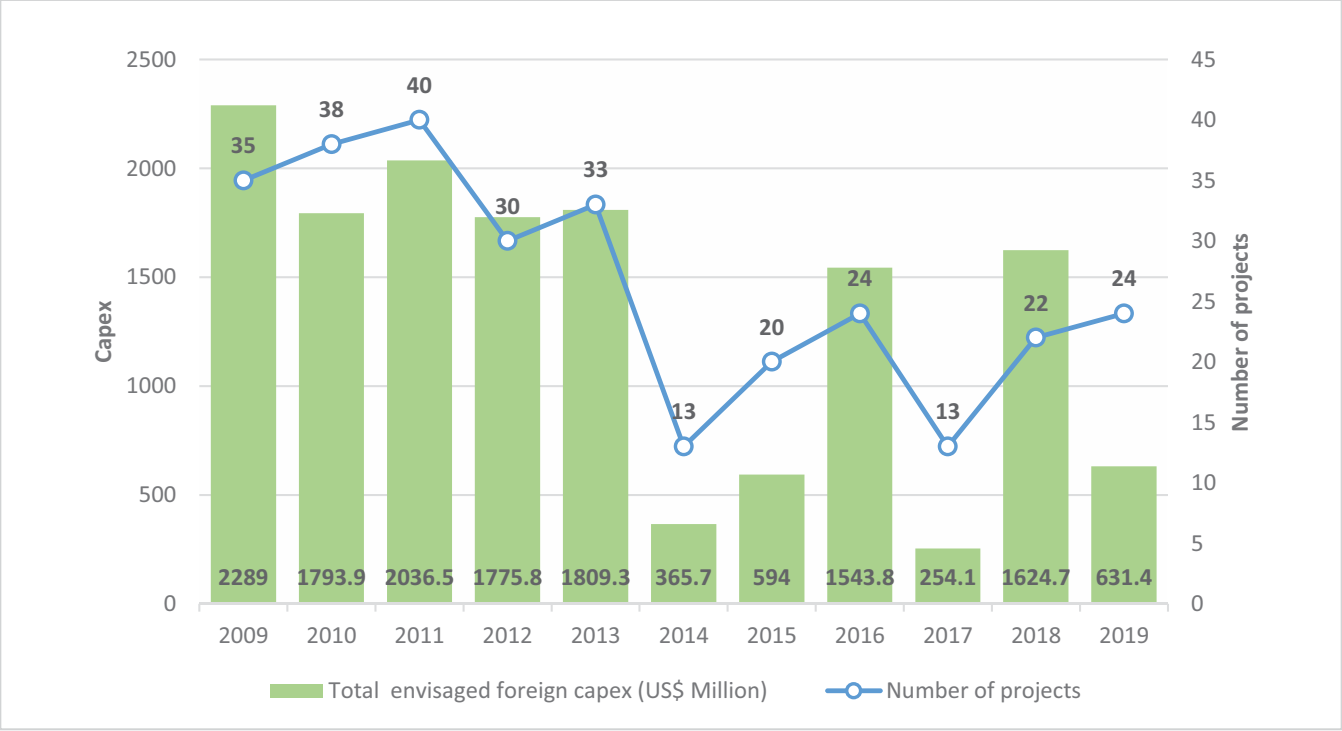
Source: fDi Intelligence from the Financial Times Ltd; India Exim Bank Research

India

According to the fDi markets database, during 2009 to 2019, India's total EFC in the BRICS partner countries was US$ 14.7 billion, much above Brazil and Russia. Even the share of BRICS in India's total envisaged capex is higher at 8.7% than Brazil (4.9%), South Africa (4.3%), and Russia (5.7%).

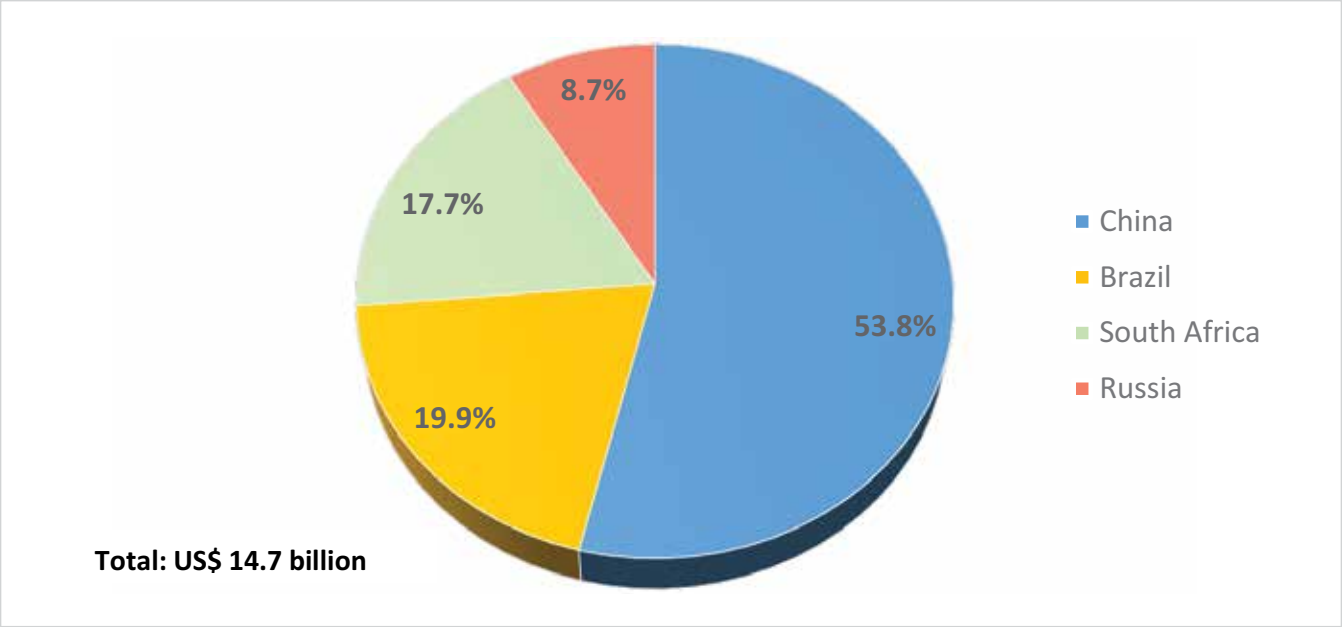
India's EFC of US$ 14.7 billion in the BRICS economies came through 145 projects with an average of US$ 57.3 million per project, during 2009 to 2019. Through this capex, a total of 20,342 jobs are expected to have been created. In terms of purpose of the investment, 70.9% of projects are new investments, while 25.1% are in the category of expansion. The rest are in the category of co-location.

Figure 26: India's Envisaged Capital Expenditure in the BRICS Partner Economies



Source: fDi Intelligence from the Financial Times Ltd; India Exim Bank Research

Figure 27: India's Capex in BRICS Economies: By Country



Source: fDi Intelligence from the Financial Times Ltd; India Exim Bank Research

A sector-wise analysis of India's investment in the BRICS economies shows that the top sector by capex was automotive OEM in which US$ 2895 million was envisaged through 16 projects. A major chunk of this investment went to China.

The second largest sector for India's capex in the BRICS economies was the software & IT services, the investment to which was to the tune of US$ 1593 million, in 63 projects. Investments in this sector by India are spread across all the BRICS economies.

Table 40: Sector Wise Capex by India in Partner BRICS Economies

Industry	Projects	Capex (US$ Million)	Share in Total Capex
Automotive OEM	16	2894.8	19.7%
Software & IT services	63	1592.8	10.8%
Metals	17	1422.4	9.7%
Financial services	20	1399.7	9.5%
Industrial equipment	12	920.4	6.3%
Chemicals	9	784.9	5.3%
Renewable energy	3	720.4	4.9%
Coal, oil & gas	7	704.5	4.8%
Pharmaceuticals	14	639.8	4.3%
Automotive components	20	587	4.0%
Hotels & tourism	5	525.5	3.6%
Plastics	13	491.5	3.3%
Consumer products	14	378.4	2.6%
Business services	23	257.1	1.7%
Food & Beverages	5	256	1.7%

Communications	11	226.6	1.5%
Transportation & Warehousing	4	191.7	1.3%
Engines & turbines	4	120.6	0.8%
Textiles	6	117.3	0.8%
Biotechnology	3	102.4	0.7%
Minerals	5	95.1	0.6%
Rubber	3	81	0.6%
Electronic components	4	55.9	0.4%
Healthcare	1	46.3	0.3%
Non-automotive transport OEM	2	37.8	0.3%
Real estate	2	22.4	0.2%
Aerospace	1	15.1	0.1%
Ceramics & glass	1	11.6	0.1%
Consumer electronics	2	8.5	0.1%
Leisure & entertainment	1	7.9	0.1%
Paper, printing & packaging	1	2.6	0.0%
Total	**292**	**14718**	**100.0%**

Source: fDi Intelligence from the Financial Times Ltd; India Exim Bank Research

As many as 185 Indian companies invested in the partner BRICS economies during 2009 and 2019. The top ten investing companies from India in the partner BRICS economies, with respect to the envisaged capex, accounted for half of the total capex by India in these economies.

One of the notable ones are Chery Jaguar Land Rover Automotive, which is a 50:50 joint venture between UK-headquartered Jaguar Land Rover, a subsidiary of Tata Motors of India; and Chinese state-owned automaker Chery – it was formed to allow production of Jaguar Cars and Land Rover vehicles in mainland China. Chery Jaguar Land Rover's first assembly plant was in Changshu, with production having commenced in October 2014.

Another notable investment was of Novelis' in Brazil in May 2011 and was worth US$ 300 million and was followed by an investment in China in May 2018 of US$ 180 million.

Mahindra & Mahindra's investment was only in 3 projects with the largest reported investment being in China, worth US$ 615 million. Besides, both the projects of Taj Hotels Resorts and Palaces were in China and were of equal amount.

Further, according to fDi markets, 56.5% of the investments in the BRICS economies were done for domestic market growth.

Table 41: Top Investing Companies from India in Partner BRICS Economies

Investing company	Projects	Capex (US$ Million)	Share in Total Capex
Chery Jaguar Land Rover Automotive	4	1664.1	11.3%
Jaguar Land Rover	11	1146.9	7.8%
Novelis	9	955	6.5%
Cennergi	2	695.4	4.7%
Mahindra & Mahindra (M&M)	3	615	4.2%
Tata Consultancy Services (TCS)	6	590.1	4.0%
JSW Energy	1	558	3.8%
State Bank of India (SBI)	7	458.1	3.1%
Taj Hotels Resorts and Palaces	2	348.6	2.4%
Tata Steel	2	341.5	2.3%
Others	245	7345.3	49.9%
Total	**292**	**14718**	**100.0%**

Source: fDi Intelligence from the Financial Times Ltd; India Exim Bank Research

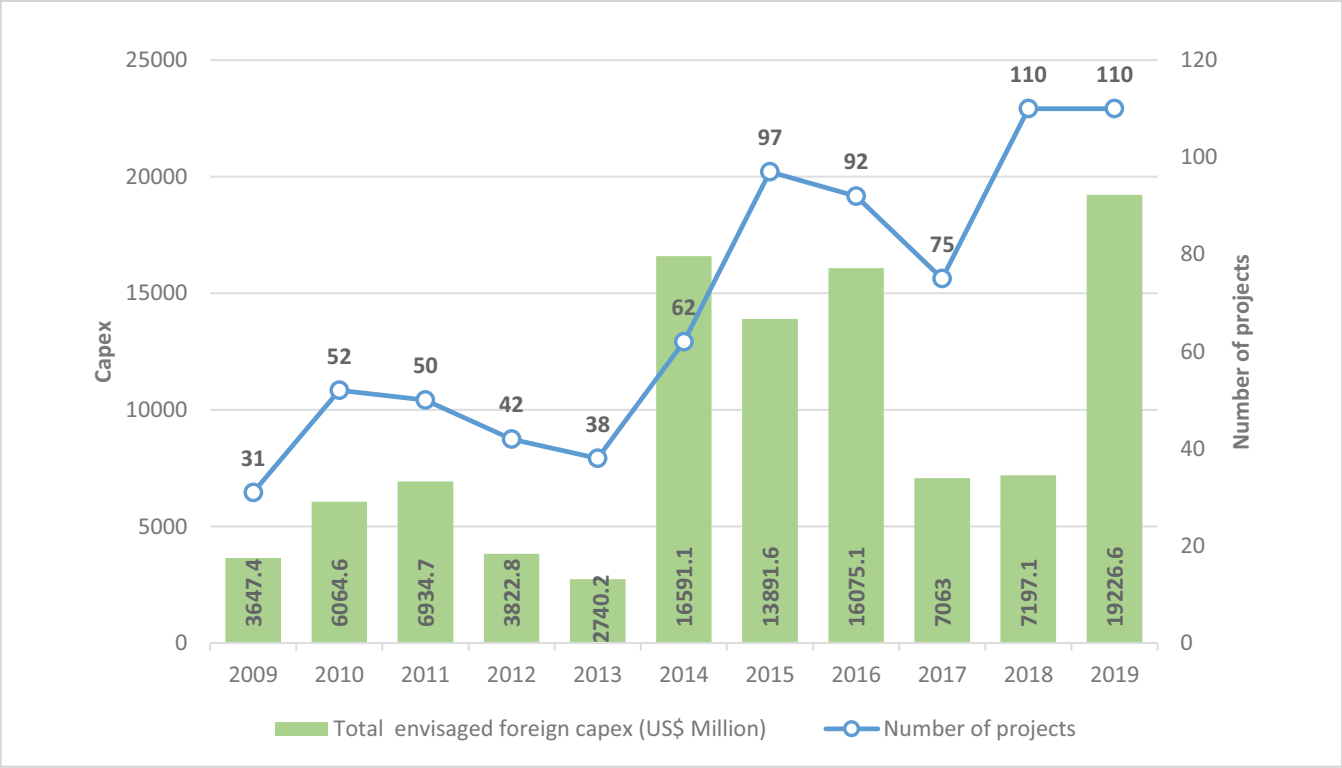
China

China is one of the largest investors in the world with its investments spread across the world. According to the fDi markets database, during 2009 to 2019, China's total EFC in the BRICS partner countries was US$ 103.3 billion, much above the investment level of its BRICS partners. Even the share of BRICS in China's total EFC is over 18%, higher than the rest of the BRICS economies.

China's EFC of US$ 103.3 billion in the BRICS economies came through 759 projects with an average of US$ 136 million per project, during 2009 to 2019. Through this capex, a total of 330,360[10] jobs are expected to have been created. In terms of purpose of the investment, 94.3% of projects are new investments, while the rest are in the category of expansion and co-location.

[10] fDi markets refers to it as estimated jobs and doesn't mention if there are direct or indirect.

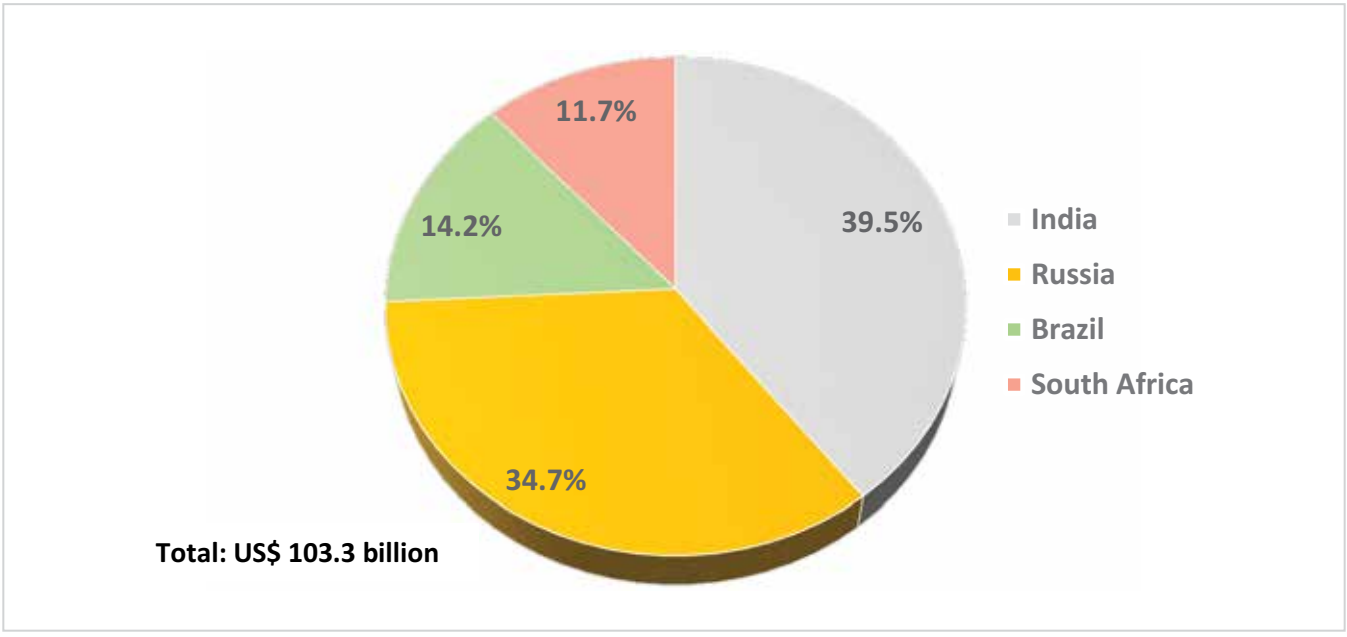
Figure 28: China's Envisaged Capital Expenditure in the BRICS Partner Economies



Source: fDi Intelligence from the Financial Times Ltd; India Exim Bank Research

Amongst the BRICS partners, India received highest EFC intentions from China during in the aforesaid period, which was to the tune of US$ 40,791 million through 336 projects. This was followed by Russia where China's EFC during 2009 to 2019 was US$ 35,792 million through 204 projects.

Figure 29: China's Capex in BRICS Economies: By Country



Source: fDi Intelligence from the Financial Times Ltd; India Exim Bank Research

Sector-wise analysis of China's investment in the BRICS economies reveals that the automotive OEM received the highest capex to the tune of US$ 17.5 billion through 79 individual projects. This sector was followed by coal, oil & gas, in which the capex of US$ 16.1 billion came through only 12 projects.

Table 42: Sector Wise Capex by China in Partner BRICS Economies

Industry	Projects	Capex (US$ Million)	Share in Total Capex
Automotive OEM	79	17480.8	16.9%
Coal, oil & gas	12	16112.8	15.6%
Real estate	18	14475.8	14.0%
Renewable energy	22	9095.0	8.8%
Communications	161	8638.9	8.4%
Metals	38	7197.8	7.0%
Industrial equipment	62	5358.6	5.2%
Electronic components	61	3036.3	2.9%
Food & Beverages	31	2971.7	2.9%
Building materials	12	2955.9	2.9%
Consumer electronics	37	2653.3	2.6%
Transportation & Warehousing	11	2582.7	2.5%
Financial services	29	2519.5	2.4%
Paper, printing & packaging	3	1620.9	1.6%
Plastics	9	1124.4	1.1%
Non-automotive transport OEM	17	1005.6	1.0%
Automotive components	27	781.0	0.8%
Wood products	8	693.5	0.7%
Software & IT services	37	655.2	0.6%
Ceramics & glass	5	642.3	0.6%
Chemicals	17	377.2	0.4%
Engines & turbines	7	295.7	0.3%
Aerospace	4	247.6	0.2%
Business services	17	189.1	0.2%
Consumer products	11	135.1	0.1%
Business machines & equipment	7	116.4	0.1%
Hotels & tourism	2	92.9	0.1%
Textiles	4	67.6	0.1%
Medical devices	4	66.5	0.1%
Pharmaceuticals	2	45.2	0.0%
Leisure & entertainment	1	6.3	0.0%
Rubber	2	5.3	0.0%
Semiconductors	1	4.2	0.0%
Minerals	1	3	0.0%
Total	**759**	**103254.2**	**100.0%**

Source: fDi Intelligence from the Financial Times Ltd; India Exim Bank Research

As many as 415 Chinese companies invested in other partner BRICS economies, during the last decade. The top ten Chinese investing companies in the partner BRICS economies constituted 40.6% of the total capex by China in these economies. The number of projects by these top 10 companies in the last decade have been in the single digit except for Huawei Technologies which had a capex of US$ 2463 million through 49 projects in the BRICS economies.

Table 43: Top Investing Companies from China in Partner BRICS Economies

Investing company	Projects	Capex (US$ Million)	Share in Total Capex
Sherwood Energy	1	11100	10.8%
Shanghai Zendai Property	1	6400	6.2%
China Fortune Land Development (CFLD)	1	4900	4.7%
Sany	6	3855.5	3.7%
China Huaneng	2	3306	3.2%
China Triumph International Engineering	1	3000	2.9%
Great Wall Motors (GWM)	8	2639.1	2.6%
Huawei Technologies	49	2463	2.4%
Anshan Iron and Steel Group (Angang)	2	2205	2.1%
Chint Group	2	2034.2	2.0%
Others	686	61351.4	59.4%
Total	**759**	**103254.2**	**100.0%**

Source: fDi Intelligence from the Financial Times Ltd; India Exim Bank Research

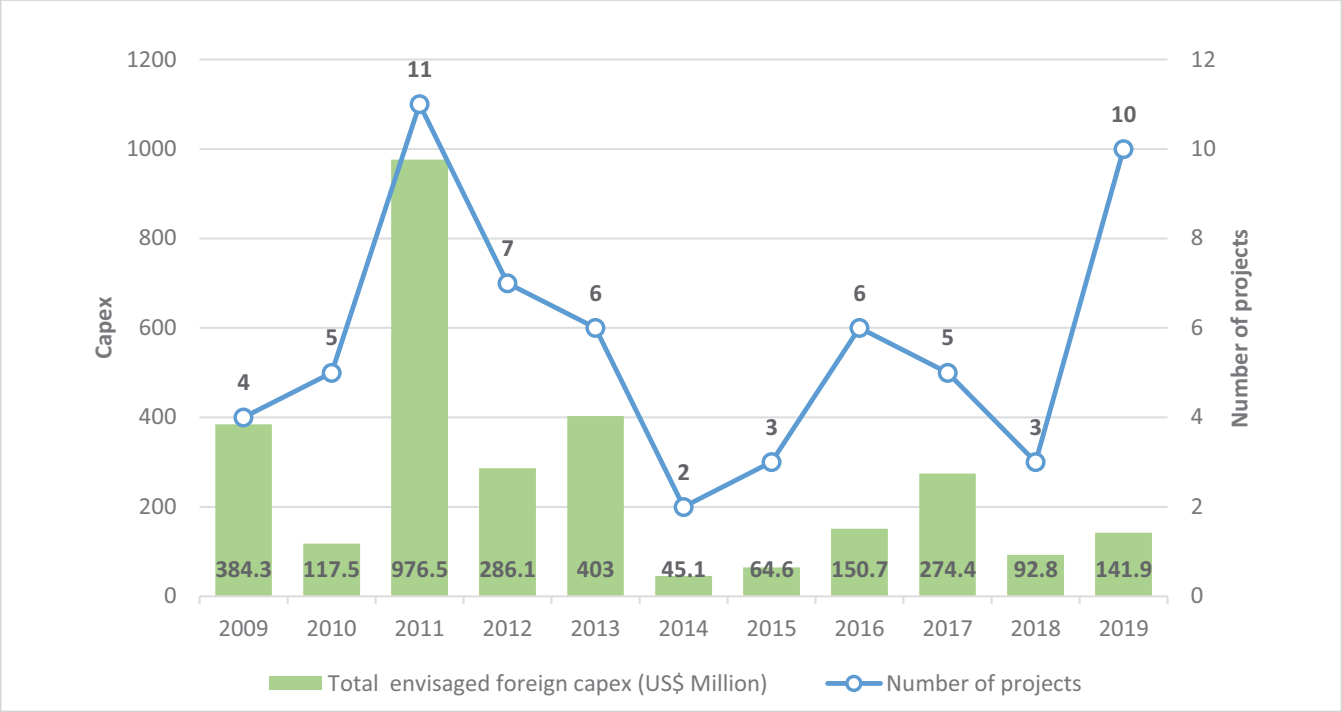
South Africa

South Africa's EFC to the BRICS economies, during 2009 to 2019, was US$ 2937 million, which is 4.3% of its total EFC in the world. South Africa's EFC of US$ 2937 million in the BRICS economies came through 62 projects with an average of US$ 47.4 million per project, during 2009 to 2019. Through this capex, a total of 10533[11] jobs are expected to have been created by South Africa's investments.

In terms of investment type, 63.1% of projects were categorised as new investments, 35.9% were in the category of expansion, while the remaining in the category of co-location.

[11] fDi markets refers to it as estimated jobs and doesn't mention if there are direct or indirect.

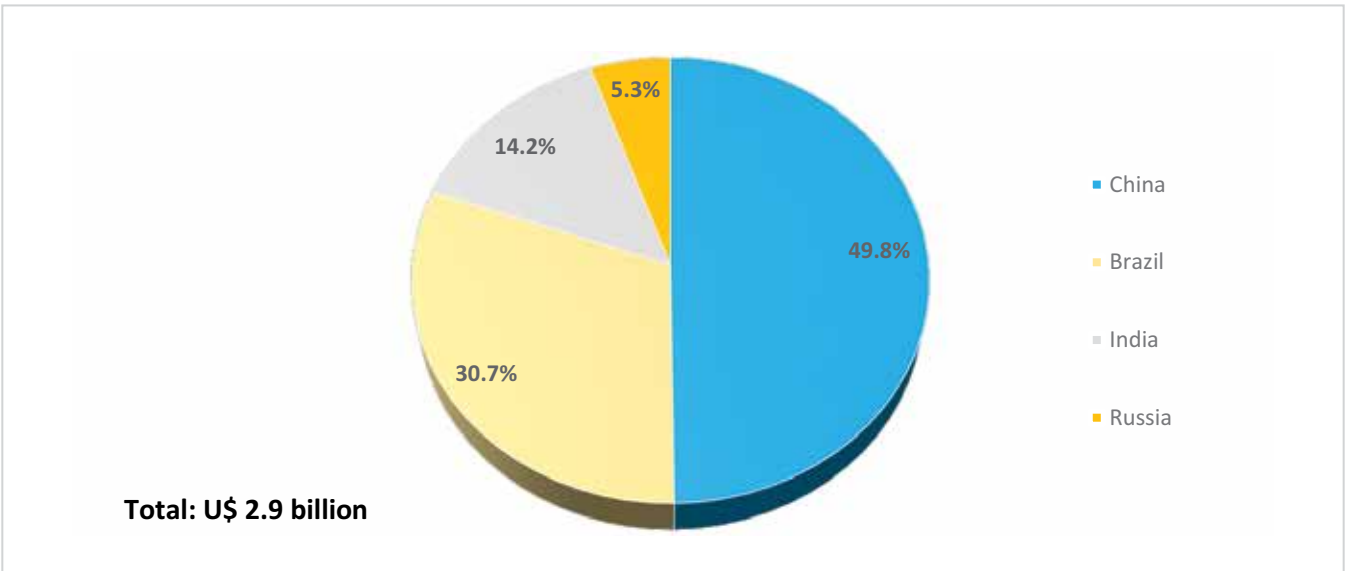
Figure 30: South Africa's Envisaged Foreign Capital Expenditure in the BRICS Partner Economies



Source: Data accessed from ITC Trade Map in January 2020; India Exim Bank Research

China received highest capex from South Africa in comparison with other BRICS partners during the aforesaid period. This capex was to the tune of US$ 1462 million through 20 different investment projects. The second largest destination for South Africa's EFC was to Brazil which was to the tune of US$ 902 million through 19 different investment projects.

Figure 31: South Africa's Capex in BRICS Economies: By Country



Source: fDi Intelligence from the Financial Times Ltd; India Exim Bank Research

Sector-wise analysis of South Africa's investment in the BRICS economies reveals that over one-fourth of this investment went into the metals sector. This was largely through three projects, all of which were in Brazil by the company AngloGold Ashanti. The second largest investment was witnessed in semiconductors which was worth US$ 328 million through a single project. This project was in China by the company named Labat Africa.

Table 44: Sector wise Capex by South Africa in Partner BRICS Economies

Industry	Projects	Capex (US$ Million)	Share in Total Capex
Metals	3	753	25.6%
Semiconductors	1	328	11.2%
Transportation & Warehousing	4	318.1	10.8%
Financial services	8	309.8	10.5%
Consumer products	6	309.5	10.5%
Paper, printing & packaging	2	220.7	7.5%
Software & IT services	14	181	6.2%
Chemicals	1	117.7	4.0%
Hotels & tourism	2	91.9	3.1%
Pharmaceuticals	3	78.4	2.7%
Industrial equipment	2	70.9	2.4%
Communications	2	64.3	2.2%
Food & Beverages	1	30.5	1.0%
Minerals	3	19.6	0.7%
Business services	4	17.5	0.6%
Automotive OEM	1	11.3	0.4%
Coal, oil & gas	1	5.8	0.2%
Textiles	3	5.4	0.2%
Business machines & equipment	1	3.5	0.1%
Total	**62**	**2936.9**	**100.0%**

Source: fDi Intelligence from the Financial Times Ltd; India Exim Bank Research

As many as 62 South African companies invested in the BRICS economies since 2009. The share of the top ten investing companies from South Africa in the BRICS economies, accounts for 75% of the total capex in these economies. For 68.7% of the projects, domestic market growth was one of the major determinants for such investments, which was followed by proximity to markets or customers (50% of such investments).

Table 45: Top Investing Companies from South Africa in Partner BRICS Economies

Investing company	Projects	Capex (US$ Million)	Share in Total Capex
AngloGold Ashanti	3	753.0	25.6%
Labat Africa	1	328.0	11.2%
De Beers Diamond Jewellers	5	254.5	8.7%
Mondi Group	1	183.4	6.2%
Imperial Logistics International	2	154.8	5.3%
Lehnkering Euro Logistics	1	151.3	5.2%
SASOL	1	117.7	4.0%
Mantis Collection	1	90.9	3.1%
Shriram Life Insurance	2	87.4	3.0%
ABSA	1	80.8	2.8%
Others	44	735.1	25.0%
Total	**62**	**2936.9**	**100.0%**

Source: fDi Intelligence from the Financial Times Ltd; India Exim Bank Research

CHAPTER

Industry Perspectives on BRICS Cooperation

In the global war against the novel coronavirus, emerging economies, including countries from BRICS, have reached out to other countries affected by the pandemic. India too made its contribution by providing important drugs and pharmaceuticals to facilitate treatment of Covid-infected patients worldwide. Being the world's largest producer of hydroxychloroquine, India has recently exported the drug to SAARC countries, Gulf countries, as well as to Russia, Brazil, Israel and the U.S.

Likewise, China reached out to other countries and provided essential supplies and equipment, including respirators, protective suits, masks and medications. Russia too sent its doctors and virologists overseas, including the launch of the famous 'From Russia with love' air mission to Italy. In the African continent, South Africa, the current rotating head of the African Union, is engaged in framing a pan-African response to Covid-19.

At a time when all economies of the BRICS are reeling under the pressure of the global economic slowdown aggravated by the Covid-19 pandemic, more cooperation, greater economic integration and stronger partnerships within BRICS assumes a much greater importance today than it has ever been in the past. They need to intensify cooperation, forge ahead with new initiatives directed at revitalizing regional integration and contribute more to the world economy. Our businesses and our governments need to work together to enhance intra-BRICS trade and investment.

Even as intra-BRICS trade has increased over the years, it constitutes less than 5% of BRICS total trade. If we specifically take the case of India, we will see that India runs a trade deficit with rest of the BRICS countries, and this trade deficit has increased over the years. India has the largest trade deficit with China (US$ 51.1 billion), followed by Russia (US$ 3.3 billion), South Africa (US$ 2.6 billion). India had a trade surplus with Brazil (US$ 1 billion). So, from India's perspective - the country has provided huge market access to businesses in other BRICS countries, but India is yet to make equivalent gains in other BRICS markets. There is a huge potential for increasing mutual trade and investments within BRICS.

Areas of policy cooperation amongst BRICS

Trade and Investment Facilitation

One of the key reasons for lower share of BRICS trade and investment is the procedural, administrative and regulatory constraints faced by businesses in the BRICS countries. Cumbersome documentation

and customs clearance, poor inland transportation, and terminal handling processes increase the time and the cost of trade, often affecting the operating margins of businesses.

While it is important to accelerate intra-BRICS trade, it is also critical to reduce the cost of intra-BRICS trade. BRICS governments need to accelerate their trade facilitation programme to lower intra-BRICS trade costs and enhance trade effectiveness. Governments can facilitate trade through implementation of automated customs systems, electronic single windows and other digital customs and trade facilitation initiatives. Some specific actions that can be taken in this regard are as given below:

- Improving ease of doing business - BRICS countries need to streamline their procedural and administrative policies and regulations. Each country should have a designated focal point that can serve as a single window mechanism to address all queries and requirements of BRICS businesses. For instance, "Invest India" is the nodal investment agency for India, having specific country desks to address investment issues and queries of investors.

- Exchange of best practices related to trade facilitation - BRICS countries should initiate a knowledge sharing project with respect to the best practices being followed by them related to trade facilitation.

- Customs authorities in BRICS should continue to engage with each other and work together on the issues of streamlining import/export procedures, reducing and simplifying documentary requirements, introducing single window and paperless/electronic customs clearance, etc.

- Organise regular workshops, investment promotion forums, business fairs and business-government networking events to boost inward FDI and ODI of BRICS countries and to exchange best practices in FDI and ODI projects/ programmes in BRICS countries.

Digitising Trade

BRICS countries have adopted a series of initiatives to digitalize the emerging market bloc's trade infrastructure. Additionally, the Governments can facilitate digital trade through implementation of automated customs systems, electronic single windows and other digital customs and trade facilitation initiatives. Improving digital infrastructure, broadband connectivity and internet penetration are also areas where BRICS can share experiences with each other. E-commerce is another potential area that can play an important role in promoting trade growth, and facilitate transformation and job creation, while giving MSMEs the opportunity to participate in and benefit from global value chains and international trade. BRICS nations must therefore promote digital trade and e-commerce cooperation amongst themselves.

Trade in local currencies

BRICS governments have been discussing promotion of trade in local currency for a long period, but it is yet to gather momentum. Promoting greater trade in local currencies should continue as it will not only contribute to enhanced trade and investments among the five countries but would also

facilitate economic growth in difficult economic times.

Harmonisation of trade standards and regulations

Businesses in BRICS economies often experience barriers in other BRICS economies by way of different technical standards and regulations, which affects the growth of intra-BRICS trade. There is a need to harmonise the technical standards, rules and regulations across the five member countries to promote greater trade amongst the BRICS businesses. The customs, standardisation, and regulatory bodies in the five countries should engage in regular dialogues to achieve such harmonisation. Feedback should be taken from businesses on the key issues and challenges faced during trade and appropriate collaborative action be taken to address those issues.

Facilitating intra-BRICS mobility through easing visa regulations

Greater people-to-people mobility can help enhance the trade and investment among the countries. BRICS countries should also promote greater intra-BRICS mobility to facilitate greater trade and investment. While BRICS countries have eased visa regulations and simplified procedures over the past few years, it is suggested that the BRICS governments may like to consider issuing long-term multiple entry visa for bonafide business travellers from BRICS nations. Additionally, the governments, collectively, may like to simplify the procedures and regulations for granting of study and work permits for BRICS citizens. There is also a need for harmonisation of professional standards and mutual recognition of qualifications.

Increasing Trade in Services

Globally, there has been less focus on trade in services as compared to merchandise. However, for BRICS economies, trade in services holds huge potential, be they in financial services, telecommunications, information technology, education, tourism, entertainment, etc. BRICS countries should achieve greater level of trade in services through supportive policies, lowering the barriers to movement of people, and harmonisation of standards and regulations.

Diverse Areas for Cooperation amongst BRICS Nations

Agriculture

BRICS countries are major producers, consumers and exporters of agricultural, horticultural and animal products. Mapping each other's complementarities in the agricultural and food products, the BRICS countries can strengthen their comparative advantages and increase their supply of agricultural products. This will also help in ensuring an inclusive and sustainable development of this sector.

The Covid-19 pandemic has also disrupted the agri-supply chain and innovative solutions are needed to ensure an efficient agri-supply chain mechanism in all BRICS countries. This would require joint cooperation and collaboration across all segments of the agri-food supply chain including raw material, production, harvesting, storage, infrastructure, logistics, marketing, technology as well as agri-finance. Some of the specific areas where BRICS countries can collaborate include -

i. *Sustainable agriculture* - Accounting for nearly 40 percent of the global population, food security will remain paramount for the BRICS countries and hence there is a need to ensure sustainable agricultural development in all the five BRICS countries. This would require improving their agricultural productivity and efficiency, mitigating the negative effects of climate change on agricultural productivity, protection of arable land, optimal utilisation of water resources and ecological safety. Sustainable agriculture is also important in the context of enhancing incomes of farmers in the BRICS countries, especially for India where a large proportion of population is dependent upon agriculture for their livelihood. Joint efforts and cooperation should be explored in the following areas.

   a. *Mitigating effects of climate change on agriculture* - In order to reduce the climate risks to our food systems, adaptive capacity of all BRICS countries maybe developed as they have the strength of knowledge, expertise and research capabilities in agriculture. Effective nutrient management in fertilisers can help in reducing and controlling the greenhouse gas emissions. The information on best practices adopted by BRICS countries towards minimising climate change impact on agriculture could be exchanged and disseminated amongst the stakeholders. Co-developing climate change resistant crop varieties as well as promoting resource saving agricultural practices may also be considered. Private sector players can play an important role in furthering this knowledge sharing processes.

   b. *Optimal use of water resources* - BRICS countries are facing a severe problem of water scarcity. Integrated water resources management is required in each country to meet the water challenge. BRICS countries may share the best practices in water management for agriculture. They can also collaborate in improving the water infrastructure, especially in the agriculture domain. Support of NDB in such joint projects could also be explored.

   c. *Soil health and soil fertility management* - Maintaining soil health and high crop yields are the key challenges for food security. This is also critical as future generations would need healthy soil to ensure high agri productivity. Soil erosion and unbalanced nutrient use are amongst the main reasons for deteriorating soil health today. BRICS countries may explore the possibility of establishing a collaborative platform to share best soil management practices (including balanced use of fertilisers) and facilitate the exchange of sound technologies and know-how with participation of public and private stakeholders.

   d. *Leveraging Agri-Biotechnology* - Cooperation in promoting biotechnology among the BRICS countries could be further enhanced. The use of biotechnologies such as biological fertilizers and bio-modified mineral fertilizers, bio-stimulants and bio-antistressants can provide increased productivity through the use of previously unused soil resources and useful microbial metabolites. The study of soil microbial consortia and the exchange of information on collections of beneficial micro-organisms with a database comparing their effectiveness can expand their scope in the BRICS zone.

ii. *Knowledge sharing and training* - Ensuring food security is a key public policy objective in all countries and one of the ways BRICS nations can support each other is by sharing best practices that have led to improvement in crop productivity. An agricultural information and training

platform can be set up to share agriculture expertise amongst the BRICS countries. Soil health quality, management of moisture content, optimal use of fertilisers, managing new pests, pathogen and invasive plants, promoting value addition for producing safe and nutritive food and food products, avoiding wastage etc. are other areas where significant knowledge sharing can happen amongst BRICS countries. Seminars, workshops and conferences can be organised to explore measures and approaches to ensure sustainable agriculture development and to facilitate trade and investment in agricultural sectors among BRICS countries.

iii. *Harmonisation of standards* - BRICS countries could adopt electronic phytosanitary certificates (e-Phyto) in lieu of paper documents to cater to the faster facilitation of their bilateral trade. The adoption of e-Phyto would expedite administrative procedures and reduce red tape and costs in exports of goods subject to phytosanitary certification. It would also improve security and predictability by reducing the risk of fraudulent certificates and the number of shipments detained at customs. BRICS countries will benefit from the exchange of electronic certificates with a standard format, in a quick and accurate manner, and at a low cost.

iv. *Digital Farming* - In current times, digitisation of agriculture has become important to make supply chain efficient, transparent, market driven and traceable. Digital technology can play an important role in enabling access of high-quality inputs to farmers, their linkages to the markets, reduction in post-harvest losses, enabling access of institutional credit, insurance and direct benefit transfer to farmers. Adoption of digitization in agriculture such as usage of satellite images for measuring and monitoring water availability and smart irrigation can be extremely useful, especially in difficult times like current Covid-19 pandemic. Indian government has launched the "Krishi Rath" mobile app to facilitate the farmers to hire trucks and transport agri produce to the markets. Such innovations in digital farming, coming from both public and private sector cooperation will be valuable in ensuring sustainable agriculture. BRICS countries should share their experiences and learnings in this area with a view to implement and adopt digital practices in agriculture in their respective countries.

v. *Agri start-ups* - There has been a rise in agri-tech start-ups across the BRICS countries. Often, there are enabling government and private sector institutions in most countries that are facilitating incubation and development of start-ups in the agricultural domain. There are about 450 plus start-ups in the Indian agricultural space and the number is growing at the rate of about 25 percent, year on year. Few areas where Agtech start-ups have made significant impact are (a) Improving Supply Chain and taking farmer's product directly to the consumers (b) Driving transparency, traceability and real time access to information (c) Taking quality inputs to the farmers for better productivity (d) Making services affordable to small and marginal farmers (e) Innovations in farmer financing.

The innovations by Agtechstart ups in all BRICS countries have huge potential for benefitting farmers through increased incomes, reduced cost and mitigation of risks associated with farming. Since agriculture is a focus area for all BRICS countries, the governments could consider setting up an agency for cross border exchange of ideas, expertise and support to help grow the agri start-up ecosystem. This will also help in proper listing of start-ups and their scope of work that could eventually lead to experience sharing. This can be achieved by linking up the national level institutions and incubation centres across the BRICS countries so that the reach and market

maximisation can be achieved in a faster manner through collaboration among start-ups with similar scope in other BRICS countries.

vi. *Sharing of Covid experience on agriculture* - The Covid-19 pandemic has had an impact on the agri-business activities as well. Besides the supply chain disruptions caused due to lockdown, there has been a discernible change in consumer outlook and perceptions related to food safety, organic farming, etc. The social distancing requirements have also necessitated new ways of supply chain operations, with a view to ensure maximum precautions and maintain safety at all levels of agri-value chain. These learnings and experiences can be shared among the BRICS agri-business community for implementation in their respective countries.

Manufacturing

BRICS countries have different but complementary advantages in scientific and technological innovation in the realm of manufacturing; therefore, the importance of strengthening the cooperation in this field cannot be underestimated. If BRICS countries can cooperate and give full play to their complementary advantages in manufacturing, they can make their cutting-edge sectors stronger, besides narrowing the gap in the backward and forward linkages. Collaboration in the field of manufacturing can also help improve the share of manufacturing in GDP of member countries.

Some of the specific areas where BRICS collaboration could be explored include -

i. *Industry 4.0* - All countries are gearing up towards Industry 4.0, which will transform the traditional manufacturing set-up through digital solutions. While many large companies within BRICS economies have already embraced Industry 4.0 and are reaping the benefits, there is a need to expand the access of such digital solutions even for the MSMEs. Since MSMEs constitute a significant proportion of manufacturing across the BRICS countries, adoption of Industry 4.0 solutions will entail huge benefits not just for MSMEs but also the overall GDP of the BRICS economies. The current experiences and expertise in implementation of Industry 4.0 solutions should be shared among the MSMEs of BRICS economies. A repository of best practices would help most of the businesses desirous of expanding their scale, by promoting the use of best technological solutions. Experts from various domains should also be engaged for the same. There is also a need to collaborate for skilling and reskilling of the human resources on Industry 4.0.

ii. *Enhance trade facilitation* - As already mentioned, trade among the BRICS countries continues to be below potential. There is a need to expand the base of trade across the manufacturing sectors. The standards, regulatory restrictions, etc. applied on merchandise imports need to be reviewed and harmonised across the BRICS countries as often these are in the nature of non-tariff barriers and restrict the trade activities.

iii. *BRICS Centre for Manufacturing Technology* - BRICS countries can also collaborate to develop cutting-edge manufacturing technology that can enhance manufacturing capabilities in their countries, especially for MSMEs. A BRICS Centre for Manufacturing Technology can be set up for this purpose. Since most MSMEs do not have access to high-end technology either due to cost or

expertise constraints, establishing such a centre can help the MSMEs adopt the latest technologies in most cost-effective manner and also improve their skills through training modules for using those technologies.

iv. *Joint Research and Development* - BRICS countries can also collaborate to build strategic alliances in research intensive sectors such as pharmaceuticals, energy, etc. Businesses in such strategic sectors may be encouraged to enter into a cooperative framework with their counterparts in other BRICS countries to develop new products/ processes for their respective industries. The scale of such collaborations would be greater through supportive policies by the governments.

v. *Cooperation in sustainable solutions* - BRICS countries have an important role to play in achieving the goals set under the UN Sustainable Development Agenda. The most important being in the area of climate change, by developing sustainable low-carbon solutions. While most countries are working towards green economy solutions in energy and urban infrastructure, there is a need to bring out sustainable solutions in manufacturing spaces as well, in sectors such as automobiles, plastics, etc. BRICS countries should collaborate in promoting sustainable solutions through exchange of best practices in these areas, sharing of their experiences in reducing greenhouse gas emissions, efforts being taken towards electromobility solutions, best practices being adopted in waste management, etc. Besides the exchange of experiences, there could also be sharing of technologies in these areas.

Energy and Green Economy

Brazil, Russia, India, China and South Africa represent some of the world's largest energy consumers and producers. BRICS countries have energy strategies that have proven to be complementary. Cooperation on energy holds common interest and represents win-win situation for BRICS countries. It can open opportunities for enhanced intra-BRICS energy cooperation to foster domestic and global energy security and stimulate economic growth.

The BRICS countries rely heavily on fossil fuels. It may be bore in mind that the fossil fuels have limitations with regard to limited supply and environmental concerns. Increasing the reliance on non-conventional energy sources, such as solar and wind, could be the future driver to satisfy the BRICS' rising energy demand. Besides, BRICS nations should also focus on technologies to improve energy efficiency.

Both in Brazil and South Africa, there is a move to shift from non-renewables to renewables with emphasis on wind and solar power. India and China have similar programs and can also offer high quality wind and solar power equipment. Russia can share its expertise with others for improving productivity in matured oil and gas fields. It can also share its experience with others in underground coal gasification. Further, as the use of biofuels is on the rise, exchanging knowledge on related technologies can be an important component of cooperation in the energy sector amongst businesses from the BRICS countries. Companies from BRICS countries can also undertake joint projects in offshore oil exploration, development and refinement in home countries as well as third countries. Further, many of the BRICS countries are well endowed with large scale mineral deposits. As they develop their mining sectors, there is scope for entering mutually beneficial trade to meet the rising

demand for such resources from within the group. Some of the specific areas of BRICS collaboration in green economy and energy are:

i. *Garner NDB's support in clean energy projects undertaken by the private sector* - The New Development Bank has focused on sustainable development projects in the BRICS economies and lent significantly in the renewable energy sector. Given that the NDB has extended its lending program beyond the sovereign projects and has started considering private sector projects in its portfolio, the private sector should engage with the NDB while making investments in clean energy projects. A pipeline of such projects in BRICS economies can be put together and shared with the NDB for consideration.

ii. *Exchange of information on low carbon technologies* - There are several emerging low carbon technologies that are being implemented in the Green economy space such as DDD (Decentralized, Decarbonized, Digitized) Energy Generation; Low Carbon & Green Hydrogen; and CCUS (Carbon Capture, Utilization & Storage). In light of the sustainable development goals, BRICS economies can consider adoption of such technologies on a large scale. The detailed information on usage of such technologies and their costs could be shared amongst the businesses in BRICS economies.

iii. *Cooperation under International Solar Alliance* -The International Solar Alliance (ISA) is a new initiative launched at the 2015 Paris climate conference by India, jointly with France. The ISA aims to bring together a coalition of 121 countries for mutual gains through enhanced solar energy utilisation. Under the ISA umbrella, all BRICS nations and NDB should undertake innovative approaches in identification and financing of solar projects in other ISA member countries.

iv. *Energy integration in BRICS region* - There is a great scope for integration of energy sources with the bordering countries of the BRICS economies. These include developing hydel power, wind energy projects, etc. Encouraging investment in energy infrastructure for generation and transmission can help meet the energy demand within BRICS economies as well as their neighbouring countries. BRICS economies could thus promote regional integration of energy resources and explore feasibility of joint projects in power generation and transmission in the bordering countries.

v. *Central repository of energy data* - The energy requirements within BRICS countries has been rising, but the structure and dynamics of energy supply is constantly changing. While there is a greater reliance on conventional energy resources like coal, a gradual shift is also seen towards the renewables sector. A repository of information and data on the trends in energy transition, energy consumption as well as energy supply and details of best practices, energy policies and regulations in all BRICS economies can be created, which could help in effective planning and management of energy mix and supply. A BRICS Energy Information Platform can help with collation and dissemination of such information.

vi. *Base of regulatory restrictions* - To promote energy cooperation amongst the BRICS economies, the governments of member countries could develop simplified and transparent regulatory framework related to the energy sector to attract greater investments in the sector. The policies must be integrated and holistic, considering the entire eco-system including power demand,

generation, transmission and supply, power financing, skilling and training, equipment manufacturing, etc. Policies should also be supportive of cross border projects and regulatory requirements and standards be harmonised to ensure optimal utilisation of resources and avoid time and cost overruns. BRICS countries can lay down a framework for such harmonised standards and regulations in energy space.

Financial Services

As countries evolve and pass through stages of economic development, an evident shift is seen in the structure of the economy. Many of the BRICS countries are presently undergoing such a transformation and are placing greater emphasis on value added services sector. Banking and financial services is an important area and its spread and extension plays a critical role in furthering the goal of financial inclusion. BRICS countries can collaborate in the financial services sector to facilitate economic expansion, availability of credit, and greater flow of capital to its businesses, especially the MSMEs. Innovative financial products, tools, and mechanisms can be developed jointly by the private sector in BRICS for mutual benefit in financial payments, transactions, and debt.

Some of the specific areas of cooperation in the financial services sector are given below:

i. *New International Payment System / BRICS Pay* - Most BRICS countries have separate national payment systems while their cross-border bank card transactions mainly rely on international networks. As a result, they are unable to make fully independent transfers and settlements conforming to their political and economic needs. Hence, BRICS countries can set up their own international payments system (BRICS Pay) which will be a card cum mobile payment system integrated with the payment systems of BRICS countries. Such a project will ease payments and funds transfer and thereby promote business and tourist travel in the BRICS countries.

ii. *BRICS Rating Agency* - The concept of an alternative credit rating agency to be formed by the BRICS countries was mooted in 2015. The Goa Declaration which was endorsed by the leaders of the five BRICS Nations proposed examining the feasibility of setting up the BRICS Rating Agency based on market principles. This project is important as the proposed ratings agency will aid the BRICS nations' efforts to raise funds from capital markets and develop their bond markets, to meet their immense funding requirements, especially in core sectors such as infrastructure.

iii. *BRICS Reinsurance pool* - BRICS countries can also work together to develop a BRICS Reinsurance pool, which was earlier mooted by India. The proposed reinsurance firm could pool resources to diversify risk associated with large projects being undertaken in BRICS countries. It could also bring together the combined insurance and reinsurance capacities of the BRICS insurance markets and provide access to significant quality insurance capacity necessary for the effective financial management, especially of relevant State owned enterprises and also other large projects undertaken by State and/ or private sector enterprises in BRICS nations.

iv. *BRICS Insurance Connect* - BRICS countries can set up an exchange platform on insurance such as Insurance Connect for cooperation in various areas such as insurance regulation, legislation,

supervision and market conduct, etc. It can also include exchange of information in areas such as training and skill development, product development, research and development, policy suggestions, etc.

v. *Infrastructure Financing* - Infrastructure development is a key driving force for the growth of BRICS economies. BRICS countries should work together with the NDB and facilitate funding of large infrastructure projects in the BRICS countries. A pipeline of such projects can be developed and shared with the NDB. Along with the banking sector in BRICS economies, NDB can develop suitable financial instruments to meet the financing requirements of identified projects. BRICS countries can also look at cooperation and experience sharing in the area of issuance of municipal bonds to mobilise long term financial resources for urban infrastructure. BRICS countries can also work together to develop credit enhancement mechanism by involving development banks, insurance agencies, multilateral development agencies, etc.

Start-ups

Start-ups and new enterprises, especially those driven by technology are seeing a rapid growth across BRICS countries. In India, some of the most promising start-ups are in the fintech space - they are breaking new ground and helping traditional financial institutions reach out to customers who have been in the periphery of the financial inclusion perimeter. Be they digital payments, digital lending, wealth-tech or artificial intelligence, the face of financial services industry is changing with fintechs offering new modes of service delivery. Likewise in the agri-tech space we have many promising start-ups that are working with large agri-companies and helping them develop products and services that are enabling farmers to increase the yields and do better management of farms. Some of the start-ups have focused on accurate and timely assessment of soil moisture and developing data-driven controlled irrigation models. Many of these start-ups are using satellite images to geo tag farms, assess crop health and estimate output. They are also building algorithms for farm monitoring and models for artificial intelligence to automate and improve predictably of yield and farmers' incomes.

As the world confronts the health crisis of a generation in the form of the fast-spreading Covid-19, start-ups across the globe are pivoting their technology to tackle the pandemic. The governments are also turning to this segment in a big, bold way. India launched its own Covid-19 solution challenge, encouraging start-ups who have developed services that can be leveraged to fight the virus, to come forward with ideas. Innovative solutions need to be generated in the areas of manufacture of low-cost masks which can capture virus from the air and absorb respiratory droplets; cost-effective thermal scanning devices and rapid diagnostic kits, critical-care equipment - including portable oxygenators and home-based ventilators to monitor and control the spread of the new coronavirus, among others.

Additionally, there are several start-ups in the area of water and sanitation, which are playing a critical role in mitigating the water crisis being faced by several countries today. With many cities in India facing severe water crisis, technology has helped in dealing with the crisis such as provision of clean drinking water, Water ATMs, water use monitoring for complexes, watershed management, groundwater estimation, etc. BRICS countries can share their experience in water management and sanitation as facilitated by start-up firms in those areas.

i. Setting up a BRICS Start-ups Bridge - Going forward, many innovations are on the anvil that will deploy technologies such as machine learning and augmented reality (AR)/virtual reality (VR). This is an opportune time to expand cooperation amongst BRICS to build the region as a hotbed for start-ups in these areas. BRICS Start-up bridge will be a good area to work on and India could take the lead in promoting this.

ii. Platform for Exchange Program for Start-up Funding- BRICS countries can help various start-ups in seeking capital / funding by creating a platform wherein start-ups across different sectors can showcase their technology to interested VCs, PEs and other investors in the BRICS countries.

Digital Economy

Digital economies in BRICS region has expanded rapidly over the past few years. Each country has undertaken specific measures towards improving digital penetration, especially through infrastructure development and promoting digital adoption through government schemes and incentives. However, overall digitalisation of the BRICS economies is still lower than that of the advanced economies, and there is scope for further improving the level of digitisation in BRICS economies. This is more important in the current times, when Covid-19 pandemic has necessitated social distancing and remote working.

Given the growth potential in this area, BRICS economies can devise strategies for cooperation in several aspects of the digital economy. There is immense scope for cooperation among the five BRICS countries to share expertise and experiences to help develop a robust BRICS digital economy and reap its full potential. Promoting digital network infrastructure especially in remote areas, digital education and digital literacy, collaboration in 5G technologies, setting up digital platforms for education, healthcare and e-commerce, collaboration in cyber security are some of the areas that could be explored for strengthening BRICS cooperation.

i. ***Strengthen digital infrastructure and promote connectivity in rural areas for digital inclusiveness -*** Proliferation of digital economy is only possible with development of robust digital infrastructure. Digital connectivity also needs to be improved by expanding high-speed broadband access and the same needs to be made available at affordable cost. There is a need for Public as well as Private Investment in projects involving development of network infrastructure. BRICS businesses may consider joint projects in these areas. The BRICS countries can also share their experience related to the deployment of 5G technology and exchange information related to policy efforts being undertaken, including provision of any support mechanism to attract investments in digital technology and digital infrastructure. Support of New Development Bank may also be solicited for development of telecom and communications infrastructure in remote areas.

ii. ***Strengthen linkages between information technology and industry*** - There is a scope for greater cooperation amongst BRICS countries to realise the full potential of information and communications technology. The digital technology encompasses nearly all sectors and can be effectively used to improve efficiency in those sectors. BRICS countries should share their experiences in utilising ICT across industries including manufacturing, financial services,

healthcare, retail, education, etc.

iii. ***Digital education and literacy*** - BRICS countries can work towards enhancing digital literacy in their respective countries. Capacity building programs can be developed to improve digital literacy for individuals, businesses as well as government departments across the five BRICS countries. Harmonisation of digital skills across the five countries may be promoted through programs with common curriculum to ensure that such qualifications are accepted in all the member countries. Besides, experiences and best practices on digital literacy programs in each member country should be shared for mutual benefit.

iv. ***Virtual learning and virtual workspace*** - The Covid-19 pandemic has necessitated the use of virtual communication in education as well as in workspace. BRICS countries can share their experience in the use of virtual technology for education as well as work, besides collaborating in developing mutually beneficial exchange programmes through online modules.

v. ***Collaboration in 5G Technology*** - The future of digital applications will see a major transformation with the introduction of 5G technology. This technology will not only augment consumer experience with enhanced capacities and greater speed, but also open a completely new domain for businesses, enabling a shift towards Industry 4.0. Some of the areas where 5G technology will bring about a transformation include - driverless vehicles in transportation, advanced robotics in manufacturing, high definition video conferencing, remote surgery and remote monitoring in healthcare, remote classrooms in education, smart homes, precision agriculture, etc. Adoption of 5G technology in BRICS countries is at different stages and each country can share its experience of adopting this technology in specific sectors and exhibit case studies. Besides, the five countries can jointly collaborate in social development areas such as online education and healthcare, by deploying 5G technology.

vi. ***Promoting e-commerce platforms*** - MSMEs are a key growth driver in all BRICS countries. There is a need to enable greater market access for these MSMEs in the BRICS economies. Cross Border e-commerce can be a great enabler for pushing exports and growth of MSMEs in the BRICS economies. This will also help MSMEs to access global markets at significantly low cost. Moreover, there has been a surge in e-commerce business globally due to the Covid-19 pandemic and MSMEs can benefit by actively participating in cross-border trade through e-commerce technology. The national e-commerce players in BRICS economies should also consider extending greater level of cooperation and explore possible areas of collaboration with their counterparts in other BRICS economies to help MSMEs leverage from scale and help promote trade internationally.

vii. ***Cyber safety and security*** - Cyber frauds and crime pose a great risk to information security, safety and privacy of digital users. There is a need to strengthen BRICS cooperation to ensure controlon international cyber-crimes in the wake of greater digital business within the BRICS region. There can be information exchange and sharing of ideas on measures for controlling cyber frauds amongst BRICS countries.

viii. ***BRICS Digital Information Exchange and Research Centre*** - The BRICS economies can build a

Network of Technical and Support centre to support the capacity building efforts of the member countries. All members can exchange ideas with each other by sharing best practices, success stories, and other experiences. Possibility of developing a BRICS Digital Research Centre can also be considered which can help in driving innovation and product development.

Infrastructure

Infrastructure development is a priority in all BRICS economies. It is a key to drive economy's growth, create jobs and ensure sustainability. Some of the key issues that are faced in the context of developing this sector are developing a robust inventory of bankable projects, structuring financing and securing long term funds to support such projects, designing PPP contracts that balance the interest of all the stakeholders, and effective project monitoring and implementation to minimise time and cost overruns. BRICS member states can share their experience in these and related areas and promote useful collaborations and joint project development amongst members of the business community.

BRICS cooperation in infrastructure development can be improved through the following initiatives-

i. ***Easing Government regulations*** - In most of the BRICS economies, there are regulatory hurdles that impact investments in infrastructure projects as well as their implementation, especially when the private sector is also involved. These include the requirement of several clearances, permits that are not only cumbersome but also time consuming. The BRICS governments should create an enabling environment for construction of infrastructure projects. Land acquisitions, environmental and other clearances should be easier and faster, preferably through pre-cleared permissions for investments in specific projects.

ii. ***Promoting PPP in infrastructure investments and implementation*** - Public Private Partnership can be an effective approach for infrastructure projects. Private sector can bring in valuable technical expertise, management skills as well as financial resources for the development of public infrastructure. BRICS countries are already adopting PPP approach in infrastructure investments and implementation. However, the success of PPPs is dependent on right policies, transparency and following appropriate procedures in identifying the most qualified private sector partner and adopting right revenue-risk sharing models for mutual benefits. The experiences of BRICS countries in PPP approach should be shared so that best practices can be implemented by all the BRICS economies.

iii. ***Improve Logistics connectivity*** -There is a need to explore joint logistics projects within BRICS as well as BRICS plus countries. The role of railways as well as ports is extremely important in enhancing the regional connectivity. The BRICS economies should work together to strengthen the logistics infrastructure and improve regulatory environment for logistics in their countries. The collaborative infrastructure projects in shipping, railways, etc. could continue and new areas for joint investments could be explored.

iv. ***Research and Analysis for Infrastructure Collaboration*** - The achievement of sustainable development agenda necessitates timely development of infrastructure facilities to meet future demand requirements. There is thus a need to have detailed research on various infrastructure

requirements in the BRICS economies as well as the feasible financial sources to meet those requirements. BRICS economies may consider preparing a roadmap or a framework for achievement of sustainable development goals through infrastructure development. Research studies can be commissioned to identify various infrastructure projects in BRICS economies that can be jointly promoted and implemented.

v. ***Urban infrastructure in the post-Covid scenario*** - With the countrywide lockdowns being imposed for nearly two - three months by most countries during the Covid-19 crisis, a positive impact has been on the environmental front. Reduced human activity has helped replenishment of the degraded environment, be it air, water or soil. Further, social distancing and remote working have become the new norm, which may get extended even in the future. BRICS economies can jointly explore opportunities for resetting the transport and logistics in the post Covid-19 scenario. This may include planning for investment in metros, railways, roads, highways, bridges as well as their maintenance and upkeep. Even the planning and design of buildings may undergo a change. BRICS economies and businesses can thus collaborate in urban infrastructure planning and design in the post-Covid-19 scenario.

Healthcare and Pharmaceuticals

BRICS countries represent nearly 40% of the world's population and about 40% of global disease burden, while playing an increasingly important role in global health affairs. Although the national situation varies, the BRICS countries face many common health challenges including growing ageing population and an increasing prevalence of non-communicable diseases. The public healthcare spending share of BRICS nations has increased over the years, yet there remains a significant challenge in balancing the need for promoting public health, controlling the disease burden and improving the health of their population. The cooperation of the BRICS countries for healthcare is vital to the global disease prevention especially in the current Covid-19 scenario.

The cooperation in health sector has been on-going at the G2G level. During the BRICS Summit in Goa in October 2016, the BRICS leaders emphasised on the need for cooperation in promoting research and development of medicines and diagnostic tools to end epidemics and to facilitate access to safe, effective, quality and affordable essential medicines. Further to this, the **Tuberculosis Research Network** was launched in September 2017, which aims to develop robust research into new tools, diagnostics, vaccines and drugs and to inform and accelerate the best use of existing and new interventions in TB control and prevention. In 2018, under South Africa's Presidency of BRICS, another idea that was proposed as well as endorsed for cooperation in health research was setting up of a **BRICS Vaccine Research and Development Centre**. Setting up of such a Centre has become pertinent in the current scenario and was also discussed in the virtual meeting of the BRICS Foreign Ministers in April 2020. There is a need to concretise this proposal at the earliest. The New Development Bank can provide funding for establishing such a Research Centre.

Recently, the healthcare sector has come into focus in all countries as this is a major line of defence to mitigate the impact of Covid-19 across all sections of the society. Steps have been taken in all BRICS countries to fortify and ramp up the capacity of the healthcare sector including production of PPEs. Additionally, it is being seen that all countries are increasingly promoting digital delivery of

healthcare services to meet the needs of their people. Digital Healthcare will see strong growth in the years ahead and will remain a high priority area for India and all other BRICS nations.

The private sector of BRICS can play an important role in enhancing cooperation in health and also in combating the current health crisis caused by Covid-19. Specific areas, where greater business cooperation in healthcare and pharmaceuticals sectors, need to be explored, which are highlighted as below -

i. ***Combating Covid-19 together*** : It is evident that countries need to collaborate at various levels to combat the new coronavirus. BRICS nations have a great potential for embracing a public health agenda aimed at sustainable solutions for containing the Covid-19 pandemic. The private sector can support this agenda through collaborations for promoting wellness and healthy lifestyles, by enhancing primary care response in the post-Covid scenario as well as through increased production and supply of PPEs, medical devices and pharmaceuticals.

ii. ***Research and Development:*** While the focus on R&D has been highlighted in the earlier BRICS meets, the need for extensive collaborative research is being felt now more than ever. Research is needed on the prevalence of diseases, causative factors, newer diagnostic and treatment modalities as well as prevention strategies for existing and new diseases, which provides an opportunity for hospitals as well as research organisations to collaborate. Further, there is opportunity for collaborative R&D for pharma and biotechnology sectors. The pharmaceutical companies of BRICS countries are already accelerating efforts through R&D investment, licensing deals, acquisitions and other partnerships. India is recognized for the generic drug industry, offering manufacturing expertise for outsourcing and now it is streamlining its own supply chain for becoming an end-to-end supplier of pharma products, which can be leveraged by other partners.

iii. ***Investments for Innovations in Medical Technologies:*** Numerous organisations in BRICS nations have capability of introducing innovative technology and techniques that could benefit our healthcare systems tremendously, but these are limited by access to funding that would enable them to take their technology and expertise to the market. A trade agreement among BRICS countries to expand the tax benefits in healthcare investments can lead to greater collaboration and exchange of new innovations in the healthcare and pharmaceuticals sectors. Initiatives like digitally delivered pre-primary care or applying the cutting edge of health-tech to secure the last-mile delivery could be some of the specific categories of healthcare innovation included in these tax relief measures.

iv. ***Digital Health:*** As our healthcare systems brace for appropriately responding to the Covid-19 pandemic, need for transformation of healthcare delivery by unleashing the power of digital technologies has been felt more than ever. The need to cope with the existing levels of infectious as well as non-communicable diseases, along with the new virus, will be a trigger to increased adoption of digitalisation across the continuum. BRICS nations can use this as an opportunity to collaborate for digital transformation of their entire healthcare systems with enhanced usage of new technologies like Artificial Intelligence and Big Data towards patient centred healthcare delivery.

v. ***BRICS MedTech Zone:*** Setting up of a world class joint medical devices manufacturing capability can help meet the healthcare needs of BRICS countries and the facility can be scaled up for meeting even the global demand. The BRICS countries can take advantage of their expertise and availability of raw materials etc., to expand the medical device market. For example India with the presence of Electromagnetic interference (EMI) and electromagnetic compatibility (EMC) testing facility for medical devices would easily expand into medical electronics and South Africa being rich with metal and mineral reserves would be a great destination for manufacturing implants for which Biomaterials testing facility is of paramount importance. Support of NDB could also be solicited for such projects.

vi. ***Telemedicine:*** While we adapt to this new world, the age-old ways of delivering care through doctor-visits and paper-prescriptions are starting to look more outdated. Many healthcare institutions have turned to alternative ways of providing healthcare while limiting the exposure to the virus. There is an increasing use of tele-consultations, tele-radiology, tele-pathology, and tele-oncology as important applications of telemedicine. BRICS nations have an opportunity to leverage the telemedicine capacities for treatment of Covid as well as non-Covid patients.

vii. ***Universal healthcare:*** Collaborations for sharing of information on successes and best practices for Universal Health Coverage (UHC) would help the countries in strengthening their healthcare systems. Learnings on aspects like streamlining of health records, fraud control measures as well as use of technology for various aspects of healthcare delivery in partnership with the private organisations, will go a long way for success of any UHC.

viii. ***Training & Capacity Building***: Collaborative programs among BRICS healthcare institutions and universities at the graduate and postgraduate levels could enable capacity building of healthcare workers and training for appropriate skill-sets. It could be achieved through Joint Continuing Medical Education (CME) programs in various clinical specialties, Grand Meets using video conferencing and web-meetings, Faculty Exchange Programs, Educational courses in collaboration among BRICS universities, Combined programs for training in nursing and paramedical disciplines, and Collaboration in establishing institutions of higher education.

ix. ***BRICS Pharma Alliance:*** During the Covid-19 crisis, there has been outreach efforts across countries to support their fight against Covid-19 through supply of essential healthcare items including drugs, pharmaceuticals, as well as medical devices. India has led the front in pharma supply. In order to forge greater cooperation amongst each other, to tide off the crisis, such as Covid-19 pandemic, the BRICS countries can enter into a BRICS driven pharma alliance, which could explore joint production of medicines and vaccines.

x. ***Trade in drugs and pharmaceuticals:*** The intra-BRICS trade in pharmaceuticals is not significant. However, there is a great potential for trade expansion in this sector, as already seen during the breakout of Covid-19 pandemic. China's strength lies in bulk drug production, whereas India is the leading producer of generics in the world. These strengths can be shared with the other BRICS countries. To make available drugs at affordable prices, BRICS nations could consider having a common pharmaceutical market. Harmonisation of the drug regulations will significantly contribute to this end. Given the importance of standards in trade, BRICS nations

may look at ways of aligning standards in the regulated areas such as pharma and medical devices and mutual recognition of conformity assessment by developing a BRICS Mutual Recognition Agreement for Pharma and Medical Devices Products. This will reduce overall cost and turnaround time of obtaining approvals, and promote alignment of each other's regulatory frameworks, requirements and processes. Cooperation can facilitate easy movement of medical practitioners among the BRICS countries, so that countries which have large human resources in this sector can help those with fewer resources.

Education and Skill Development

Human capital and knowledge creation are amongst the key factors for growth in most of the emerging economies, including BRICS. Although the growth in BRICS has been temporarily disrupted consequent to the breakout of Covid-19 pandemic, going ahead sustained growth will be possible by ensuring a well-qualified workforce that is adequately skilled for the new roles in post-Covid world.

Skills development is critical to address the emerging mismatch between the new skills demanded by an increasingly technology-and knowledge-driven global economy and the older skill set of many workers. This necessitates broadening and deepening cooperation in education and training programs amongst BRICS countries, especially in the post Covid-19 world which has brought in a new normal. BRICS nations can jointly focus on innovation, solution design, build agility to respond quickly to changing markets & opportunities, identify new-emerging skills & job roles and drive the vocation list of education. Likewise, higher education institutions could work together to take lead in research & innovation to suggest transformative solutions for all the BRICS countries.

Some of the specific areas of collaboration for BRICS economies in the field of education and skill development are:

i. ***Joint Research & Development:*** BRICS contribute 17% of global R&D investment and 27% of science papers published on international journals. The Ufa Declaration and Strategy for Economic Partnership had clearly laid down a direction for strengthening partnership in Science, Technology and Innovation (STI) and proposed the establishment of Joint Research & Innovation Platform. Further in 2017-18, the Ministers from BRICS nations formulated the BRICS Action Plan for Innovation Cooperation, aimed at strengthening the BRICS cooperation in the areas of Science and Technology and Innovation through: public-private partnership; strengthening technology transfer and transformation; synergizing industry-academia-research; advancing youth innovation and entrepreneurship partnership. BRICS cooperation in innovation and technology must continue and in addition, joint R&Ds in areas like technology commercialization, IPR, industry linked new-age digital curriculum designing, social innovations, etc. could be explored.

ii. ***Faculty Exchange:*** There is an enormous scope of collaboration in organizing exchange programs to train the faculties and trainers across the BRICS countries. Faculty exchange can help in building global competencies, which will support the current digital transition, accessibility and internationalization of education and skilling. It will also promote innovation practices.

iii. ***BRICS Digital Knowledge Hub:*** Exchange of information on best practices in education and skilling need to be institutionalized. A platform which would act as a repository of sharing of best practices/ experiences/relevant projects/key national initiatives related to skill development and education need to be established. BRICS Digital Knowledge Hub can also include areas of future skilling, information on qualification standards, standard curriculum and pedagogy for education, sector wise skilling requirements and technical specifications, skilling requirements for Industry 4.0, research papers and various other aspects related to education and skilling.

iv. ***Capacity Building and Training of Trainers (ToT) Program***: Capacity Building and ToT programs could support the modernisation, accessibility and internationalisation of education and skill development in BRICS Countries. BRICS nations could consider developing and implementing a capacity building framework, which can be based on the following two types of projects:
   a. Joint projects, which aim to support organisations from BRICS countries (i.e. through digital curriculum/content development, digital assessment strategies, etc.)
   b. Structural Projects, which aim to strengthen education and skilling existing systems and promote reforms based on experiences from BRICS countries.

v. ***Periodic Joint Research on Future Skills Demand:*** BRICS nations could consider undertaking periodic joint research projects to assess the trends on new emerging job roles, changing job roles and change in skill sets needed. The findings of such projects can serve as a guidebook for making policy changes and explore collaboration opportunities. It will also help educational institutions to work towards curriculum reforms.

vi. ***Standardization of Qualification Framework for better Mobility:*** National Qualification Framework (NQF) plays an important role in every country as it follows an outcome-based approach and helps in defining the career progression track. BRICS countries could collaborate to develop a standard qualification framework to support worker's mobility among the BRICS nations and, at the same time, will allow the human resources to pursue education for the next level of qualification, avoiding any repetition. This will also help the countries in standardizing the outcomes of learnings and occupational standards across the BRICS nations.

vii. ***Financing for skill projects:*** Skill development is an important element in social infrastructure of countries and can effectively contribute to sustained growth and development of economies. A well-trained human capital adept in technical capabilities will always be an asset to the nation. Joint BRICS projects in technical cooperation for skilling and education can help improve the quality of technical and vocational education in BRICS countries, thereby minimising the skill gaps and mismatches. To ensure joint cooperation, skilling and vocational centres need to be supported financially in the initial years of setting up. Adequate funding support may be garnered from international and multinational institutions. Establishing a Skills Fund may also be considered by the New Development Bank to facilitate local and regional skills development projects.

viii. ***Promoting Junior Skills Competitions:*** Skills competitions in vocational education and training (VET) have increased in popularity and visibility. The BRICS Skill Challenge over the past years has helped in practical involvement and greater cooperation amongst the people of BRICS countries.

In addition to the BRICS Skills Challenges undertaken periodically by the BRICS countries, the grouping may also consider promoting Junior Skills Competitions with a special focus on 'Future Skills'. This can help in promoting vocational excellence and preparing our young children for developing the requisite future skills.

Aviation

In 2018, the BRICS countries signed a Memorandum of Understanding on Regional Aviation partnership, which inter alia identified cooperation in areas such as public policies and best practices in regional services, regional airports, airport infrastructure management and air navigation services, technical cooperation among regulatory agencies, environment sustainability, and qualification and training. Specific measures in the following areas may be implemented in BRICS economies.

i. ***Experience sharing on civil aviation, airport infrastructure and services*** - BRICS countries have well established aviation sector, with world class airports and aviation services. The international best practices being followed in the aviation sector in BRICS economies can be collated and shared for each other's benefit. A repository can be maintained on aviation policies and regulations, infrastructure facilities, cargo operations, air traffic management, etc. Such a repository will also be valuable in aviation training.

   Additionally, with Covid-19 pandemic disrupting the aviation sector across the world, various economies have handled the crisis in their own way. BRICS economies could also share their experiences in air travel management during the Covid crisis, including opening up of air travel post the lockdown. For instance, India could share its experience in maintaining the airport infrastructure hygienic and safe to ensure passenger safety against the infection. Likewise, the safeguards and protocols being followed by airlines in the current environment can also be shared.

ii. ***Improved air connectivity amongst BRICS countries*** - Currently, one of the key bottlenecks in the higher volumes of trade and investment amongst the BRICS economies is the lack of direct connectivity between most BRICS countries. Long distances and poor air connectivity are hurdles in enhancing BRICS cooperation. Hence, the governments need to ensure greater cooperation to improve flight connectivity both for passenger and cargo movement. Steps should also be taken to increase the number of direct flights amongst the BRICS economies. Measures towards easing of visa regulations would also help increase the business and tourist travel amongst BRICS countries.

iii. ***BRICS Aviation Skills Academy*** - There is scope for greater cooperation in the training and education in the aviation sector in BRICS countries. The aviation skill centres in each BRICS country can share the best ways being adopted by them for skilling across various domains of the aviation sector. BRICS nations may also consider jointly establishing a BRICS Aviation Skill Academy. Such an academy can become the hub for skilling of world class pilots, crew, ground staff, etc.

iv. ***BRICS Hub for MRO*** - With rapid growth in the aviation sector in the last few years, the demand for Maintenance, Repair and Overhaul (MRO) facilities has also seen a rise. As a first step, the

BRICS countries can identify best practices in MRO operations and enter into an agreement for establishing a BRICS Hub for MRO. This would also require creating MRO ecosystem through an attractive tax and investment regime.

v. ***Improved access to funding for the aviation sector in BRICS*** - Aviation sector is highly capital intensive, with huge capital requirements. The Covid-19 pandemic has severely affected the financial condition of the aviation sector across the globe. The crisis has also caused cash crunch, affecting sustainability of several companies in the aviation sector. There is a need for enhanced BRICS cooperation to enable access to affordable capital and funding for the aviation sector in BRICS economies. The countries may also explore funding opportunities in aviation projects from the New Development Bank.

Box: Experience Sharing on Economic Relief Measures

SHARING ON ECONOMIC RELIEF MEASURES Covid-19 pandemic has led to a global economic crisis, which is being cited as the worst after global depression. To tide over the crisis, India as well as other BRICS countries have come forward in providing support to businesses, especially the MSMEs, to ensure that the livelihoods are not lost. BRICS countries should share their experience in handling the economic crisis caused by the pandemic. Learnings from each other would help policy makers in these countries to devise appropriate strategies for reviving their economic growth.

India, for instance, announced an economic package of Rs 20-lakh-crore (nearly USD 300 bn) accounting for nearly 10% of India's GDP to help revive the economy. The package included credit availability for affected businesses, especially MSMEs. A Rs 3-lakh-crore (about USD 40 bn) collateral-free assistance was also handed out to MSMEs to help crank up their operations besides providing debt moratorium for companies finding difficult to meet their debt obligations.

China has announced VAT exemptions for "lifestyle services," increasing loss carry-forward for severely affected businesses in specific sectors (transport, catering, accommodation, and tourism). Russia has also adopted measures providing tax incentives in response to Covid-19, including a moratorium on SME tax audits; a deferral on the collection of tax payments for taxpayers from air transport, tourism, sports, art, culture, and cinema; a three-month delay in rental fees for SMEs that rent state and municipal premises; deferment of payments for all taxes except VAT; and delay in contributions to social funds for micro enterprises.The Russian government has also proposed compensating quarantined citizens, including freelancers and the self-employed, for lost income, and paying pensions and other public benefits in advance.

In Brazil, informal workers and the unemployed are provided with, over three months, a temporary new benefit of US$ 120 per month (US$ 240 for single mothers), provided they earn less than half the minimum wage and are not covered by other social benefits. Formal workers with salaries not exceeding two minimum wages and who have suffered cuts in wages or working hours are eligible for other public income support that will compensate around 15% of their average monthly earnings.

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