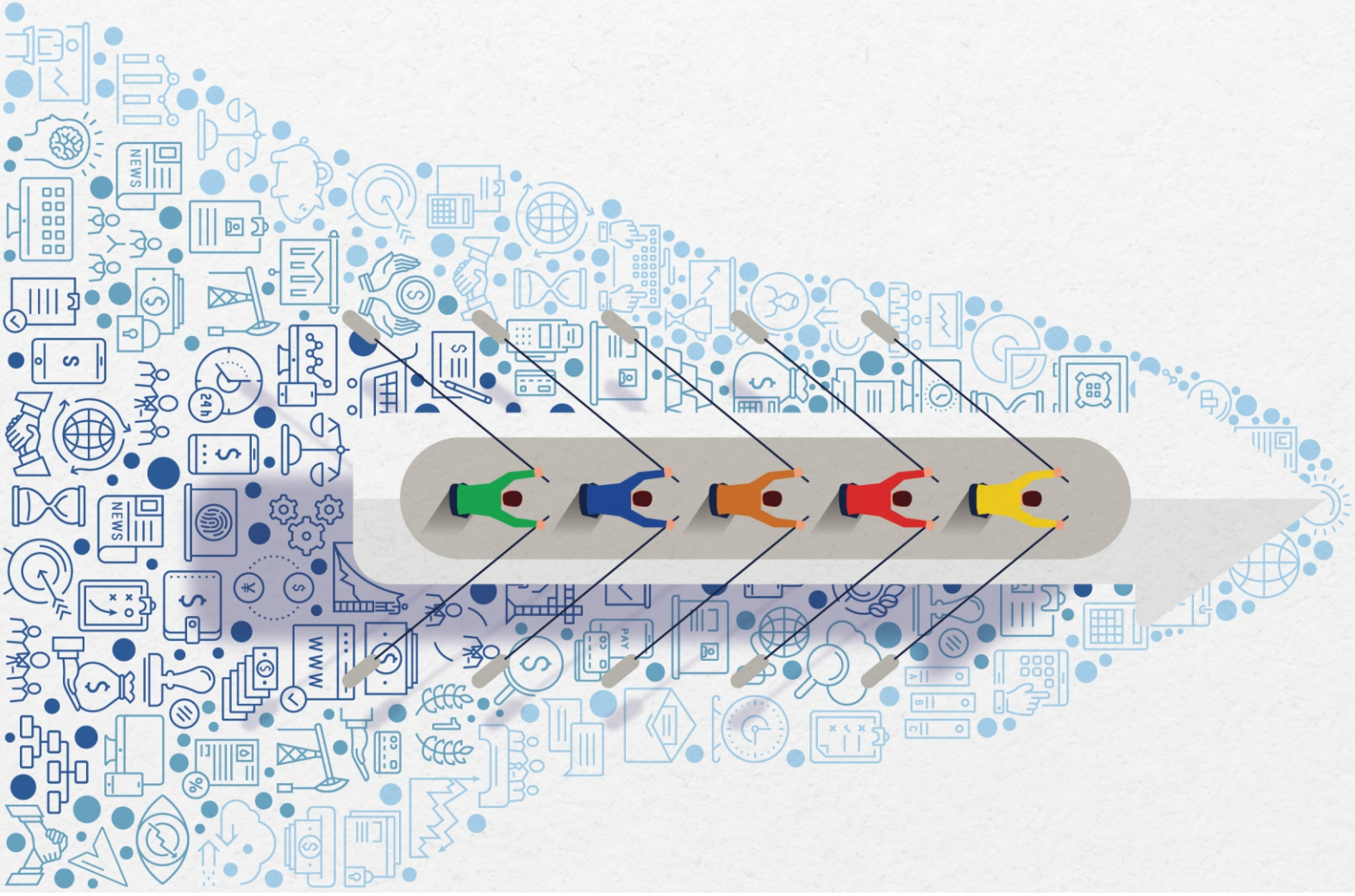
ENHANCING BRICS COOPERATION
WAY FORWARD



India Exim Bank

BRICS INDIA 2021

Enhancing BRICS Cooperation: Way Forward

Export-Import Bank of India (India Exim Bank) is the nominated member development bank from India under the BRICS Interbank Cooperation Mechanism. India has assumed the Chairmanship of BRICS Forum and is hosting the 13th BRICS Summit in 2021. India Exim Bank, hence, assumes the Presidency of the BRICS Interbank Cooperation Mechanism.

This Book is an attempt by India Exim Bank to bring forth a compilation of articles from well-known researchers, scholars, and academia from across the globe. The endeavour has been to improve, understand and appreciate issues revolving around the contemporary environment, and further contribute to the international policy debate on areas as diverse as trade, investment, and financial sector.

The perspectives shared through the articles would interest policy makers, development agencies, exporters/ importers, export promotion agencies as well as researchers. The views and opinions expressed in the articles are those of the authors and do not necessarily reflect those of India Exim Bank. India Exim Bank accepts no responsibility for authenticity, accuracy or completeness of the information and data.

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Sanjay Bhattacharyya
Secretary (CPV & OIA)
Tel : 49018134
Fax : 49018135
E-mail : secycpv@mea.gov.in

सत्यमेव जयते

विदेश मंत्रालय, नई दिल्ली
MINISTRY OF EXTERNAL AFFAIRS
NEW DELHI
2013, 'C' Wing, Jawaharlal Nehru Bhawan
New Delhi-110011

Foreword

India's presidency of BRICS comes at an inflection point, as we commemorate BRICS@15, amidst transformative changes globally and the ongoing pandemic. India has been at the core of the formation of BRICS and has guided its evolution with focus on continuity, consolidation and consensus through intra-BRICS cooperation.

The significance of BRICS, a grouping of major powers spread across continents, has grown in the wake of calls for reform of the multilateral system and need for reforms in global governance to address the challenges and opportunities of the new era. The relevance of BRICS lies in the members playing their due roles in regional and global affairs while being responsive to their citizens aspirations through closer cooperation and collaborative projects. The responsibility of BRICS members, as large emerging economies, takes center stage in the shaping of ideas, policies and strategies as we adjust to globalization while addressing our priorities in attaining SDG targets.

Much of the world will be shaped by the decisions we take today, whether it be trade and investments or technology and innovations or climate change and sustainability. Their impact will be felt across geographies and open up new vistas. The sense of purpose today is stronger than ever before, as citizens and countries perceive they are on the threshold of significant and rapid change. BRICS is ready to play a constructive role in all key areas of interest.

I am particularly delighted to see India Exim Bank, which has always had a critical role in facilitating the Economic Diplomacy of the Government of India in the international arena, playing a positive role, especially under the BRICS Interbank Cooperation Mechanism, along with its counterparts from other BRICS nations, viz., BNDES, VEB.RF, CDB, and DBSA. I am sure these financial institutions would use the platform to create significant opportunities, which would stimulate economic growth and social development that would shape the hopes of future generations.

India Exim Bank's publication titled "*Enhancing BRICS Cooperation: Way Forward*" is particularly timely in this context. I compliment the thought leaders and practitioners from across the globe, who came together to share their rich experiences and insightful contributions about the future of BRICS, and how they perceive it in the years ahead.

I congratulate India Exim Bank for this initiative and for publishing this volume dedicated to BRICS, during India's Presidency. I am confident the publication will be popular among policy makers in BRICS economies and across the globe. I also hope it will generate more discussion and forge convergence on the way ahead as we negotiate these exciting times.

Sanjay Bhattacharyya

01 September 2021

Sanjay Bhattacharyya
BRICS Sherpa

हर्षा बंगारी, उप प्रबंध निदेशक
Harsha Bangari, Deputy Managing Director

इंडिया एक्ज़िम बैंक
India Exim Bank

FOREWORD

The BRICS Summit, for the second consecutive year, is being held virtually under extraordinary circumstances, and I would sincerely hope that we are better placed by the same time next year.

We, India Exim Bank, have been a part of the BRICS Interbank Cooperation Mechanism along with our colleagues from the nominated development banks from other BRICS economies since the initial stages of the formation of BRICS, and have been engaging through various programmes.

I am particularly happy to share this compendium of 10 articles written by renowned scholars and thinkers, esteemed colleagues from multilateral development banks, export credit agencies, and think-tanks, from across the globe, who have come together to put forward and share their views through this publication. I thank all the authors for their valuable time in for their contributions.

At a time when the global economy is witnessing some tectonic shifts, it will surely be an interesting and useful read for the policy makers and thinkers alike on the way forward for the BRICS as a Bloc. With the evolution of technology, the scope of BRICS cooperation further widens, and could be harnessed by the collective wisdom and sharing of knowledge in a mutually beneficial way.

I am hopeful that this compendium will be well read and would be found useful.

Finally, I would like to compliment my team at Export-Import Bank of India (India Exim Bank) for having successfully engaged with noted scholars and practitioners and have come out with this very stimulating publication.

Thank You.

(Harsha Bangari)
September 2, 2021

भारतीय निर्यात-आयात बैंक | **Export-Import Bank of India**
केन्द्र एक भवन, 21वीं मंज़िल, विश्व व्यापार केन्द्र संकुल, कफ परेड, मुंबई - 400 005
Centre One Building, Floor 21, World Trade Centre Complex, Cuffe Parade, Mumbai - 400 005
फोन / Phone: +91-22-2218 1489/2217 2503 | फैक्स / Fax: +91-22-2218 8077
वेबसाइट / Website: www.eximbankindia.in, www.eximmitra.in | ईमेल / Email: harsha@eximbankindia.in

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Where Does the Future Lie: BRICS or G7?

Kishore Mahbubani
Distinguished Fellow, Asian Research Institute, National University of Singapore

Varigonda Kesava Chandra
Postdoctoral Research Fellow, Asian Research Institute, National University of Singapore

Whenever the G7 has a summit meeting, the Western media, especially the Anglo-Saxon media, provides lavish coverage. Yet, when the BRICS countries have a summit meeting, the Western media ignores it. This behaviour is curious. As we move ahead in the 21st century, the G7 will increasingly be perceived as a sunset organization while BRICS will be seen as a sunrise organization. The goal of this paper is to do a deeper analysis of BRICS, provide an understanding of its strengths and weaknesses and suggest some avenues for BRICS to further strengthen its cooperation.

History of BRICS

To begin the process of understanding BRICS, it may be useful to delve into its history a little. It may well be the only organization in the world whose birth was sparked by a slogan coined by an investment banker, Jim O'Neill, the then Chairman of Goldman Sachs Asset Management, in 2001. Several years passed with nothing happening, until a meeting took place in the margins of the General Debate of the UN General Assembly in September 2006 among the foreign ministers of the original BRIC states, Brazil, Russia, India and China. The Western media barely covered this event. They paid more attention when BRIC held its first formal summit meeting in Yekaterinburg, Russia on June 16, 2009.

One question that future historians will ask is what motivated the BRIC leaders to have a Summit meeting? There must have been positive motivating factors, with

the four countries exploring new areas for economic cooperation and growth. But there must have also been deterrants. The four BRIC leaders must have also felt humiliated when they were invited as "guests" to G7 meetings and asked to wait outside while the G7 leaders met.

Objectively, when the leaders of the BRIC countries did a comparison of the relative strength of the G7 and BRIC countries, they must have come to the obvious conclusion that it didn't make sense for the BRIC countries to be supplicant towards the G7 countries. Here's a quick comparison of their relative strengths in 2010. In terms of population, the BRICS (BRIC had become BRICS in 2010 after South Africa joined) total (an estimated 2.8 billion) was much larger than G7 (an estimated 740 million) in 2010. In terms of combined GDP in PPP terms, BRICS (at an estimated total of US$ 26 trillion) was just lower than G7 (at an estimated US$ 30.9 trillion) while they were considerably lower in nominal market terms: BRICS GDP came to US$ 12 trillion versus US$ 33 trillion for G7[1].

The psychological relationship between the G7 and the BRIC countries underwent a major turn after the 2008 Global Financial Crisis (GFC). When both, the leading EU economies and the US were reeling from the shocks of the GFC, they turned to the BRIC and other developing countries for assistance by convening the first two meetings of the G20 countries (which included both the G7 and the BRICS economies) in Washington DC in November 2008 and in London in April 2009. It was the globally coordinated fiscal stimulus package that saved the economy from going over the brink.

However, after this enormously successful start, the G20 has lost its way, especially after Donald Trump became President and renounced multilateralism. Indeed, President Trump showed scant respect even for G7 meetings, saying "I *don't feel* that as a G-7 it *properly represents* what›s *going* on in the *world*. It's a very outdated group of countries"[2]. In the decade after the GFC, the G7 clearly lost its way. By contrast, the BRIC deepened its cooperation. Significantly, trade grew among the BRICS countries, even between countries as far apart as Brazil and China. The next section explores the strengths and weaknesses of BRICS.

Strengths and Weaknesses of BRICS vis-à-vis G7

The BRICS countries were, through the 2000s, united in trade negotiations in the World Trade Organization (WTO). This naturally pitted them against the G7, whose members have dictated and controlled the terms of international trade for the past half century. Indeed, the collaboration between India, Brazil, China and South Africa during these negotiations set the tone for the formal BRICS Summits from late-2000s. Kristen Hopewell, Professor of

[1] The World Bank, *World Bank Open Data*, https://data.worldbank.org/. Data calculated by authors

[2] Iam Bremmer, "Why President Trump's effort to expand the G7 is bound to fail," *Time*, 4 June 2020, https://time.com/5847959/donald-trump-g7/

Public Policy at the University of British Columbia wrote, "Emerging power alliances were critical in challenging the traditional structure of power within the World Trade Organization (WTO) and transformed the Doha Round of trade negotiations into a battle drawn along North–South lines"[3].

The WTO Doha Round was launched in 2001 by the United States and European Union. While the Doha Round was meant to further open up global trade, it was viewed with apprehension by developing countries. Chiefly, the agricultural subsidies that the US and EU continued to enjoy, as well as their demand to the developing countries to further open up their markets, gave rise to considerable opposition from the developing countries. In 2003, this opposition coalesced into a negotiating bloc of developing countries, with Brazil, India, China and South Africa taking the reins of leadership. The developing countries rejected the proposals by the US and EU and instead called for "agricultural subsidy and tariff reduction for developed countries with fewer demands on developing countries"[4]. Brazil, India, China and South Africa coordinated with each other and other developing countries to oppose changes to WTO rules that favoured the developed countries. They also led the developing countries "in securing exemptions to WTO intellectual property (IP) rules for public health and access to medicines"[5].

The Doha Round demonstrated two key points. The first was that power to dictate norms, including in the arena of international trade, was in the process of shifting away from the G7 countries. The second was that the two key emerging powers of the 21st century, China and India, could successfully work together in a multilateral setting along with other major powers such as Brazil and South Africa, in challenging the G7 countries in setting global trade rules.

Even as the G7 stagnated in the 2010s, the BRICS countries continued to grow their individual economies. By 2019, the nominal GDP of the BRICS reached US$ 21 trillion, while G7's nominal nominal GDP stood at US$ 39 trillion. During this decade, the BRICS countries' GDP (nominal) grew by 1.8 times, while the G7 countries' nominal GDP grew by 1.2 times. The share of the BRICS countries in global nominal GDP also increased from 8% in 2000 to nearly 24% in 2019. During the same period, the share of the G7 countries in the global economy decreased, from 65% to 44%. In terms of GDP in PPP terms, BRICS nearly closed the gap with G7, with the former's total of US$ 41 trillion, versus the latter at US$ 43 trillion[6].

Why did the G7 stagnate even as the BRICS took off during this decade?

[3] Kristen Hopewell, "The BRICS – merely a fable? Emerging power alliances in global trade governance," *International Affairs* 93/6, 2017: 1377-1396

[4] Congressional Research Service, "WTO Doha Round: The Agricultural Negotiations," 22 January 2007, http://www.nationalaglawcenter.org/wp-content/uploads/assets/crs/RL33144.pdf

[5] Hopewell, 2017

[6] The World Bank, *World Bank Open Data*, https://data.worldbank.org/. Data calculated by authors

The dramatic growth in the BRICS' economy came about due to increasing participation of member countries in global trade as well as in inter-BRICS trade. In 2010, the total trade of BRICS countries came to US$ 4.7 trillion. By 2018, this figure increased to US$ 6.8 trillion – a 1.4 times increase. Correspondingly, the total trade for G7 increased from US$ 10.8 trillion in 2010 to US$ 13 trillion in 2018, an increase by 11.2 times. Therefore, in the 2010s, the BRICS countries increased their participation in global trade at a higher rate than G7 countries. This factor is also illustrated in their corresponding share of global trade. In 2010, BRICS accounted for 14.7% of global trade, while G7 accounted for 33.8%. In 2018, however, the BRICS share in global trade increased to 17.1%, while the share of G7 decreased to 32.7%[7].

At the same time, trade among BRICS countries also dramatically increased. Ouyang et al. (2019) illustrates the trade complementarity of the member countries and their comparative advantages:

> The BRICS countries have different resource endowments and industrial advantages, they differ greatly in economic development model and are highly complementary in economic and trade structures, and this has resulted in the highly complementary trade structure. China, known as the "world factory", provides a large amount of cheap manufactured goods; India, known as the "world office", provides information and software service and products and mineral raw materials; Russia, known as "world gas station"; Brazil, the "world raw materials base"; and South Africa with its rich resources, provide large amount of energy and mineral resources needed by China and India in their development. The huge demand of China and India for raw materials and energy has pumped money into mineral-rich Russia, Brazil and South Africa, which in turn have become important consumer markets for the manufactured goods from China and India[8].

One simple statistic illustrates how dramatically trade has grown among BRICS countries. In 2000, Brazil and China had a total trade of US$ 2.3 billion per year. By 2020, they were trading nearly US$ 1 billion every 72 hours. In short, the total annual trade between the two countries went up 50 times in 20 years. Similarly, total annual trade between China and India went up 28 times, from US$ 3 billion in 2000 to US$ 84 billion in 2019. Intra-BRICS trade volume increased from US$ 459 billion in 2010 to US$ 684 billion in 2017[9]. By contrast, trade between the US and EU (which includes all of the G7 countries except Japan

[7] The World Bank, *World Integrated Trade Solution (WITS)*, https://wits.worldbank.org/. Data calculated by authors

[8] Yao Ouyang, Xianzhong Yi, Lingxiao Tang, Growth and Transformation of Emerging Powers: Research on BRICS Economies, Palgrave Macmillan, 2019

[9] Export-Import Bank of India, "Intra-BRICS trade: An Indian Perspective," *Working Paper* 56, 2016, https://www.eximbankindia.in/Assets/Dynamic/PDF/Publication-Resources/ResearchPapers/80file.pdf

and Canada) increased from US$ 409 billion in 2010 to US$ 625 billion in 2017[10]. Intra-BRICS trade accounts for around 10% of global trade[11].

However, the G7 still has clear advantages over the BRICS. One clear advantage is that the member countries of G7 have more-or-less the same economic strength, with the exception of the United States. In 2019, whereas the nominal GDP of the US hovers at US$ 21.4 trillion, that of the other G7 countries show a steady decline: US$ 5.1 trillion (Japan), US$ 3.8 trillion (Germany), US$ 2.8 trillion (UK), US$ 2.7 trillion (France), US$ 2 trillion (Italy) and US$ 1.7 trillion (Canada). The variations in economic strength among the member countries have also remained more-or-less constant over the years.

On the other hand, there is great discrepancy in the economic strength of the BRICS member states. In 2019, China's economy in nominal GDP was US$ 14.3 trillion. The GDP of India, Brazil and Russia were closer together at US$ 2.9 trillion, US$ 1.8 trillion and US$ 1.7 trillion. South Africa's GDP was much lower, at US$ 351 billion. The largest economy in the group (China) is five times that of the second largest (India), while the penultimate economy (Russia) is five times that of the smallest (South Africa). Furthermore, the variations are not constant: China's economy was twice as large as India's in 2000, 3.8 times as large in 2010 and five times in 2019, with the gap poised to further increase.

Such wide discrepancy has meant that the group would not likely have a common strategy or ideology among themselves. It has given rise to intense competition and mistrust within the group, particularly between the two largest economies, China and India. This discrepancy is also perhaps the reason why the heyday of cooperation among the BRICS countries, during the Doha Round in the mid-2000s, cannot likely be repeated again.

A second key advantage that the G7 has over BRICS is with respect to political alignment. The G7 countries are all allies of the United States. Except for Japan, they are all members of NATO. The three major powers of BRICS, China, India and Russia, on the other hand, do not have a common political allegiance. On the contrary, the China-India relationship is marked by intense geopolitical rivalry.

The China-India Rivalry

China has been the greatest beneficiary of joining the WTO in 2001. Between 2000 and 2019, its economy grew by twelve times. In 2014, it overtook the US as the world's largest economy in PPP terms. From being 'one of the' developing countries, China sought to assume leadership position in charting economic initiatives to rival the West-dominated

[10] European Commission, *European Union: Trade in goods with USA*, 8 May 2020, https://webgate.ec.europa.eu/isdb_results/factsheets/country/details_usa_en.pdf

[11] Ministry of Commerce and Industry, Government of India, "Trade with BRICS nations," 2019, https://pib.gov.in/Pressreleaseshare.aspx?PRID=1594938

ones. In 2013, it launched the Belt and Road Initiative (BRI), a multilateral, infrastructure-centric economic cooperation belt dubbed the modern-day 'Silk Route'. As of 2020, China has invested in nearly 70 countries across Asia, Africa, Europe and the Americas. In 2016, China launched the Asian Infrastructure Investment Bank (AIIB), headquartered in Beijing. The AIIB is touted as a rival to the World Bank and IMF. ASEAN spearheaded the launch of the Regional Cooperation Economic Partnership (RCEP), a free trade agreement among countries in the Asia Pacific that is being dubbed the 'world's largest trading bloc'. In November 2020, 15 countries, including China, signed the RCEP agreement. The rival to a West-centric, G7-led global economic system is longer seen to be a BRICS-led system but rather, a China-led one.

While Brazil and South Africa have been relatively keen to follow China's lead, India, the second largest economy among the BRICS countries, has not been as enthusiastic. The China-India economic relationship have been marked by both exponential increase in trade as well as an exponential increase in trade deficit in favour of China. As of 2019, India's trade deficit with China stood at US$ 53 billion. India has accused China of perpetuating this unequal relationship by employing protectionist policies and not allowing imports from India, for instance, in its pharmaceutical and agricultural sectors. India, for its part, has also increased import tariffs and anti-dumping duties on Chinese goods.

The still-unresolved issue of trade deficit was a major factor that pushed India away from joining the RCEP, at the last minute, in end-2019. The large deficit with China, along with deficits with 11 of the 15 participating countries in RCEP, led to fears of a further surge in imports – and with it, trade deficit – after the free trade agreement was signed. India was also afraid of further adverse impact on homegrown industries and agricultural sectors that still needed protection. Their approach to RCEP has shown that China and India are at vastly different places economically. Their ideologies with regards to free trade differ. Their strategies for economic growth are also divergent.

However, the China-India rivalry is primarily political, rather than economic. And politics is a major driver of economic relations. The China-India border war of 1962 still figures prominently in the Indian psyche. China's close relations with Pakistan is another thorn in the bilateral relationship. It severely impacted India's participation in BRI. The China Pakistan Economic Corridor (CPEC), a major infrastructure project that was part of BRI, was to also pass through Pakistan-administered Kashmir (PaK), a region claimed by India. India's objection to PaK being used to house multilateral projects was a key driver in its refusing to join the BRI. India's Ministry of External Affairs stated, in April 2018, "The so-called 'China-Pakistan Economic Corridor' violates India's sovereignty and territorial integrity. No country can accept a project that ignores its core concerns on sovereignty and territorial integrity"[12].

[12] Martand Jha, "Emerging irritant: on China-Pakistan Economic Corridor," *The Hindu*, 4 May 2018, https://www.thehindu.com/opinion/op-ed/emerging-irritant/article23763858.ece

The two countries also have a long-standing, yet-unresolved border dispute. For over thirty years, they were able to manage the dispute without resorting to firing or loss of life. However, a major skirmish between Chinese and Indian troops erupted in the Galwan Valley in mid-June 2020. Over twenty Indian soldiers and an unknown number of Chinese soldiers were killed. The sudden flare-up led to a plummeting of bilateral relations. India moved closer to the US-led 'Quad' grouping, consisting also of Australia and Japan. After over a decade, India invited the Australian navy to participate in naval exercises with the other members of the Quad off the Malabar Coast. China views the 'Quad' grouping as a US-led security initiative aimed primarily at 'containing' it.

India retaliated by announcing even more stringent curbs to Chinese imports, in the face of opposition from China. India also went on to ban over 100 Chinese mobile apps. The Indian government saw India's dependence on Chinese imports not just as leading to increase in trade deficit, but also as a threat to sovereignty. 'Atmanirbhar Bharat', a vision instituted by Prime Minister Narendra Modi in May 2020, and translated as 'self-reliant India', gained further traction in the aftermath of the China-India clash. Economic self-reliance continues to be seen as the antidote to dependence on Chinese (and other) imports. In November 2020, even as the RCEP was being launched, S. Jaishankar explained India's decision to opt out of multilateral institutions, including the RCEP, in favour of 'Atmanirbhar Bharat', saying:

> In the name of openness, we have allowed subsidised products and unfair production advantages from abroad to prevail. And all the while, this was justified by the mantra of an open and globalised economy. The choice was to double down on an approach whose damaging consequences were already apparent; or to have the courage to think through the problem for ourselves. We chose the latter[13].

The China-India rivalry also threatens to impact the prospect of BRICS to emerge as a major economic bloc. However, a major success story of BRICS in the 2010s, which is also one of the major success stories of China-India cooperation, is the New Development Bank (NDB).

The New Development Bank

Another key reason why the G7 proved ineffective is due to its inability to engage effectively with BRICS in strengthening multilateralism. The key multilateral trade and economic institutions, including the World Bank, WTO and IMF, continued to remain squarely in the hands of the G7. The BRICS Summit statement in 2014 stated: "We remain disappointed and seriously concerned with the current non-implementation of the 2010 International Monetary Fund reforms, which negatively impacts the IMF's legitimacy, credibility and effectiveness"[14]. The

[13] *The Hindu*, "A day after RCEP, Jaishankar slams trade pacts, globalisation," 16 November 2020, https://www.thehindu.com/business/a-day-after-rcep-jaishankar-slams-trade-pacts-globalisation/article33110309.ece.

[14] Ministry of External Affairs, Government of India, "Sixth BRICS Summit – Fortaleza Declaration," 15 July 2014, https://www.mea.gov.in/bilateral-documents.htm?dtl/23635/Sixth+BRICS+Summit++Fortaleza+Declaration.

G7 sought to collaborate with other emerging countries, including BRICS countries, through the G20. However, this proved inadequate to lift the global economy from what Christine Lagarde, the then head of the IMF called the "new mediocre" in 2016, wherein "growth has been too low, for too long, and benefiting too few."

In 2014, the BRICS countries launched the New Development Bank (NDB) as a counter to existing, G7-led multilateral institutions. Paulo Nogueira Batista Jr., its first Brazilian director and former vice president, stated that its aim was to create a development bank that would challenge the global development finance architecture. He said, "We decided to pave our own way. We would never have done this if these institutions were more malleable"[15].

The NDB was first proposed by India. In 2014, at the 6th BRICS Summit at Fortaleza, Brazil, the BRICS countries declared their intent to form the bank. The NDB was, from the initial stages, put forth as an equally owned initiative. The capital would be shared among the members. The directors of the bank would have representation from all the members, with the head hailing from each member-country on a rotational basis. The Fortaleza declaration stated: "The Bank shall have an initial authorized capital of US$ 100 billion. The initial subscribed capital shall be US$ 50 billion, equally shared among founding members. The first chair of the Board of Governors shall be from Russia. The first chair of the Board of Directors shall be from Brazil. The first President of the Bank shall be from India. The headquarters of the Bank shall be located in Shanghai. The New Development Bank Africa Regional Center shall be established in South Africa concurrently with the headquarters"[16]. The NDB commenced operations in 2015.

As Hongying Wang, Professor of Political Science at the University of Waterloo writes, unlike the AIIB, which is explicitly China-centric, "the NDB's structure and decision-making rules reflect a strong commitment to equality among its members"[17]. Professor Andrew Cooper (also of the University of Waterloo) writes, "BRICS' New Development Bank (NDB) deserves more attention not because it is equivalent to the Asian Infrastructure Investment Bank (AIIB) but because of its differences… Unlike other multilateral financial institutions, including the AIIB, the NDB is committed to a principle of equality across its core membership. Product innovation is advanced by its promotion of sustainable development with an exclusive focus on niche clean renewable energy projects"[18].

As of 2019, 51 projects have been approved by the bank, at a total loan amount of US$ 14,933 million. Of this, 28% went to projects in China, 27% to India, 18% to Russia, 16% to South Africa and 10% to Brazil. Whereas China and India avail the most out of NDB's loans,

[15] Manuela Andreoni, "The NDB promised to revolutionalise development finance – what happened?" Dialogo Chino, 11 November 2019, https://dialogochino.net/en/infrastructure/31590-the-ndb-promised-to-revolutionise-development-finance-what-happened/

[16] Ministry of External Affairs, Government of India, 2014

[17] Hongying Wang, "The New Development Bank and the Asian Infrastructure Investment Bank: China's Ambiguous Approach to Global Financial Governance," *Development and Change* 50/1, 2019: 221-244

[18] Andrew Cooper, "The BRICS' New Development Bank: Shifting from Material Leverage to Innovative Capacity," Global Policy 8/3, 2017: 275-284

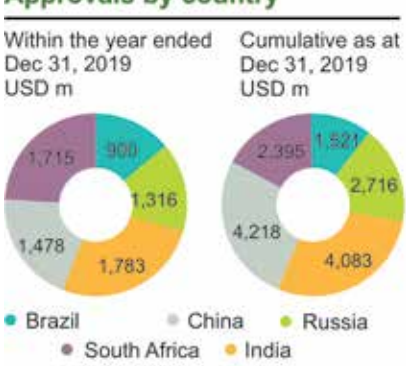
South Africa also has picked up in its participation. From being the recipient of just 6% of loans in 2016, it is now the recipient of 16% of loans as of 2019.

Leslie Maasdorp, Vice President of NDB, highlighted NDB's success, writing in 2019, "…three achievements are worth highlighting. These are: a loan book of US$ 10.2 billion one AAA and two AA+ international credit ratings and the successfully launch of capital-raising activities in local currencies...The Bank's 37 infrastructure loans to date, with a total value of US$ 10.2 billion, cover sectors from transport to renewable energy, water and urban renewal"[19].

Interestingly, a large number of its projects are in the renewable energy and rural development sectors. In India, for instance, loans have been given to projects dedicated to improving rural roads, rural irrigation and water supply, and small-scale renewable energy projects. In addition, loans were also approved for metro rail and rapid transit projects in Mumbai and Delhi.

In 2020, during the COVID-19 crisis, the NDB approved Emergency Assistance Program Loans of up to US$ 10 billion to India, Brazil, South Africa, China and Russia in order to help tide over the adverse impact on their economy.

Chart 1.1: Loan Approvals by NDB



Approvals by key area of operation

	Within the year ended Dec 31, 2019		Cumulative as at Dec 31, 2019	
	Number	USD m	Number	USD m
Clean energy	5	1,589	14	3,519
Transport infrastructure	6	2,322	13	4,421
Irrigation, water resource management and sanitation	3	658	7	2,080
Urban development	5	1,523	10	2,653
Environmental efficiency	1	500	4	1,200
Social infrastructure	1	500	2	960
Multi-theme[6]	1	100	1	100
Total	**22**	**7,192**	**51**	**14,953**

Source: New Development Bank, Annual Report 2019

The formation of the NDB was also followed up with the formation of the BRICS Contingent Reserve Arrangement (CRA) in 2015, during the 7th BRICS Summit. The CRA, as the name suggests, is a "self-managed contingent reserve arrangement to forestall short-term balance of payments pressures, provide mutual support and further strengthen financial stability." It was meant as a precautionary, short-term liquidity support. An initial reserve of US$ 100 billion was put forth, of which China committed to US$ 41 billion and South Africa to US$ 5 billion, with the other three member states putting up US$ 18 million.

[19] Leslie Maasdorp, "BRICS' New Development Bank turns four: what has it achieved?" World Energy Forum, 20 September 2019, https://www.weforum.org/agenda/2019/09/brics-new-development-bank-four-sustainability/.

The Russian President Vladimir Putin hailed the new BRICS contingent reserve arrangement (CRA) as a substitute for the IMF, a "foundation for an effective protection of our national economies from a crisis in financial markets"[20]. The CRA is still in the nascent stages. Unlike the NDB, its potential to truly emerge as a success still remains to be seen.

Conclusion

Since this article on BRICS and G7 is being published in an Indian publication, it may be useful to conclude with a brief discussion on which grouping is more likely to help promote the economic growth and development of India. In theory, it should be the G7 since as of 2020, the combined economic weight of the G7 countries is still larger than that of BRICS. Indeed, it is also true that it was the G7 countries, especially the US, which facilitated the rapid growth of the Chinese economy over the past few decades after Deng Xiaoping launched his "Four Modernizations" programme in 1979.

However, the historical window of opportunity that the G7 countries provided to China for economic growth and development is sadly now closed to India, despite a convergence of geopolitical views between India and the US. The US of 2020 is not the strong, self-confident country of the 1980s. Indeed, the then Prime Minister of Singapore delivered a speech to the Joint Session of the US Congress on October 9, 1985 on the virtues of free trade and received a very enthusiastic response. Kishore was present at that event. Today, any foreign leader who tries to persuade the US Congress of the virtues of free trade is likely to receive a cold response. Indeed, free trade has become so toxic that it is virtually impossible for the US Congress to pass and ratify new free trade agreements. This is also why President Trump withdrew from the Trans-Pacific Partnership (TPP) and it will be politically impossible for President Joe Biden to rejoin it.

Equally importantly, the US market will no longer be the world's largest market for consumer products. China will provide it. Here's one statistic that demonstrates how quickly it has shifted in China's favour. In 2009, the total size of the retail goods market in China was US$ 1.8 trillion while that of the US, US$ 4 trillion. Ten years later, China's market had tripled to US$ 6 trillion and that of the US had grown less than 50%, to US$ 5.5 trillion. By 2050, China's market will be much bigger. While predictions about the future are always suspect, it is worth noting here that in its last forecast for the sizes of major world economies in 2050, PwC has forecast that in 2050, the total GDP of G7 countries will be US$ 63.3 trillion while that of the BRICS countries will be US$ 91.5 trillion[21].

[20] RT, "BRICS establish US$ 100bn bank and currency pool to cut out Western dominance," 15 July 2014, https://www.rt.com/business/173008-brics-bank-currency-pool/

[21] PwC, *The long view: How will the global economic order change by 2050?* 2017, https://www.pwc.com/gx/en/world-2050/assets/pwc-the-world-in-2050-full-report-feb-2017.pdf

Hence, if India wants to place a bet on the future, it should bet on the BRICS rather than the G7. In this regard, it should also reconsider its decision not to join the Regional Comprehensive Economic Partnership (RCEP), a game changer agreement that was signed on November 15, 2020. India has a legitimate concern about a potential surge of low-cost Chinese exports to India, further aggravating the trade deficit India has with China. However, it is possible for India to negotiate a bilateral safeguards agreement with China to prevent such a surge. Since China is keen to see an improvement in relations with India, there would be political will to conclude such an agreement.

At the same time, it would be useful for India to assess whether Indians can compete in the economic arena. Fortunately, there is overwhelming amount of data to prove that Indians are naturally competitive in the economic arena. Kishore documented this in an article for McKinsey[22]. The most competitive human laboratory in the world is the US. The best minds from all over the world migrate to the US to compete in the open US economy. In this highly competitive environment, the ethnic group with the highest per capita income is the Indian community, with a per capita income of US$ 100 thousand.

As Kishore observed in his McKinsey article, if the Indians in India were to achieve half the per capita income of the Indian community in the US, the total size of the Indian GDP would be US$ 144 trillion instead of the current US$ 2.9 trillion. The huge gap between these two figures shows how much larger the Indian economy could be if it opened itself up to international economic competition.

This is why it was very wise for Professor Jagdish Bhagwati to make the following observation in 2013: "When policies are actually implemented that open up trade, free up foreign direct investment (FDI), and remove unnecessary restrictions, substantial growth starts. That's what happened after 1991. When you have growth, you will also be able to offer opportunities to people to lift themselves up above the poverty line. Also on trade, the prime minister has also to look at Asia—it's huge market. India has to move into that market and put its oar into the water"[23].

India's great potential as a trading nation was also emphasized in the election manifesto put out by the Bharatiya Janata Party (BJP) in 2013. In it, it said, "India's contribution to the march of civilization goes back to several thousand years before the Christian Era. Up to the eighteenth century, India was respected for its flourishing economy, trade, commerce and culture…India had a much bigger role and presence in industry and

[22] McKinsey, "Reimaging India: A conversation with Kishore Mahbubani," 1 November 2013, https://www.mckinsey.com/featured-insights/asia-pacific/reimagining-india-a-conversation-with-kishore-mahbubani#

[23] Alyssa Ayres, "Five questions for Professor Jagdish Bhagwati on the Indian economy and Prime Minister Modi's next steps," *Council on Foreign Relations*, 27 May 2014, https://www.cfr.org/blog/five-questions-professor-jagdish-bhagwati-indian-economy-and-prime-minister-modis-next-steps

manufacturing than any nation in Europe or Asia. India was also one of the greatest shipbuilding nations and consequently had an access to international markets"[24].

In short, there is an overwhelming body of evidence, both historical and contemporary, that India can emerge as one of the most vibrant and competitive economies in the world, if it were to open up and compete in the international arena. No doubt there will be some shocks when it first opens up. Economic theory confirms that there will be "creative destruction" in any process of economic opening up. However, "creative destruction", despite its name, does end up strengthening an economy by making it competitive. This is also what China experienced when it first opened up its economy in the 1980s. In a speech he delivered in Davos in January 2017, President Xi Jinping said the following,

> There was a time when China also had doubts about economic globalization, and was not sure whether it should join the World Trade Organization. But we came to the conclusion that integration into the global economy is a historical trend. To grow its economy, China must have the courage to swim in the vast ocean of the global market. If one is always afraid of bracing the storm and exploring the new world, he will sooner or later get drowned in the ocean. Therefore, China took a brave step to embrace the global market. We have had our fair share of choking in the water and encountered whirlpools and choppy waves, but we have learned how to swim in this process. It has proved to be a right strategic choice[25].

There is no doubt that like China in the 1980s and Japan in the 1860s (after the Meiji Restoration), the Indian economy will struggle to swim and compete after it plunges into the "choppy waters of globalization." There will be a few shocks along the way. However, the success of Indian business communities in virtually every corner of planet earth provides an overwhelming body of evidence that Indians can compete against any economy on planet earth. Hence, we can say with great confidence, that if India opens up and competes internationally, it will undoubtedly emerge as the strongest economy on planet earth.

[24] Ibid

[25] CGTN, "Full Text of Xi Jinping keynote at the World Economic Forum," 17 January 2017, https://america.cgtn.com/2017/01/17/full-text-of-xi-jinping-keynote-at-the-world-economic-forum

New Ways of Infrastructure Investment in Developing Countries

Keiko Honda
Adjunct Professor and Adjunct Senior Research Scholar, School of International and Public Affairs, Columbia University, USA

This paper speaks about driving infrastructure investing in developing countries after COVID-19: low interest rates and the growing popularity of ESG investing.

The entire world was hit by COVID-19 in 2020. COVID-19 is a threat to both to the health of individuals and to the health of the global economy, but it also creates opportunities for developing countries to enhance their infrastructure by leveraging institutional investors from developed countries.

Policy interest rates in Europe and Japan were low even before the onset of COVID-19. To cope with the economic distress brought on by COVID-19, the United States and many other countries lowered their policy interest rates. As a result, the vast majority of developed world's policy interest rates are extremely low compared with historical standards. As of August 13, 2021, the yield of the benchmark 10-year US treasury bond was 1.28%, that of the UK was 0.57%, and newly issued 10-year Japanese government bonds yielded 0.02%[1]. In addition, low interest rates in developed countries are likely not a temporary phenomenon. Many foresee that a low interest rate environment in developed countries will persist for some years.

As for ESG investing, it was growing rapidly even before COVID-19. The assets under management invested under ESG investing in the US, Europe, Japan, Canada, Australia and New Zeeland together reached over US$ 35 trillion in 2020, according to the Global Sustainable Investment

[1] Bloomberg

Alliance[2]. The compound annual growth rate of these assets between 2014 and 2020 was 12% (local currency basis). As a result, ESG Investing was one of the fastest growing areas in finance. Based on my research of 27 financial institutions whose aggregate asset under management is over US$ 21 trillion[3], the majority of institutional investors engaging in ESG investing aim to achieve above market returns by identifying potential risks and realizing upside potential in the areas of environment, social and governance through employing a variety of ESG strategies. In the wake to the COVID-19 global pandemic, asset owners are even more keen to allocate their funds to ESG investing. Although the risk of infectious diseases was pointed out in the World Economic Forum's Global Risk Report in 2015, most of us did not take the potential risk of a pandemic into adequate account when making business decisions, including investment decisions. Institutional investors are now more keenly aware of the potential financial impact of certain social factors and they are now even more keen to allocate capital to ESG investing.

Many infrastructure projects fulfill infrastructure gaps and create social impact. Infrastructure investments such as investments in renewable energy also address climate change. So, many types of infrastructure investments can be considered ESG investing.

Total global assets under management continue to grow. According to PwC, the total assets under management in the world amounted to US$ 102 trillion in 2020[4]. The majority of these assets are owned by developed countries. Specifically, US$ 49 trillion is held by institutions in North America and US$ 28 trillion is held by European institutions. The remaining US$ 16 trillion is held in the Asia Pacific region.

Among US$ 102 trillion, Pension funds have US$ 57 trillion, insurance companies have US$ 35 trillion and sovereign wealth funds have US$ 9 trillion. The majority of the assets that pension funds, insurance companies and sovereign wealth funds control are managed with long term horizon. Investment in infrastructure is suitable for such long-term assets.

Currently, many pension funds allocate at least 20% of their assets under management to fixed income products. But, bonds in developed world do not generate adequate returns for pension funds to reach the returns necessary to fulfill their obligation to pensioners. Insurance companies are similarly hard pressed to meet target returns in a persistent low interest rate environment. Therefore, many asset management consultants recommend that pension funds, insurance companies, and sovereign wealth funds should increase their asset allocation to real assets. Investing in infrastructure is one way to increase real assets.

[2] Global Sustainable Investment Alliance http://www.gsi-alliance.org/wp-content/uploads/2021/07/GSIR-2020.pdf

[3] Conducted interviews of 27 financial institutions including pension funds, insurance companies, banks, asset management companies whose aggregate asset under management is over US $21 trillion between December 2019 and August 2021.

[4] PwC https://www.pwc.com/jp/ja/japan-knowledge/archive/assets/pdf/asset-management-2020-a-brave-new-world1407.pdf

Investment Opportunities in Developing Countries Infrastructure

Is there enough investment opportunities in infrastructure? The answer is yes.

According to McKinsey & Company, worldwide infrastructure investment recently reached US$ 2.5 trillion per year[5]. However, it is estimated that US$ 3.7 trillion per year will be required to close the infrastructure gap between 2020 and 2035. In other words, approximately US$ 55 trillion will be required if we are to adequately address global infrastructure needs during the coming 15 years. By the way, the US infrasturucture investment plan has not been included in the above numbers.

Of course, government's, including both central and local governments, will be able to finance some of this investment from tax revenues. However, both central and local governments around the world have significantly increased their debt levels to provide support to those who are suffering from COVID-19. The development finance institutions ("DFIs") including the Multinational Development Banks ("MDBs") can finance some of these infrastructure needs. But, their balance sheets are also stretched. It is hard to imagine a scenario in which governments and multilateral institutions would be able to finance the US$ 55 billion worth of projects that will be required. All of the G20 countries agreed that there is a need to leverage private investors, pension funds and sovereign wealth funds.

Challenges that Institutional Investors are Facing

There is a large pool of institutionally held assets that are managed with a long-term time horizon. Both central and local governments in developing countries have long lists of infrastructure projects, and have been welcoming institutional investors to invest in infrastructure in their countries. However, to date, the amount of private money flowing into infrastructure projects in developing countries has been limited.

Why is that? I can think of three reasons.

The first issue relates to subsidy of infrastructure tariffs. In many developing countries, central or local governments still control infrastructure tariffs. Some governments elect to set the infrastructure tariff below the actual cost including capital expenditure recovery. Therefore, in such cases, revenue from the projects is not adequate to cover costs, let alone assure a reasonable return on investment. If governments choose to maintain such subsidies for a given project, investors need a clear written agreement guaranteeing that the government will pay the subsidy to the private investors.

[5] McKinsey & Company https://www.mckinsey.com/industries/public-and-social-sector/our-insights/four-ways-governments-can-get-the-most-out-of-their-infrastructure-projects

The second issue is the potential risk that a host government may subsequently dishonor contractual obligations made at the inception of a project. Many infrastructure projects have long tenures. For example, power generation projects take 20 or even more than 30 years to fully recover initial and supplemental capital investments. Investors should assume that a change of administration during the lifetime of such projects is likely. If a successor administration refuses to honor the original agreement that investors entered into with a previous administration, the project can face financial disaster. The risk of potential breach of contract by governments is significant. Even without a change of administration, governments can face unanticipated financial stresses due to natural disasters or other reasons. In such cases, government may not be able to honor their agreements with investors. This type of government breech of obligation can also occur when projects face disruptive technological change. In addition, if contractual payments are denominated in a foreign currency, governments can encounter extreme difficulty in fulfilling their obligations if their local currency depreciates significantly against the relevant foreign currency.

The third issue resides with the private investor. Most institutional investors traditionally invested primarily in equity, fixed income, and real estate. More recently, they have developed expertise in investing in alternatives such as private equity, hedge funds, and even commodities. But, they have not had much experience in investing in infrastructure. Therefore, many of them still do not possess extensive expertise in infrastructure investment, particularly in the developing world.

How can we Guide Institutional Investors into Infrastructure Investing in Developing Countries?

COVID-19 has accelerated a number of emerging trends. In the investment world, institutional investors will face pressure to shift their asset allocation due to an extended low interest regime and increasing needs to integrate ESG considerations into the investment decision making process. Therefore, there is an opportunity for developing countries to attract institutional investors into infrastructure related projects. But this is not easy given the challenges stated above. At the Multilateral Investment Guarantee Agency ("MIGA") of the World Bank Group, which supports developing countries to bring cross-border private investments into their countries, we had the opportunity to help private institutional investors increase their allocation to infrastructure in developing countries. We can bring more institutional investors by addressing the following five points.

1. Prioritize Projects with High Expected Social Impact:

Investors are regularly presented with a wide variety of investment-worthy projects. However, while many projects similar expected returns, not all projects in the pipeline have the potential for creating significant social impact.

I would recommend prioritizing those projects with high expected social impact. Developing country governments have good reasons to support infrastructure projects that are likely to create high social impact. Host governments have strong incentives to honor their agreements related to high impact infrastructure projects. Therefore, it is safer for institutional investors to invest in projects with high expected social impact. In other words, developing country governments can better employ private capital in such projects.

Most developed and developing countries are not necessarily rigorously assessing the social impact of infrastructure projects. But developing country governments should assess and measure the development impact of each infrastructure projects before prioritizing projects. This will contribute to better formulating which projects are more appropriate for private investor participation, and which projects are better financed by public institutions.

The World Bank Group's International Finance Corporation ("IFC') and MIGA developed tools to help investors assess ex-ante development impact. The IFC and MIGA use the results of this analysis to seek approval from their respective Board of Directors for prospective investments in infrastructure and other projects. Both developing countries governments and institutional investors can study those tools and use them to access and prioritize prospective projects.

2. Select Financially Sustainable Projects:

McKinsey estimated that infrastructure projects can have as much as 20% socio-economic returns[6]. But socioeconomic returns of infrastructure projects vary widely from project to project.

The willingness of the ultimate beneficiaries to pay for services received determines the financial sustainability of any given project. One good example can be found with mobile telecommunications infrastructure. The end customers of mobile telecommunication services are willing to pay in order to avoid the potential termination of this services. Infrastructure projects that ultimate beneficiaries are willing to pay a fee which is adequate to cover the cost of the project and a reasonable return on investment are suitable projects for institutional investors. Investments in mobile telecommunication and broadband are examples of sectors that meet these investment criteria.

Host Governments should avoid subsidizing infrastructure projects. Governments can provide financial support to their citizens who cannot afford market prices. But, many developing countries' governments still subsidize infrastructure projects such as setting

[6] McKinsey and Company https://www.mckinsey.com/industries/public-and-social-sector/our-insights/four-ways-governments-can-get-the-most-out-of-their-infrastructure-projects

the electricity tariff lower than the cost of generating and distributing power. Private capital cannot invest in projects which are unable generate revenue to cover costs and generate appropriate return on capital. If the governments do elect to subsidize, through such policies as setting tariffs below market rates, the host government needs to compensate investors for this imbedded subsidy. Investors in such cases should enter into an agreement, such as a power purchase agreement, in order to secure sufficient payment. Just as importantly, this agreement should not only be between the given state owned enterprise and investors, but also needs to explicitly involve the host government.

3. **Understand what kind of risks that institutions investors can take. Mitigate risks that institutional investors cannot take by partnering with Development Financial Institutions ("DFIs") such as Export-Import Banks, Development Banks and Multilateral Development Banks ("MDBs"):**

Many institutional investors do not necessarily have experience investing in developing country infrastructure. Therefore, they often have limited appetite for risk. Some risk aversion that institutional investor's feel is based on this lack of familiarity and the perception that investments in developing countries is inherently riskier. In order to surmount this challenge, I recommend that all involved parties closely analyze the relevant risks and attempt to slice the total perceived risk of the project into it's component parts. Once the risks that institutional investors are unwilling or unable to take have been identified, developing countries can work with DFIs such as export-impart banks, development banks or MDBs to mitigate these risks and make the project much more attractive for institutional investors.

4. **Asset Recycling:**

The risk of infrastructure projects typically drops significantly once the construction phase is completed. Since many institutional investors have not yet acquired deep expertise in infrastructure investing, it is preferable, when possible, for those investors who have more expertise and risk appetite for construction phase investing be targeted during the early stages of a given project. In many cases, it may subsequently be possible to transfer the asset into the hands of more traditional institutional investors as the project comes on line and begins to generate revenue. This is known as Asset Recycling. By employing Asset Recycling, the early stage investors can exit or reduce their original investment, and be in a position to move on to new projects utilizing the cash that they monetized from the earlier investment.

5. Structure Projects to be Qualified as ESG Investing and Impact Investing:

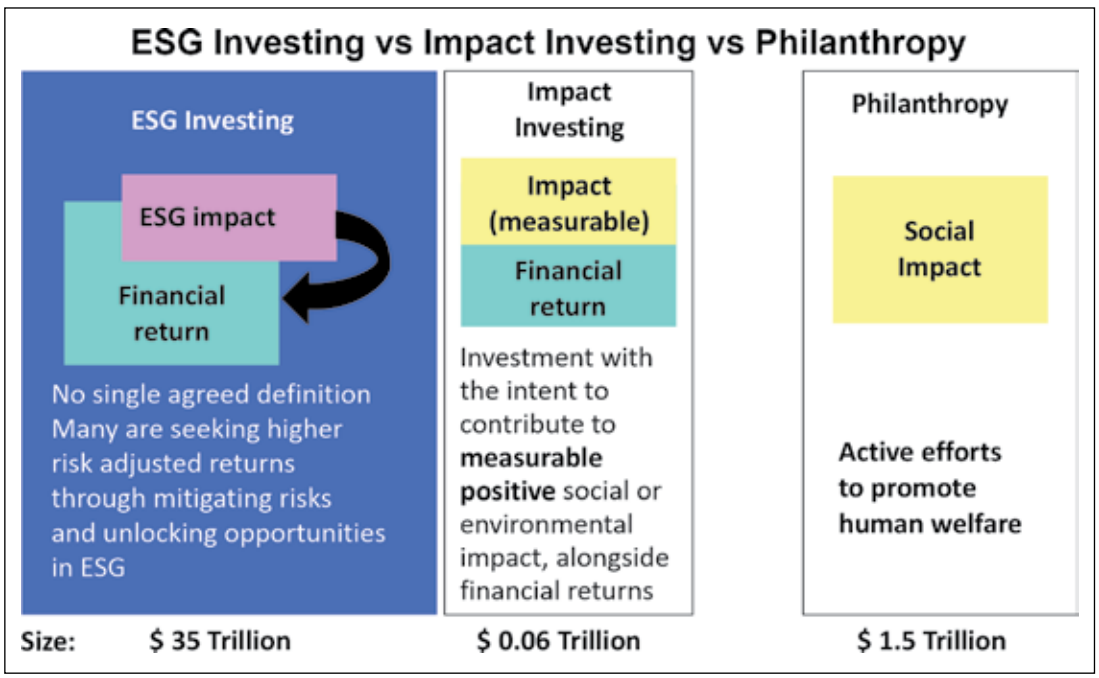
Many institutional investors are keen to increase ESG investing and Impact Investing. We can help such institutional investors by structuring projects in order for them to qualify as an ESG Investment or an Impact Investment.

In this regard, it is perhaps useful to more clearly define ESG Investing and Impact Investing.

ESG Investing and Impact Investing have some overlap but they are different. The IFC defines Impact Investing as "investments with the intent to contribute to measurable positive social or environmental impact, alongside financial returns". This is a high bar. The total assets invested under Impact Investing is about US$ 60 billion. This is sizable, but significantly smaller than the asset invested under ESG Investing.

As mentioned earlier, according to my research, of 27 financial institutions, the majority of them conduct ESG investing to achieve higher than market returns by identifying potential risks and realizing upside potential in the areas of environment, social and governance. ESG Investing does not need to quantify expected social or environmental impact prior to investing. ESG investing does not necessarily create measurable impact. Investments which are made with the intention to manage the risk in climate change or social areas may be considered ESG investments.

Chart 2.1: Comparison of ESG Investing, Impact Investing and Philanthropy



Source: IFC, GIIN, UBS "Global Philanthropy report"

I would like to discuss the above five points in more detail.

1. Prioritize Projects with High Expected Social Impact

Society appreciates infrastructure projects which create high social impact. It is easier for local and central governments to support such projects even when they run into financial difficulty. What I mean by social impact in this context can be achieved in a variety of ways. Improving infrastructure is one important way to have social impact, but it also can be achieved through job creation, or by increasing tax and other fee revenue to central or local governments which can be used to support other social needs, as well as increasing the procurement of local content, which feeds back to improve economic conditions of local communities.

Although McKinsey & Company finds that infrastructure projects have the potential to generate as much as 20% in socio-economic returns, not all infrastructure projects have this potential.

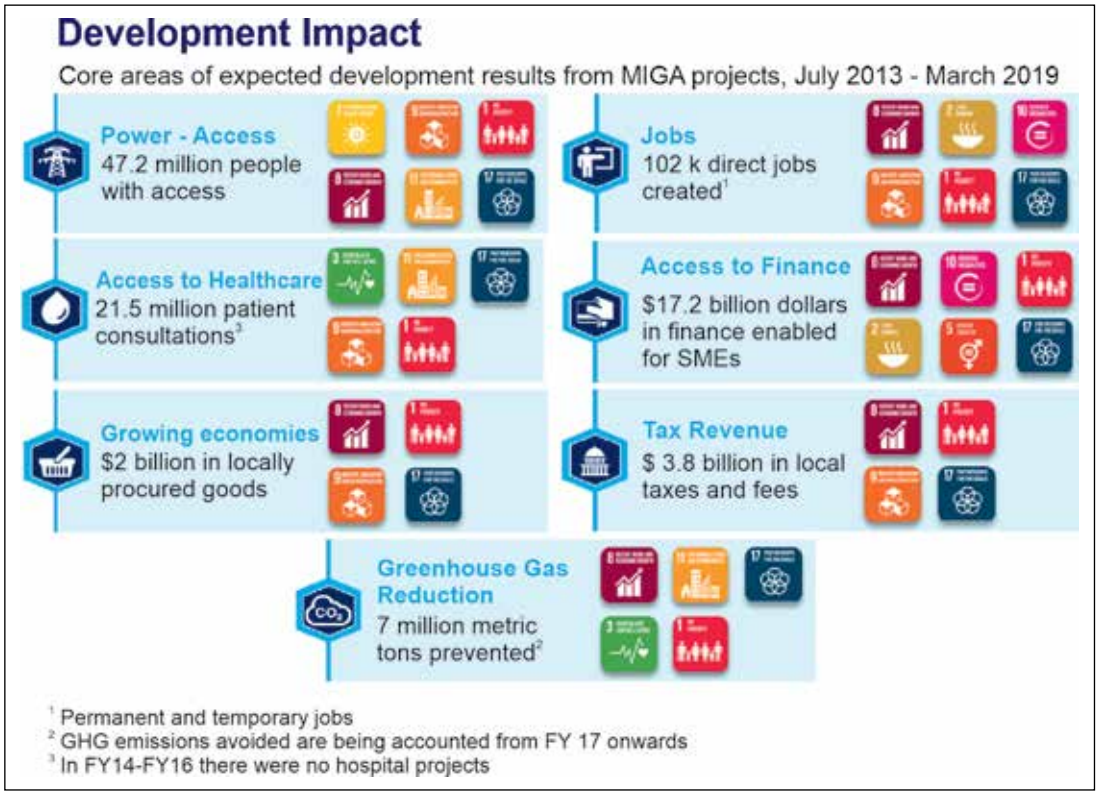
Therefore, we need to assess the social impact of each project prior to initiating the project.

The International Finance Corporation of the World Bank Group developed a tool called the Anticipated Impact Measurement and Monitoring ("AIMM") system in 2017[7]. This framework allows investors to better define, measure, and monitor the development impact of each project. The IFC currently scores all of its investment projects for development impact using the AIMM system and has recently started to rate advisory service projects. AIMM tool's parameters are available at IFC's website. Both developing countries government and institutional investors can leverage AIMM to create their own tools to assess impact of projects.

MIGA also developed an ex-ante development impact assessment tool called IMPACT. MIGA's IMPACT covers not only the direct impact of infrastructure projects such as how many people gain access to power, mobile telecommunication, or internet, but also considers the project's positive and potential negative impact on climate, direct (and some indirect) job creation, tax or other fee revenue to local governments, the share of goods locally procured, and several other factors. The Chart 2.2 illustrates the anticipated development impact coming from MIGA's projects closed between 2013 and 2018. This may give some sense of how we can integrate potential project impact into the investment process prior the commencement of the project.

[7] IFC https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/development+impact/aimm

Chart 2.2: MIGA Projects - Impact Assessment



Source: Keiko Honda - SIPA ESG Investing

By using these tools , a host countries' central and local government can proceed with those projects expected to have higher development impacts. Developing countries governments often prefer to conduct high social development impact projects on their own. However, I recommend developing countries governments to delegate high impact projects to private investors or institutional investors. Those projects have a higher probability of success. If governments have the capacity to develop and operate certain projects on their own, they should select projects having less development impact, since those projects tend to face more challenges down the road.

Both IMPACT and AIMM are also used to monitor project progress. Through monitoring, the ex-ante development impact assessment tool can be further improved.

2. Select Financially Sustainable Projects

Infrastructure projects in which the ultimate beneficiaries are willing to bear the cost of initial and follow up investments are the ideal ones for institutional investors to invest in. It is critical that the ultimate beneficiaries place an adequate value on the benefit that they

are receiving. In addition, institutional investors should pick projects where tariff levels are priced at market rates. At present, the sectors that generally meet these criteria are mobile telecommunications and broadband internet.

According to Statista, 6.95 billion mobile phones are now used in the world. Given that the world's population is 7.7 billion, it is amazing that mobile telecommunication has achieved such extensive usage. Mobile phones in developing countries have become essential infrastructure. It is also universally true that mobile phone users prioritize mobile phone payment above other bills, since they are afraid to be disconnected. Therefore, mobile telecommunication is well suited for institutional investors to finance. MIGA supports private investors in mobile phone operations in Myanmar in Asia and Senegal in Africa.

The situation with broadband investing is similar. According to Internet World Stat, over 63% of people around the world have access to the internet.

COVID-19 will accelerate the penetration of mobile telecommunications and the internet. "Social distancing" has become important. People have become more accustomed to do business online – over telephone, over online meeting such as Zoom and over emails, text and other online applications. The demand to enhance broadband to cover rural areas as well as to increase capacity has been skyrocketing. The demand to increase the capacity and coverage of mobile telecommunication is also high. This is a universal phenomenon occurring in the developed and developing world simultaneously. DX, the digital transformation also often increases the productivity of society in both developed and developing countries. Therefore, investing in mobile telecommunication and broadband is both timely and fits suitability standards for institutional investors.

Another type of infrastructure investment that may provide a good fit for institutional funds is power generation projects that are contingent upon a solid power purchase agreement signed by investors, the relevant power SOEs and the host governments. Such power purchase agreements should include a clear mechanism to decide the price of power, with the host government committing to support investor payouts in the event that the SOE fails to pay according to the contract.

Therefore, there are some financially sustainable infrastructure projects suitable for institutional investors. But, there are many investors proactively looking for such projects. The amount of money chasing such economically sustainable projects is growing.

However, developing country governments can modify the structure of infrastructure projects to make them more financially sustainable and therefore more attractive to institutional investors. Since many economies are in need of stimulus, this is one area that governments can reexamine in order to enhance access to private capital.

3. Understand what kind of risks that institutions investors can take. Mitigate risks that institutional investors cannot take by partnering with Development Financial Institutions ("DFIs") such as Export-Import Banks, Development Banks and Multilateral Development Banks ("MDBs"):

Certain institutional investors are not only unfamiliar with investing in infrastructure, but also unfamiliar investing in developing countries. Investors who have not invested in developing countries previously often feel more risks, but cannot articulate the risks that they are most concerned about. I believe that that there is a risk perception problem, and recommend that the best way to deal with this is to slice the "perceived risk" into its component parts and consider how to mitigate each slice. Some typical risks that cross border investors face are

a) Construction cannot be finished on time/additional expenditure required

Delay in construction and increased cost during construction is a real risk. But this risk is not exclusive to investment in developing countries. Any projects which need to build facilities such as manufacturing plants face this same risk. Although institutional investors often take construction risk when investing in public equity, this risk is more concerning when investing in developing country projects. Asset Recycling can be the solution for this risk.

b) Unanticipated competition ruins the profitability of projects

In order to provide sustainable services that require large investments in infrastructure, governments often limit the number of service providers. Extreme competition in infrastructure investments is less likely than other businesses. This is a great benefit for investors in such protected projects.

c) Mismanagement leading to increased cost

Mismanagement of business can happen in any industry. Institutional investors are professional investors who are accustomed to evaluating management and should be able to take on this risk.

d) Currency fluctuation

Currency fluctuation is the risk that all investors have to take when they invest in any companies/businesses/projects outside of their home countries. Therefore, professional institutional investors should be able to manage currency fluctuation risk.

e) Currency convertibility and transfer restrictions

Some developing countries may restrict currency conversion and/or transfer of money out of their country when they do not have enough hard currencies. A shortage of hard currency can occur even when a country is experiencing strong economic performance. This is a risk that generally only applies to developing country investments.

f) Breach of contract by governments

Breach of contract by governments is particularly important to infrastructure projects, as stated before. Infrastructure projects often involve many agreements with the host government. However, following an administration change, some governments feel that they need to modify an agreement made by the previous administrations. Governments should of course honor the agreements made previously but it does not always happen.

g) Expropriation

Expropriation is similar in nature to breach of contract by governments. It is not unusual for the people of a country, including those in the developed world, feel that infrastructure is essential and that their government should provide it. But few, if any, governments have adequate tax revenue to build and operate all desired infrastructure including, but not limited to, power, water, roads, telecommunication, education and healthcare. Some developing governments have resorted to expropriating infrastructure facilities that private investors built. So, investors need to be aware of this potential risk.

h) War and civil disturbance

War and civil disturbance is possible, but fortunately seldom experienced, in the developed world. Investors may face this more frequently in less stable developing countries.

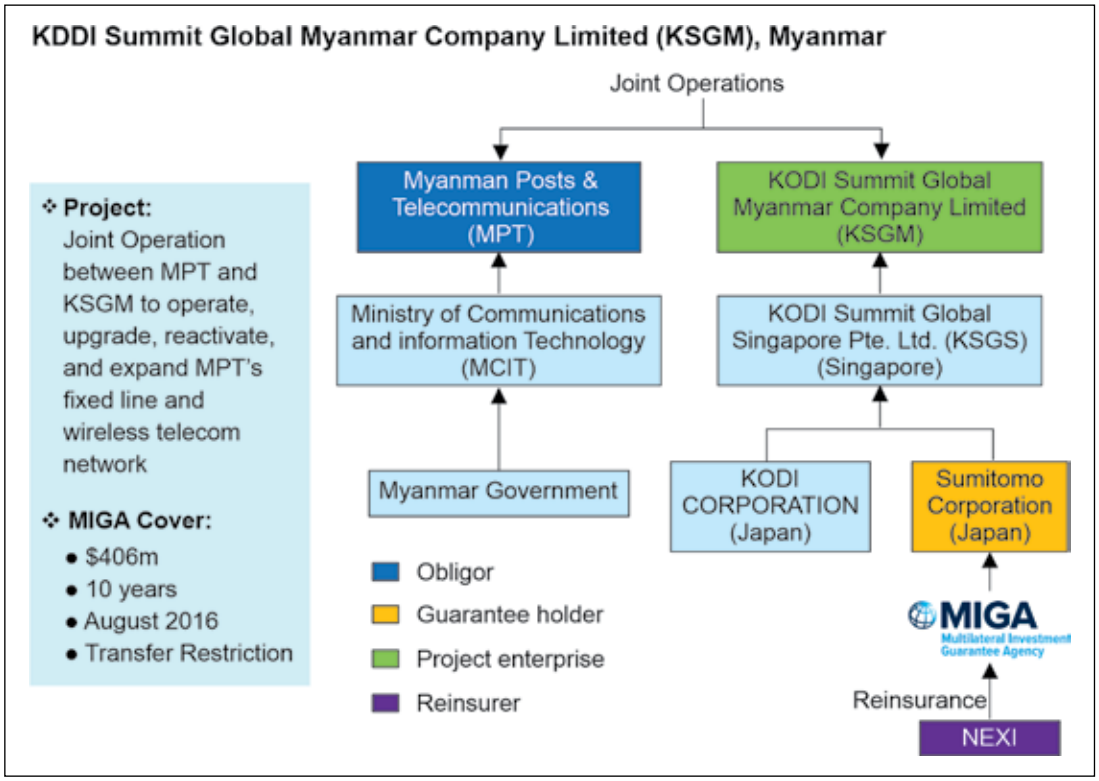
So. a), b), c) and d) are business risks and exist in developed countries, too, Therefore, institutional investors should be equipped to evaluate and take on these risks.

On the other hand, e), f), g) and h) are more peculiar to infrastructure investments in developing countries. Institutional investors can mitigate these by working with DFIs. There are two ways to work with DFIs.

The first way is to involve a DFIs in the project to directly mitigate risks. MIGA insures all four of e), f), g) and h) risks for cross-border investors. Some bilateral DFIs such as the US International Development Financial Corporation ("US DFC", previously known as OPIC – Overseas Private Investment Corporation), Korea Trade Insurance Corporation ("K-sure"), and Nippon Export and Investment Insurance ("NEXI") have similar risk guarantee products. The coverage each offer are similar but slightly different. Therefore, investors should be aware of who can mitigate which risks in which ways. Some people say that the risk coverage should be standardized. But experienced investors work with multiple DFIs in order to achieve the coverage that they require.

Chart 2.3 provides an example of a structure that private investors employed to invest in telecommunication/mobile telecommunication in Myanmar by using MIGA and NEXI to cover currency conversion and transfer restriction risks.

Chart 2.3: Political Risk Insurance - Improving Access to Telecommunications Services First Reinsurance Structure with NEXI



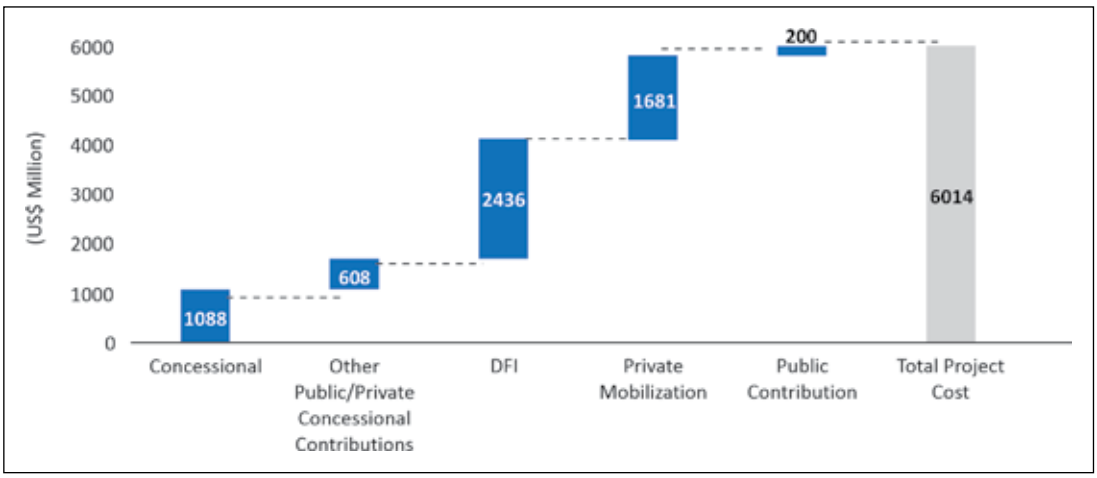
The second way to mitigate risks is Blended Finance. According to DFI Working Group on Blended Concessional Finance for Private Sector Projects Joint Report published in October 2019, Blended finance is defined as "combining concessional finance from donors or third parties alongside DFIs' normal own account finance and/or commercial finance from other investors, to develop private sector markets, address the Sustainable Development Goals (SDGs), and mobilize private resources." Investors can invite DFIs to co-finance. By coinvesting projects alongside a DFI, some private investors aim to enjoy a "Halo Effect". DFIs often provide low interest rates and longer tenure loans. Developing countries have many projects in the pipeline that they hope to finance with the DFI. Therefore, they do not want to upset the DFI's, and private investors feel that they can therefore reduce the risk of bad behavior by the host governments by investing alongside powerful DFIs.

IFCs, Asian Development Bank ("ADB"), European Bank of Reconstruction and Development ("EBRD"), Islamic Development Bank ("IDB") Group and many other MDBs as well as bilateral DFIs have offered such Blended Finance programs. Chart 2.4 provides examples of some of the major MDBs.

Since DFIs' often offer lower interest rates than private institutions, borrowers may lower overall financing costs through Blended Finance. Chart 2.5 shows the composition of Blended Finance in 2018 reported in the DFI Working Group on Blended Concessional Finance for Private Sector Projects Joint Report.

Chart 2.4: Multilateral Development Banks

Chart 2.5: Blended Finance Composition (2018)

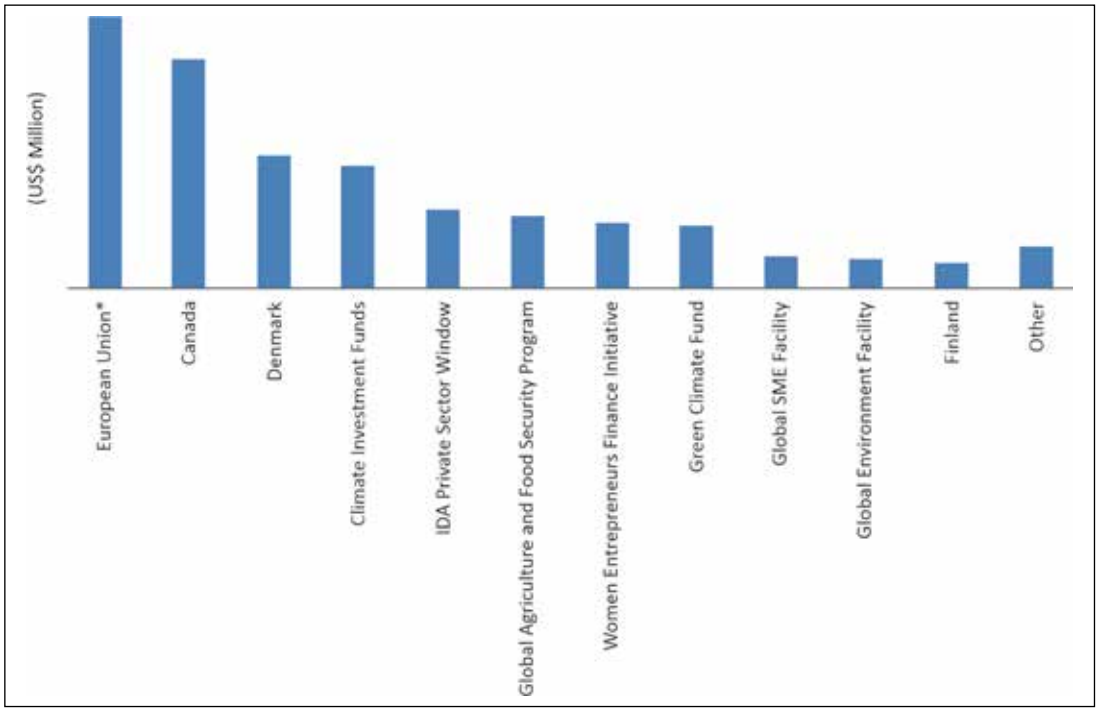


Source: DFI Working Group on Blended Concessional Finance for Private Sector Projects Joint Report, October 2019 Update

Keiko Honda - SIPA ESG Investing

If some investors need some donors to lower financing cost to project investable, Chart 2.6 shows the major donors in Blended Finance in 2018.

Chart 2.6: Blended Finance - Major Donors (2018)



Source: DFI Working Group on Blended Concessional Finance for Private Sector Projects Joint Report, October 2019 Update

* EU, EC, including EU member states not identified

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Although many institutional investors may not have experience investing in infrastructure projects in developing countries, by slicing risk and finding ways to mitigate non-business risk peculiar to developing country infrastructure , they can manage such risks. To do so, DFIs including MDBs are great partners.

4. Asset Recycling:

Asset recycling is a relatively new concept. Governments could work with experienced investors first and then ask them to sell the equity/loan of the projects to institutional investors after construction is successfully completed. This structure comes from the fact that the risk of infrastructure projects will significantly drop after the construction phase is over. Since the most of institutional investors do not necessarily possess expertise in infrastructure investing, it is best to work with experienced investors in infrastructure investing in developing countries. Given the higher risks in construction phase, investors investing in the construction phase can enjoy higher returns than those investing in the operational phase. So, experienced investors with a high-risk appetite and expertise in early-stage investment can generate higher returns by only focusing on construction phase financing. When the

project begins to earn revenues, it can be transferred to a different set of investors that are more confortable evaluating an operating project. I think this is great way to divide the roles among investors.

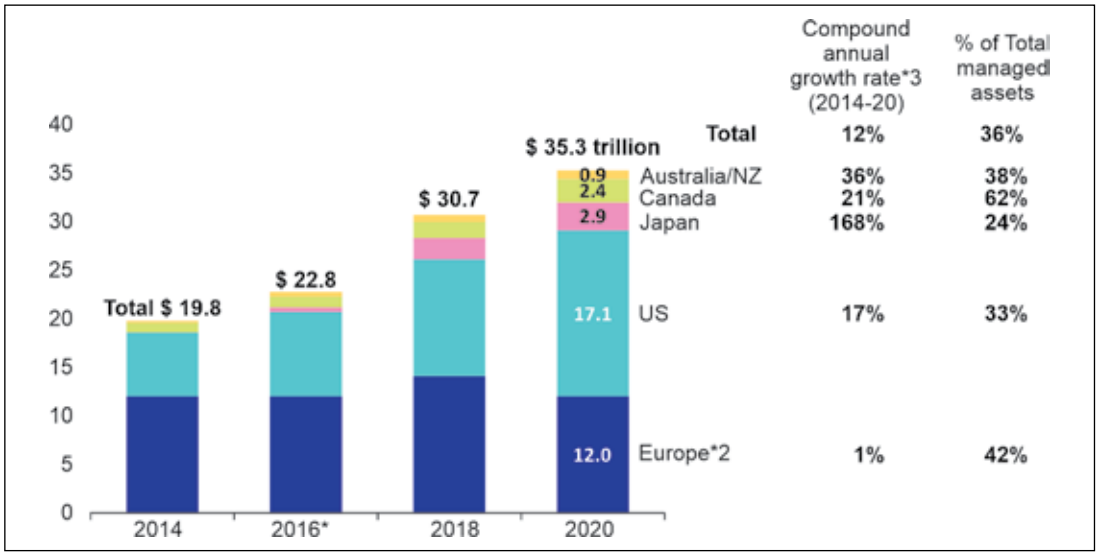
Let me introduce one Asset Recycling example supported by MIGA in April 2020. This is the refinancing of an existing power transmission infrastructure in Cambodia's capital, Phnom Penh, and its surroundings. The development of Cambodia's transmission sector is a national priority. At this early stage in the nation's infrastructure, refinancing is anticipated to draw needed private investments from local and international developers. This network expansion plan focuses on strengthening the interconnections between the nation's Central-West and Central-South to accommodate transmission from new thermal and hydro power plants to the Phnom Penh region, where most electricity demand is currently concentrated. The project, implemented and operated by Cambodian Transmission Limited (CTL), consists of a 230 kV transmission network that connects the Phnom Penh region with power generators in the east and northeast of the country. The network also provides an interconnection to the Cambodia-Vietnam and Cambodia-Thailand borders in the south and northwest of the country respectively. Encouraged by an improving economy and accelerated growth, the project became operational in 2013 and is part of an overall strategy to bring power from additional sources to the greater Phnom Penh region to meet the critical energy needs of the capital and its surroundings.

MIGA covered currency inconvertibility & transfer restriction, expropriation, breach of contract, and war & civil disturbance risks totaling US$ 76 million for the 10-year term of the loan. This project allowed ING Bank N.V. of Netherland and Mizuno Bank of Japan to replace financing previously offered by the Export-Import Bank of Malaysia Berhad (Malaysia EXIM). This Asset Recycling also stabilized the project's cash flow and reduced its exposure to interest rate risk. By obtaining an interest rate benchmark-linked loan from international lenders, CTL will be able to enter into an interest rate swap for up to 80% of the exposure, helping to improve predictability, reduce volatility of its debt service payments and enable enhanced long-term financial planning. This was Mizuho's first project financing in the country.

5. Structure Projects to be Counted as ESG Investing and Impact Investing:

ESG Investing has grown rapidly to reach over US$ 35 billion. As Chart 2.7 shows, the compound annual growth rate in the US, Europe, Japan, Canada, Australia and New Zealand between 2014 and 2020 was 12%. In the developed world, this is one of the fastest growing area in the financial industry. In addition, the penetration of ESG investing is now high. In US, Europe, Japan, Canada, Australia and New Zealand, the overall penetration is still 36%. But in Australia and New Zealand, 38% of professionally managed money is invested under ESG investing. In Europe and Canada, 42% and 62% of professional investing is managed under ESG investing, respectively.

Chart 2.7: ESG Investing – Asset Under Management
(Europe/US/Canada/Japan/Australia and NZ*1, $ billion)



* 1 Definition - inclusive of investment approaches that consider environmental, social and governance (ESG) factors in portfolio selection and management across seven strategies of sustainable or responsible investment, but different by regions

*2 reflect revised definitions of sustainable investment that have become embedded into legislation in the European Union as part of the European Sustainable Finance Action Plan for 2020 data

*3 local currency basis

Source: Global Sustainable Investment Alliance (Eursif, US SIF, Japan Sustainable Investment Forum. Responsible Investment Association Australia, RIA Canada)

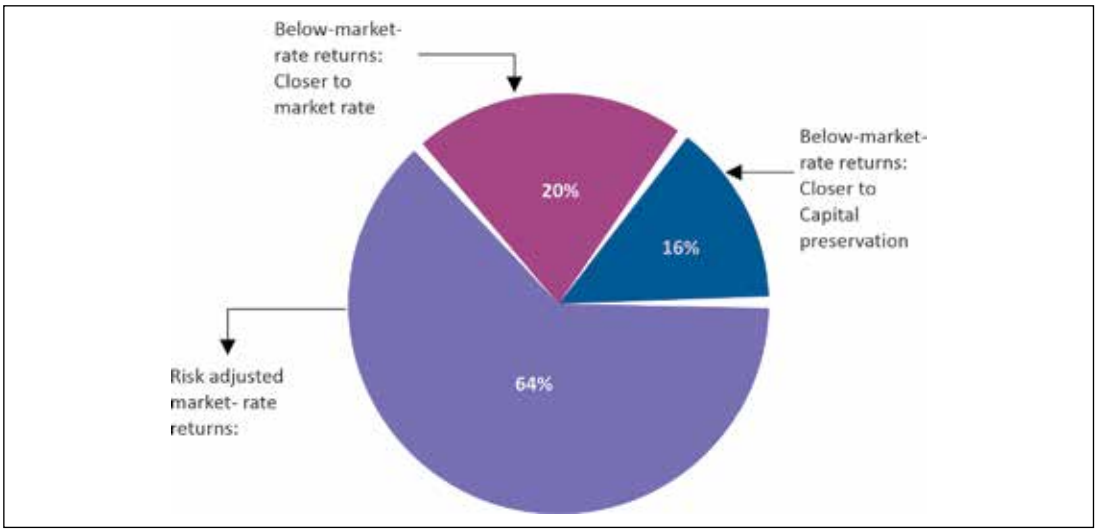
Institutional investors can no longer ignore ESG Investing. They also need to shift some assets away from low return fixed income products. Many are looking to increase investments in real assets including infrastructure. They need to shift their portfolio into ESG investing and those assets which provide positive and reasonable returns.

Many projects in infrastrucutre investing in developing countries should both create social impact and provide positive returns. So, infrastructure investing in developing countires fits well with ESG Investing. Moreover, if such investments are made in partnership with MDBs, these projects have necessariy passed the ESG hurdle of MDBs. So, investments in such projects would most certainly be qualified as ESG Investing.

As I discussed previously, Impact Investing has some overlap with ESG Investing but these two are not the same. Impact Investing involves investments made with the intent to contribute to measurable positive social or environmental impact, alongside financial returns. Both Impact Investing and ESG Investing are different from Philantholophy. While ESG Investing often aims to outperform the market, the expected return for Impact Investing is not at high as that for ESG Investing.

As Chart 2.8 shows, about two-third of Impact Investors seek market return. The rest are fine with positve but below market returns. Impact investing has the dual objectives of creating social impact and achiving some returns. So, Impact Investing has a higher bar than ESG Investing. Many private enterprises have announced their intention to support Sustainable Development Goals ("SDGs"). Certain stakeholders also encourage private enterprizes to support SDGs. A new generation of smart young talent demonstrates strong interest to work for enterprizes that not only seek shareholders' value maximization but also aim to support public purposes such as those codified in the SDGs. Therefore, investors who traditionally only focused on achieving economic returns have become increasingly keen to engage in some level of Impact Investing.

Chart 2.8: Impact Investing - Expected Return



229 organisations that collectively manage US$ 228 billion in impact investment

Source: Global Impact investing network

© FT

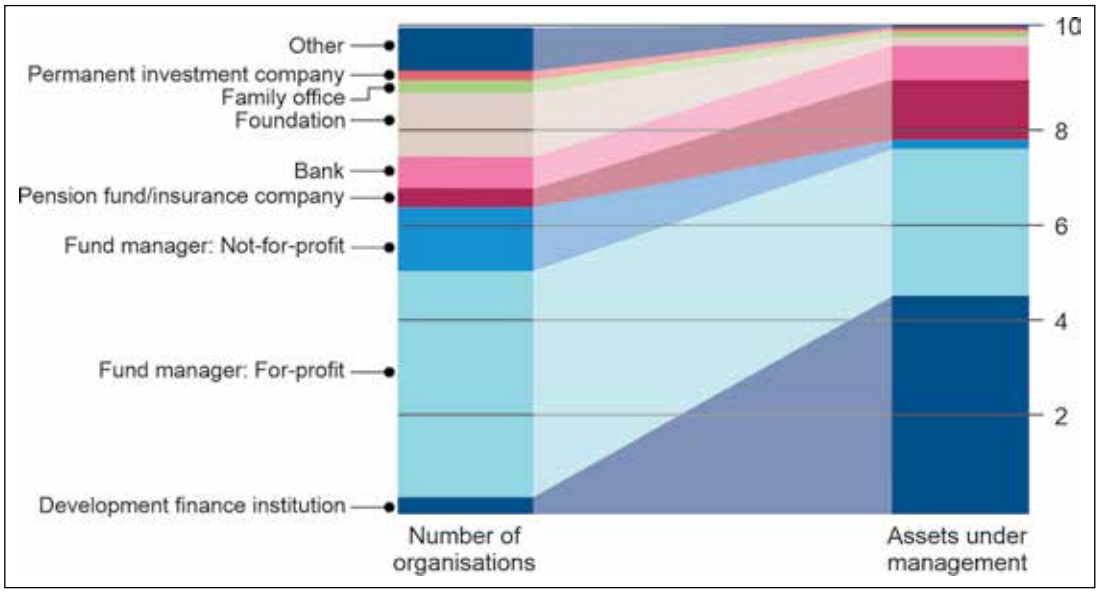
Sources: Global Impact Investing Network Survey of 229 Impacting Investors with US$ 228 billion Aum, Financial Times

Finding good investment opportunites for Impact Investing is not easy. It is not surprising to see that about 45% of money invested in Impact Investing comes from MDBs as shown in Chart 2.9.

Infrasturucture investment in developing countries is even more suited for Impact Investing. As suggested earlier, through using the tools available to analyze ex-ante development impacts, I am sure that many infrastructure investments are qualified for Impact Investing.

If we can package infrastructure investing in developing countries to be qualified with ESG Investing and/or Impact Investing, we have a better chance to attract institutional investors.

Chart 2.9: Development Finance Institutions Account for a Small Proportion of Investors but a Large Share of Money Invested 2018,%



229 organisations that collectively manage US$ 228 billion in impact investing assets
Source: Global Impact investing network

New Roles of DFIs

COVID-19 is clearly the most pressing issue that the world is facing at present. Although vaccines look promising, it will take some time before a significant portion of the global 7.7 billion population can be inoculated. The additional amounts of sovereign debt resulting from pandemic induced stimulus cannot be repaid quickly. We are likely to live with low interest rates for the foreseeable future. COVID-19 reminded many of us of the investment risks that social issues such as infectious disease could cause. As a result, I think ESG Investing will also not disappear soon.

We should take advantage of opportunities that COVID-19 created to fulfill the unmet needs of infrastructure in developing counties. The key is not losing the current window of low interest rates and expanding interest in ESG investing.

Let's prioritize high social impact infrastructure projects, structure projects to be financially sustainable, understand the risks that institutional investors can take, and act to mitigate other non-commercial risks by partnering with DFIs. Expansion of Asset Recycling is also very promising. Projects that are appropriately packaged to qualify as ESG Investing or Impact Investing will have advantages in finding investors.

DFIs, including bilateral export-import banks and development banks of developing countries which have deep expertise in infrastructure investing in developing countries can play larger roles. Providing additional financing or lower financing cost is one strategy. But, there is excess liquidity in the world as we discussed. What is missing is expertise to quantify ex-ante development and/or social impact and to structure projects to make them more investable. Expanding the number of investors able to take the lead in Asset Recycling can help facilitate the entrance of a new class of investor with lower risk tolerance into developing market infrastructure. Supporting institutional investors to partner with MDBs is also an important role that institutions such as DFIs with deep expertise can play.

DFIs can also work closely with developing countries' central and local governments to help them attain a more concrete understanding of the social impact of prospective projects by using tools to quantify impact, consider ex-ante social impacts, as well as consider the willingness of the ultimate beneficiaries to pay market prices for the services that a given infrastructure investment enables.

If DFIs can leverage their existing expertise to play such roles, we should be able to expand investor horizons to bring additional institutional investors in. This has the potential to fulfill unmet needs of infrastructure in developing countries.

BRICS in a World of Moving Supply Chains

Bibek Debroy
Chairman,
Economic Advisory Council to the Prime Minister,
Government of India

Hindol Sengupta
Vice President and
Head of Research, Invest India

Introduction

Perhaps the issue that has affected BRICS economies the most, ever since the term was coined[1] in 2001, has been the COVID-19 pandemic. While the BRICS were affected during the 2008 financial crisis, "liberal monetary policy along with fiscal expansion helped BRICs to recover sooner rather than later"[2].

The COVID-19 pandemic has caused unprecedented shifts in global supply-chains. A significant part of the global dialogue has centered around the shift of supply-chains from China, the world's biggest manufacturing hub, and the country where the COVID-19 virus was first discovered in the Wuhan province in central China[3]. By some estimates 33% of companies with global supply-chains "had moved sourcing and manufacturing activities out of China or plan to do so in the next two to three years"[4] due to conditions created by the disease. Adding to fears of the spread of infectious disease was US pressure to 'decouple' the American economy from China, including a threat from President Donald Trump to disallow federal contracts to be granted to American

[1] Goldman Sachs chief economist Jim O' Neill coined the term BRIC – Brazil, Russia, India and China – as the four economies which would dominate the world by 2050. South Africa was added later to this list to create BRICS

[2] 'The financial crisis: impact on BRIC and policy response', Ritwik Banerjee and Pankaj Vashisht, ICRIER, June, 2010, https://mpra.ub.uni-muenchen.de/38812/1/Impact_of_Financial_Crisis_on_BRIC-Ritwik_Banerjee.docxa_.pdf, Accessed October 5, 2020

[3] https://www.who.int/news/item/29-06-2020-covidtimeline

[4] 'Gartner Survey Reveals 33% of Supply Chain Leaders Moved Business Out of China or Plan to by 2023', June 24, 2020, https://www.gartner.com/en/newsroom/press-releases/2020-06-24-gartner-survey-reveals-33-%-of-supply-chain-leaders-moved-business-out-of-china-or-plan-to-by-2023, Accessed October 7, 2020

companies that outsource to China[5]. The administration of President Joe Biden has continued economic and political pressure on China in many ways[6].

Before proceeding further, it is important to define 'supply chain'. In this paper we shall be using the definition offered by the Small Business Advancement National Center of the University of Central Arkansas in the United States, which states:

"*A supply chain consists of all parties involved, directly or indirectly, in fulfilling a customer request. The supply chain not only includes the manufacturer and suppliers, but also transporters, warehouses, retailers, and customers themselves. Within each organization, such as a manufacturer, the supply chain includes all functions involved in receiving and filling a customer request. These functions include, but are not limited to, new product development, marketing, operations, distribution, finance, and customer service*"[7]. Therefore, the phrase includes both manufacturing (product) output, and services output (for instance, customer service).

Against this backdrop, this paper analyses supply-chain moves, from, and to, within the BRICS group of countries made up of Brazil, Russia, India, China, and South Africa. It highlights the already growing importance of BRICS in the global economy even before the COVID-19 crisis. It notes both the behaviour of some of the largest global companies in reference BRICS supply-chains, actions of non-BRICS nations with regard to BRICS supply chains, and the state of the economies in the BRICS grouping to take these moves into account.

The Importance of BRICS in Global Trade before COVID-19

BRICs officially became a global bloc at a summit in Yekaterinburg in 2009. Today, "in spite of the consequences of the financial and economic crisis of 2008, the fluctuations of global economic growth, an increase in protectionism, the ongoing deficit of funding for infrastructure and other issues over the postcrisis decade, the average GDP per capita for the population of the BRICS countries (5.4%) was three times higher than worldwide (1.7%)"[8]. The BRICS economies make up more than 25% of the world's land area and more than 40% of the world's population[9]. Four of them have GDPs of more than US$ 1 trillion. The combined GDP of the BRICS reached US$ 17 trillion in 2014, representing around 22%

[5] 'Trump again raises idea of decoupling economy from China', Reuters, September 8, 2020, https://in.reuters.com/article/usa-trump-china/trump-again-raises-idea-of-decoupling-economy-from-china-idINKBN25Z08U, Accessed October 7, 2020

[6] Ibid

[7] As defined by the Small Business Advancement Center of the University of Central Arkansas, https://griffinandco.marketing/blog/2018/8/16/supply-chain-management-in-the-service-industry, Accessed October 8, 2020

[8] BRICS Information Portal, http://infobrics.org/post/31036/, Accessed October 8, 2020

[9] Ibid

of the global economy[10]. In 2019, the BRICS countries had a 33% share in global GDP[11]. "The BRICS countries represent 19% of global exports, 16% of global imports, 19% of incoming and almost the same amount of outgoing direct investment"[12]. In the last decade, the BRICS economies have been responsible for more than half of the world's growth[13]. All the BRICS countries are members of the Group of Twenty (G20) major economies.

In 2011, BRICS countries "produced slightly less than one third of manufacturing GDP as compared to 15% (USA), 9% (Japan) and 15% (the four big EU countries, i.e. Germany, France, Great Britain, and Italy)"[14]. Between 1995 and 2011, there was a major shift in global manufacturing gross domestic product (GDP) from around 10% in 1995 to 28% in 2011[15], and over the period of 1999-2014, compared as blocs, the share of global manufacturing output of NAFTA (the North American Free Trade Agreement) shrunk from 31.9% to 21.6%, the share of the European Union (EU) fell from 27.8% to 20.1%, while the share of the BRICS economies in global share of manufacturing output rose from 10.1% to 33.8%[16]. This growth was largely fuelled by the rise of Chinese manufacturing as the 'world's factory floor'[17]. In 1999, China's share of world manufacturing was 6%. This rose to 25.6% in 2014[18]. Such growing share has been noted for BRICS countries in the services sector too. According to World Trade Organisation statistics, in 2015, China was the world's third largest exporter of services in 2015 and India the eighth, with significant successes in information technology (IT) and business process outsourcing (BPO)[19].

In 2014, the BRICS countries set up a new bank, New Development Bank (NDB), with an initial authorized capital of US$ 100 billion, "to mobilize resources for infrastructure and sustainable development projects in BRICS and other emerging economies, as well as in developing countries"[20]. During the COVID-19 pandemic, the NDB sanctioned loans of US$ 1 billion each as assistance to China, India, South Africa, and Brazil[21]. Apart from COVID-19

[10] Peter Lowe, 'The rise of the BRICS in the global economy', Teaching Geography, Summer 2016, Vol. 41, No. 2, Focus on making progress (Summer 2016), pp. 50-53, Geographical Association

[11] BRICS Information Portal, http://infobrics.org/post/31036/, Accessed October 8, 2020

[12] Ibid

[13] 'Realising the BRICS long-term goals: roadmaps and pathways', BRICs Think-Tanks Council, 2017, pp. 10

[14] Robert Stehrer, 'On the role of BRIC countries in providing global manufacturing output', The Vienna Institute for International Economic Studies, Future of Manufacturing Project: Evidence Paper 34, Foresight, Government Office for Science, United Kingdom, 2013

[15] Ibid

[16] Irina Rodionova, Tatiana Kokuytseva and Olga Shuvalova, 'The balance of power in the world manufacturing', paper presented at the 10th Annual Conference of the EuroMed Academy of Business, 2017

[17] Mary Hennock, 'China: the world's factory floor', BBC News http://news.bbc.co.uk/2/hi/business/2415241.stm, Accessed October 13, 2020

[18] Irina Rodionova, Tatiana Kokuytseva and Olga Shuvalova, 'The balance of power in the world manufacturing', paper presented at the 10th Annual Conference of the EuroMed Academy of Business, 2017

[19] WTO, World Trade Statistical Review 2016, A9. Leading exporters and importers in world trade in commercial services (including intra-EU(28) trade), 2015 www.wto.org/english/res_e/statis_e/wts2016_e/wts16_toc_e.htm, Accessed October 12, 2020

[20] https://www.ndb.int/about-us/essence/history/, Accessed October 14, 2020

[21] 'NDB Approves US$ 1 Billion COVID-19 Emergency Program Loan To Brazil', New Development Bank, https://www.ndb.int/press_release/ndb-approves-usd-1-billion-COVID-19-emergency-program-loan-brazil/, Accessed October 14, 2020

fighting loans, the NDB has approved funding for 44 projects worth around US$ 13 billion[22]. Despite intra-BRICS competitiveness, BRICS as a bloc has consistently gained importance.

One of the fundamental reasons for this is the transformation of BRICS from its early days where it represented, to many-a global corporation, an opportunity to outsource manufacturing as a lower price point (due to many advantages, from cheap labour to tax concessions). BRICS nations, especially India and China today represent two of the biggest domestic markets in the world, each with more than a billion-strong population, and rising middle-class prosperity and disposable income. But its initial advantage came from China's ability to manufacture goods, first technologically at the lower end, and then progressively up the value chain, which could be used to manufacture at a fraction of the cost that it would take in the West.

The supply chain advantage of BRICS began long before the term was coined, when in the late 1970s, China started building Special Economic Zones to attract foreign capital and build export hubs to manufacture goods for the world[23]. "With this strategy, China received more than US$ 8.5 billion dollars from foreign direct investment (FDI) from 1995 to 2009, making it the second highest ranking destination for FDI in the world, just behind the United States. In 1980, China exported less than US$ 10 billion a year; now [in 2014] it is the biggest exporter in the world, bringing in more than US$ 1.1 trillion in 2009, outstripping Germany and the United States"[24].

Other BRICS economies grew on the back of other advantages, for instance, India's services industry, strengthened by technology engineers and a large pool of workers proficient in the English language, grew exports of information technology-enabled services from US$ 4.5 billion to US$ 15.8 billion between 1999-2004. In Brazil, the introduction of a new currency, the real, helped the country achieved higher growth than its infamous inflation by 2006, for the first time in more than 50 years[25]. In years between 2003-2010, following a series of social and economic policies that significantly reduced poverty and grew a middle class with purchasing power, Brazil tackled the 2008 financial crash better than most countries, and "was on a roll. It did not avoid the downturn, but was among the last in and the first out. Its economy is growing again at an annualised rate of 5%"[26]. Naturally endowed with commodity riches and a relatively well-educated population (compared to other developing

[22] 'NDB Board of Directors Approves Two Projects With Loans Aggregating to US$ 800 million', PRNewswire, October 24, 2019, https://www.prnewswire.com/in/news-releases/ndb-board-of-directors-approves-two-projects-with-loans-aggregating-to-usd-800-mln-878236513.html, Accessed October 15, 2020

[23] Arturo Oropeza Garcia, 'The Role of China and the BRICS Project', Mexican Law Review, 2014, http://www.scielo.org.mx/scielo.php?script=sci_arttext&pid=S1870-05782014000200005, Accessed October 15, 2020

[24] Ibid

[25] From online edition of Thomas E. Skidmore, 'Brazil: Five Centuries of Change', Oxford University Press, 2010 (second ed.) available at the Center for Digital Scholarship, Brown University, https://library.brown.edu/create/fivecenturiesofchange/chapters/chapter-9/brazil-as-a-global-economic-player/, Accessed October 15, 2020

[26] 'Brazil takes off', The Economist, November 12, 2009, https://www.economist.com/leaders/2009/11/12/brazil-takes-off, Accessed October 15, 2020

countries), and a strong research and development base in Latin America, Brazil's growth had some strong underlying pillars. By 2011, Brazil had surpassed the United Kingdom as the sixth-largest economy in the world[27]. The Russian economy took a growth trajectory around the same time when the presidency of Vladimir Putin "began by committing Russia to a deeper engagement with the global economy"[28]. Growth in Russia was propelled by two critical ingredients, the devaluation of its currency, the rouble, and the rise in the price of its key export, oil. In the decade between 1998-2008, the price of oil rose fifteen times, doubling the Russian GDP during the period, and exponentially rising FDI into the country from US$ 2.7 billion in 2000 to US$ 75 billion in 2008[29]. In 2006, Russia became a full member of the G8 (group of eight most industrialised nations), hosting and chairing the G8 summit that year[30]. Meanwhile, post-apartheid South Africa averaged a growth rate of 3.7% in real GDP, and 2.1% in per capita terms, between 1995 and 2007[31]. Between 2004-2007, the South African economy grew at more than 5% a year reaping "the benefits of the global commodities boom, openness to international trade, and improvements in total factor productivity due to increased competition at sectoral levels and higher domestic investment which was stimulated by lower user cost of capital and lower risks as a result of macroeconomic stability"[32]. In essence, for a period, the BRICS economies grew at a more rapid pace than had been foreseen by Goldman Sachs economists who coined the acronym[33]. Even without South Africa, the four original BRICS states, India, China, Russia, and Brazil, saw their combined GDP rise from about US$ 3 trillion to US$ 10 trillion between 2001-2010. All four countries became full members of the World Trade Organisation by 2012 after the entry of Russia in December 2011[34].

In summation, the BRICS nations grew on the back of a series of advantages which varied from country to country but had some common fundamentals – a deeper interaction and integration with global markets, a rise in foreign direct investment in key sectors in the country, and a stronger role in global supply chains. The growth of the services economy in BRICS countries, for instance, reflected a shifting demand pattern in global consumption. "As per capita incomes rise, consumer demand tends to shift towards services in relative terms. At the same time, the rise of global value chains (GVCs) has given services a special role, 'embodied' within goods that are then exported. For instance, an imported iPhone nominally

[27] From online edition of Thomas E. Skidmore, 'Brazil: Five Centuries of Change', Oxford University Press, 2010 (second ed.) available at the Center for Digital Scholarship, Brown University, https://library.brown.edu/create/fivecenturiesofchange/chapters/chapter-9/brazil-as-a-global-economic-player/, Accessed October 15, 2020

[28] Nigel Goud-Davies, 'Russia's Sovereign Globalization: Rise, Fall and Future', Chatam House, 2016, https://www.chathamhouse.org/sites/default/files/publications/research/20160106RussiasSovereign GlobalizationGouldDaviesFinal.pdf, Accessed October 15, 2020

[29] Ibid

[30] 'From the G8 with Love: Full Membership For Russia', DW, https://www.dw.com/en/from-the-g8-with-love-full-membership-for-russia/a-583772, Accessed October 15, 2020

[31] Oluwasheyi S. Oladipo, 'The Effects of Globalization on an Emerging Economy: The Case of South Africa', City University of New York, 2016

[32] Ibid

[33] Lurong Chen, 'The BRICS in the Global Value Chain: An Empirical Note', Cuadernos de Economia, Vol. 31, Issue 57, Bogota, 2012

[34] Ibid

originating in China is, in reality, a bundle of value-added components from all over the world, including parts like a solid state hard drive or a screen, but also services, which include research and development, design, transport, and marketing. Modern production methods rely heavily on services, particularly within GVCs"[35]. On the back of such advantages, "the past three decades have witnessed a dramatic globalization of supply chains as corporates moved to countries, notably China, that offered the greatest cost, scale, and ecosystem advantages"[36].

But this was already in churn even before COVID-19 was known in most parts of the world. Growth in Brazil started by around 2012, and the country went through a tough recession in 2014-16, then creeping up to low growth rates in 2017-18[37]. Growth in South Africa has also tanked through the decade with its highest level at barely above 3% in 2011 and hitting 0.153% in 2019[38]. Growth both in China[39] and India[40] had also slowed in recent years. From July 2018 onwards, the US-China trade tariff dispute compelled many firms to rethink their supply chains. In total, the US has imposed tariffs on more than US$ 360 billion of Chinese goods, while the Chinese government has imposed its own tit-for-tat tariffs on US$ 110 billion worth of US goods[41]. Earlier in 2020, the two governments reached a negotiated 'phase one' settlement with a "Chinese commitment to purchase an additional US$ 200 billion in American goods above 2017 levels by the end of 2021"[42]. Despite talk of resolution, the quantum of the trade war impact triggered a rethink among US companies. By some estimates, the trade war was likely to cost the US economy around US$ 316 billion by the end of 2020[43], while according to research produced by the New York Federal Research and Columbia University "U.S. companies lost at least US$ 1.7 trillion in the price of their stocks as a result of U.S. tariffs imposed on imports from China"[44]. In May 2019, a survey conducted by the American Chamber of Commerce in China showed that "three-quarters of the 250 respondents said increases in U.S. and Chinese tariffs are having a 'negative impact' on their business as orders were drying up owing to rising manufacturing costs and prices"[45].

[35] Ben Shepherd, 'BRICS countries: Emerging players in global services trade', International Trade Centre, Geneva, July 2017

[36] Candace Browning, 'Supply Chains on the Move as Global Pressures Mount', Barrons, August 7, 2020, https://www.barrons.com/articles/supply-chains-on-the-move-as-global-pressures-mount-51596825253, Accessed October 16, 2020

[37] https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG?locations=BR

[38] https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG?locations=ZA

[39] https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG?locations=CN

[40] https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG?locations=IN

[41] 'A quick guide to the US-China trade war', BBC News, January 16, 2020 https://www.bbc.com/news/business-45899310, Accessed October 17, 2020

[42] Ryan Hass and Abraham Denmark, Brookings, August 7, 2020 https://www.brookings.edu/blog/order-from-chaos/2020/08/07/more-pain-than-gain-how-the-us-china-trade-war-hurt-america/#:~:text=Between%20July%202018%20and%20August,%24185%20billion%20of%20U.S.%20goods, Accessed October 17, 2020

[43] Shawn Donnan and Reade Pickert, Bloomberg, December 18, 2019, https://www.bloomberg.com/news/articles/2019-12-18/trump-s-china-buying-spree-unlikely-to-cover-trade-war-s-costs, Accessed October 18, 2020

[44] Mary Amiti, Sang Hoon Kong, and David E. Weinstein, Liberty Street Economics, https://libertystreeteconomics.newyorkfed.org/2020/05/the-investment-cost-of-the-us-china-trade-war.html, Accessed October 18, 2020

[45] 'US Firms Rethink China Presence Due To Trade War: Survey', Bloomberg, https://www.industryweek.com/the-economy/article/22027637/us-firms-rethink-china-presence-due-to-trade-war-survey, Accessed October 18, 2020

The survey result noted that around half of the respondents had noted that they had faced non-tariff retaliatory measures in China due to the trade war between the countries, "with one in five reporting increased inspections and a similar amount enduring slower customs clearance. And 14% complained of other complications from increased bureaucratic oversight and regulatory scrutiny"[46]. As a result of such trade conflict, 35% of the companies said that they would "adopt an 'in China for China' strategy - sourcing within China and targeting the domestic market - as a result of tariffs and more than 40% said they were 'considering or have relocated production facilities outside China, with Mexico and Southeast Asia the preferred alternatives for manufacturing"[47].

The February-March 2020 Gartner Survey noted that the tariff war had increasingly narrowed the margin between onshoring and offshoring (when the location was China), and found that that tariffs imposed by the U.S. and Chinese governments during the past years have increased supply chain costs by up to 10% for more than 40% of organizations[48]. Around 25% of the respondents to the survey said that the impact had been even more severe for them. The issue of 'supply chain resilience' had taken pole position.

In February 2020, a Bank of America research report highlighted that the world, and more specifically companies in North America, were "entering an unprecedented phase where companies were experimenting with a 'China Plus' strategy. While keeping primary supply chains in place, managers were also experimenting with pilot projects in alternative locations"[49]. A Bank of America research survey in January 2020, covering 3,000 companies, discovered "that companies in more than 80% of twelve global sectors (US$ 22 trillion[50] market cap) in each of North America, Europe and Asia-Pacific (ex-China) have implemented or announced plans to shift at least a portion of their supply chains from current locations"[51]. The Bank of America February report based on the survey noted three major key takeaways from this revaluation which was termed as "the first reversal in a multi-decade trend"[52]. (i) national security concerns, even more than tariffs which could be negotiated and brought down, was one of the primary drivers of this change, (ii) "South East Asia and India were the planned destinations for half of North American and Asian supply chains. This is a function of attractive labor (sic) costs in Asia-South"[53], and (iii) "companies in about half of all global

[46] Ibid

[47] Ibid

[48] 'Gartner Survey Reveals 33% of Supply Chain Leaders Moved Business Out of China or Plan To by 2023', Gartner, https://www.gartner.com/en/newsroom/press-releases/2020-06-24-gartner-survey-reveals-33-%-of-supply-chain-leaders-moved-business-out-of-china-or-plan-to-by-2023, Accessed October 19, 2020

[49] Candace Browning Platt, 'Supply Chains on the Move as Global Pressures Mount', Barron's, August 7, 2020

[50] Trillion

[51] Candace Browning Platt, Vikram Sahu, Ethan S. Harris, Brett Hodess, Eric Lopez, Ritesh Samadhiya and Chris Oberoi, 'Tectonic shifts in global supply chains', Global Equity Strategy, Bank of America Global Research, February 2020

[52] Ibid

[53] Ibid

sectors for North America have declared an intent to 'reshore'. This was particularly true for high-tech sectors and industries for which energy is a key input"[54]. Some of these behavioural changes could be considered an extension of the 'China plus one', which essentially explains that global firms heavily dependent on China as a sole or majority source in their supply chain tend to think of diversifying, and thus strengthening their supply chain.

It must be noted here that the 'China plus one' strategy has been deliberated at least since 2007[55], and has steadily gathered pace in recent years, especially in the economic thinking of countries like Japan. By 2017, this move in supply chains was being described as a "macro level phenomenon", i.e., "not many firms are self-consciously undertaking a China-plus-one strategy, although their behaviour is more or less in line with the China-plus-one hypothesis"[56].

The COVID-19 pandemic has heightened these sotto voce moves as the spread of the disease has "turned tectonic shifts to visible fault lines"[57]. In a follow-up research report from its February report, Bank of America said in July 2020 that "companies in over 80% of global sectors experienced supply chain disruptions during the pandemic, prompting three-quarters to widen the scope of their re-shoring plans"[58]. The conversation about the reorganisation of supply chains is focussed on two pillars, the first centred around policy-driven relocation, resulting from the fact that "the world is becoming more government-heavy with heterodox policies reversing 40 years of free, global markets"[59], and the other focussed on "national security concerns"[60] amplified by the fact that "the US has recognized China as a strategic competitor"[61]. According to surveys conducted by the American Chamber of Commerce in China in 2019, about 40% of US companies in China have moved manufacturing facilities out of the country already or are considering doing so[62]. In 2020, global manufacturing consulting firm Kearney's Reshoring Index showed a "dramatic reversal" of a trend across five past years as, in 2019, manufacturing inside the US showed a greater share than in 14 exporting countries in Asia mapped in the index. The worst hit was manufacturing imports from China[63].

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[54] Ibid

[55] Robert Collins and Carson Block, Doing Business in China for Dummies, For Dummies, 2007, pp. 70

[56] Keisuke Ida, Japan's Security and Economic Dependence on China and the United States: Cool Politics, Lukewarm Economics, London: Routledge, 2018, pp. 156

[57] Candace Browning Platt, Vikram Sahu, Ethan S. Harris, Brett Hodess, Eric Lopez, Ritesh Samadhiya and Chris Oberoi, Sameer Chopra and Savita Subramanian, 'The USD1 trillion cost of remaking supply chains: Significant but not prohibitive', Bank of America Global Research, July 2020

[58] Ibid

[59] Ibid

[60] Ibid

[61] Ibid

[62] 'US Firms Rethink China Presence Due To Trade War: Survey', Bloomberg, https://www.industryweek.com/the-economy/article/22027637/us-firms-rethink-china-presence-due-to-trade-war-survey, Accessed October 18, 2020

[63] Kenneth Rapoza, 'New Data Shows U.S. Companies Are Definitely Leaving China', Forbes, https://www.forbes.com/sites/kenrapoza/2020/04/07/new-data-shows-us-companies-are-definitely-leaving-china/?sh=3aeb2a7140fe, Accessed October 18, 2020

While there is widespread speculation on a change in US strategy with the change of presidentship from Donald Trump to Joe Biden, in many ways the Biden strategy towards China has kept up the pressure on the Asian giant[64].

The BRICS Economies after COVID-19

Meanwhile, with the spread of the COVID-19 pandemic from the early parts of 2020[65], beginning with China and then spreading across the world, the unprecedented lockdown of the global economy and churn in global supply chains has been met by different responses and initiatives by BRICS members.

One of the key elements of the Chinese response has been to highlight "revolutionary opportunities, especially in digital economy, to shape new industrial types and enhance the competitiveness of Chinese enterprises"[66]. In July 2020, the Chinese government suggested that it would focus on a new 'dual circulation' economic model "which means taking domestic market as the mainstay while facilitating better interconnectivity between markets at home and abroad"[67]. One of the key ideas in this plan is the building of "high-level overseas industrial parks that integrate the wisdom and experiences of China and partner countries"[68]. This has been noted as helpful in offsetting "strikes from the pandemic on international production capacity cooperation and stimulate the dual direction cooperation of more Chinese enterprises 'going global' and foreign companies 'coming in', generating reciprocal symbiosis in global supply chain in post-COVID period"[69].

China is well-positioned to affect such a strategy with its economy rebounding swiftly from the COVID-19 pandemic. The country's growth in the July-September quarter 2020 clocked in at 4.9%, higher than the 3.2% of the previous quarter[70]. In totality, according to a Reuters poll, the Chinese economy is likely to grow 2.1% in 2020 and rise quickly to 8.4% in 2021[71]. Despite the disruption caused by the pandemic, and the shift in global supply chains, the Chinese economy is likely to be almost at the same size in 2021 as had been predicted in 2019. While the swift rebound is unsurprising as most economies, having undergone a

[64] Ana Swanson, 'Biden's China Policy? A Balancing Act for a Toxic Relationship', The New York Times, November 16, 2020 https://www.nytimes.com/2020/11/16/business/economy/biden-china-trade-policy.html, Accessed November 16, 2020

[65] https://www.who.int/emergencies/diseases/novel-coronavirus-2019/events-as-they-happen

[66] Chenchen Chen, 'China's way out of intensifying race along global supply chain in post-Covid19 era', Observer Research Foundation, October 6, 2020, https://www.orfonline.org/expert-speak/chinas-way-out-of-intensifying-race-along-global-supply-chain-in-post-covid19-era/, October 19, 2020

[67] Ibid

[68] Ibid

[69] Ibid

[70] Ananth Krishnan, 'China GDP growth accelerates to 4.9%', The Hindu, October 19, 2020, https://www.thehindu.com/business/Economy/china-gdp-growth-accelerates-to-49/article32895758.ece, Accessed October 20, 2020

[71] 'China's economic growth seen hitting 44-year low in 2020, bounce 8.4% in 2021: Poll', The Economic Times, October 27, 2020, https://economictimes.indiatimes.com/news/international/business/chinas-economic-growth-seen-hitting-44-year-low-in-2020-bounce-8-4-in-2021-poll/articleshow/78887184.cms, Accessed October 29, 2020

historic shrinking in 2020 due to the virus, are likely to bounce back sharply in 2021, China will remain unique as it is the only major economy likely to maintain an overall growth, though small, even in 2020[72].

Rooting national growth in domestic demand and capacity building while not forsaking, but nuancing global exposure, is also at the heart of India's campaign of Atmanirbhar Bharat[73] which seeks to, in a sense, re-industrialise by focussing on local manufacturing both for domestic consumption and "making for the world"[74]. Indian Prime Minister Narendra Modi has promoted the idea of 'vocal for local' or a heightened consumption of locally made goods, and a simultaneous push towards moving Indian manufacturing up the value chain, suggesting that India move up the value chain from merely exporting raw materials and buying back finished goods[75].

India has taken a series of measures between late 2019 and into 2020 to promote the country as a destination of choice for global manufacturing. In December 2019, India introduced a special concessionary tax rate of 15% for "new investments from new companies that go into operation between October 2019 to 2023"[76].

To boost manufacturing interest, India has also cut red-tape in labour laws, simplifying 44 laws into four codes[77]. The labour laws reforms are aimed to make it "easier and cheaper to do business in India and make it more competitive"[78]. The simplification spans everything from starting and shutting manufacturing units to reducing the number of licenses and compliances required and making it easier to acquire these.

India has also applied sweeping reforms in its agricultural sector with three new laws that remove monopoly of traders of agrarian produce, encourage private investment in cold storage, warehousing and processing, bring in greater private investment in farming, and better connect Indian agriculture to global markets. Prime Minister Narendra Modi has also pitched investment opportunities in India's US$ 1.5 trillion planned spend in expenditure on

[72] Simon Cox, 'China's economy will hold up well in the coming year', The Economist, November 17, 2020, https://www.economist.com/the-world-ahead/2020/11/17/chinas-economy-will-hold-up-well-in-the-coming-year, Accessed November 17, 2020

[73] 'Self-reliant India' in Hindi language

[74] ''Atmanirbhar Bharat' also means 'making for the world', says PM Modi', Business Standard, August 15, 2020 https://www.business-standard.com/article/current-affairs/corona-a-global-crisis-but-not-so-big-as-to-halt-india-s-juggernaut-modi-120081500228_1.html, Accessed October 20, 2020

[75] Ibid

[76] 'Corporate tax cut will make India a global manufacturing hub: FM', The Hindu, December 2, 2019, https://www.thehindubusinessline.com/economy/policy/corporate-tax-cut-aimed-at-turning-india-into-a-manufacturing-hub-fm/article30140984.ece, Accessed November 1, 2020

[77] Yogima Seth Sharma, 'Government introduces Labour Code on Industrial Relations bill in Lok Sabha', The Economic Times, November 28, 2019, https://economictimes.indiatimes.com/news/economy/policy/govt-introduces-labour-code-on-industrial-relations-bill-in-lok-sabha/articleshow/72273873.cms?from=mdr, Accessed November 5, 2020

[78] Harshpati Singhania, 'New labour codes are welcome, but for real labour reforms, laws have to ease at the state level', Financial Express, October 21, 2020, https://www.financialexpress.com/opinion/new-labour-codes-are-welcome-but-for-real-labour-reforms-laws-have-to-ease-at-the-state-level/2110335/, Accessed November 7, 2020

infrastructure starting 2020[79], including the proposed plan of completing the construction of 100 smart cities in the country[80]. The country's massive grassroots digitisation project which now has nearly 700 million internet users has also fuelled investor interest, in part fuelling India's highest ever foreign direct investment intake at more than US$ 35 billion between April-August 2020[81].

Additionally, India has announced a range of incentives and reforms aimed at helping the country soak up investment and reinvent its manufacturing reputation. India, which sent medicines including hydroxychloroquine, to around 150 countries during the pandemic[82], is one of the world's biggest bulk drug (generic formulation) suppliers. But it has relied heavily on imports for active pharmaceutical ingredients (API) and key starting materials (KSM), mostly from China. Such dependence raised questions on supply chain resilience of Indian pharmaceuticals during COVID-19 when supplies of APIs and KSM were disrupted. According to the rating agency Fitch, the new incentives announced in July 2020 for drug manufacture focussed on strengthening India's pharma supply chain through domestic production "which includes production-linked incentives and financial assistance schemes aggregating to US$ 1.3 billion, will help address the two keys issues; the higher cost of domestic production compared with imports and funding requirement to set up the necessary infrastructure"[83]. The pharma scheme is part of a series of production-linked schemes aimed at making India a manufacturing supply hub of the world. The pharma scheme, for instance, "accounts for ₹ 0.9 billion[84] of planned outlay - offers an incentive of up to 20% of sales for fermentation based products and up to 10% for chemical synthesis-based products for the next eight to nine years. This should help to bridge the price gap and make domestic production more competitive. The government has also allocated US$ 0.4 billion[85] under the capex assistance scheme to fund up to 90% of the investment need to build common infrastructure facilities in three bulk drug parks and this is likely to aid the investment decisions of Indian pharma companies, particularly in the current environment where the focus is on conserving cash"[86]. The expansion of manufacturing of APIs and KSMs in India is likely to better "backward

[79] Vrishti Beniwal, 'India Plans US$ 1.5 Trillion Infrastructure Spending To Spur Growth', Bloomberg, December 31, 2019, https://www.bloomberg.com/news/articles/2019-12-31/india-plans-1-5-trillion-infrastructure-spending- to-spur-growth, Accessed November 7, 2020

[80] Aparna Banerjea, '1,000 kms of Metro Rail by 2022 to 100 smart cities: PM Modi's pitch to investors', Mint, November 17, 2020, https://www.livemint.com/news/india/1-000-kms-of-metro-rail-by-2020-to-100-smart-cities-pm-modi-s-pitch-to-investors-11605624694831.html, Accessed November 17, 2020

[81] Kirtika Suneja, 'India receives highest ever FDI in Apr-Aug FY21: Government', The Economic Times, October 21, 2020, https://economictimes.indiatimes.com/news/economy/finance/india-receives-highest-ever-fdi-in-apr-aug-fy21-government/articleshow/78773388.cms, Accessed November 17, 2020

[82] 'India has extended assistance to over 150 countries in fight against COVID-19: PM Modi', The Economic Times, July 18, 2020, https://health.economictimes.indiatimes.com/news/policy/india-has-extended-assistance-to-over-150-countries-in-fight-against-COVID-19-pm-modi/77028422, November 18, 2020

[83] 'India's Incentives for Domestic API Production Could Cut Supply Risk', Fitch, August 10, 2020, https://www.fitchratings.com/research/corporate-finance/india-incentives-for-domestic-api-production-could-cut-supply-risk-10-08-2020, November 18, 2020

[84] ₹ = Indian Rupees

[85] US$ = US Dollars

[86] Ibid

integration over the next few years and curtail supply-chain disruption risk for Indian drug makers and address core issues of pricing competitiveness and funding and may assist the investment decisions of local pharma companies in the current environment"[87].

Production-linked incentive (PLI) schemes have been announced for a range of key sectors fuelling growth in the Indian economy from large-scale electronics manufacturing to chemistry cell batteries, automobiles and auto components, specialty steel, pharmaceuticals, telecom and networking products, solar modules, white goods to food products, and textiles[88]. Announced in April 2020, one of the early PLI schemes in electronics manufacturing has seen the participation of major mobile phone manufacturing companies like Samsung, Foxconn Hon Hai, Rising Star, Wistron, and Pegatron. Three of these companies – Foxconn Hon Hai, Wistron, and Pegatron – are contract manufacturers for Apple iPhones. "Apple (37%) and Samsung (22%) together account for nearly 60% of global sales revenue of mobile phones and this scheme is expected to increase their manufacturing base manifold in the country"[89]. In total, India's Ministry of Electronics and Information and Technology (MeitY) has approved 16 applicants under the PLI scheme for large scale electronics manufacturing which extends an incentive of 4% to 6% on incremental sales (over base year) of goods under target segments that are manufactured in India to eligible companies for a period of five years subsequent to the base year FY 2019-20[90]. Similar PLI-based schemes are being rolled out for all the chosen sectors. In other important moves to attract FDI, India also announced the increase of the limit of FDI investment under the automatic route in defence manufacturing from 49% to 74%[91].

Through such moves, India hopes to use the opportunities triggered by a global shift in supply chain towards greater resilience to boost its manufacturing prowess. In 2019, India ranked 42nd out of 152 countries ranked on the Competitive Industrial Performance Index of the United Nations Industrial Development Organisation (UNIDO) with a manufacturing value added (MVA constant 2015 US$) of US$ 430.25 billion (15.5% of its GDP)[92]. In comparison, China ranked second with an MVA of US$ 4105.87 billion (28.8% share of GDP). "India's manufacturing portfolio concentrated mainly on chemicals and chemical products (18%); coke, refined petroleum products and nuclear fuel (13.6%); food and beverages (9.4%); basic metals (8.6%); and motor vehicles, tractors and semi-trailers (8.1%). China, however, has one of the most diverse manufacturing portfolios in the world with medium and high-tech

[87] Ibid

[88] 'Production-linked incentive scheme for 10 sectors: The story so far', Moneycontrol, https://www.moneycontrol.com/news/business/economy/production-linked-incentive-scheme-for-10-sectors-the-story-so-far-6127711.html, November 18, 2020

[89] https://pib.gov.in/PressReleasePage.aspx?PRID=1662096

[90] Ibid

[91] 'India – Recent Reforms In The Defence Sector – A Shot In The Arm?', Coventus Law, July 7, 2020, https://www.conventuslaw.com/report/india-recent-reforms-in-the-defence-sector-a-shot/, Accessed November 16, 2020

[92] https://stat.unido.org/country-profile/economics/IND

industry value added at 41.5% (2017). China's manufacturing composition (2019) consisted of basic metals (14.3%); chemicals and chemical products (10.8%); food and beverages (8.9%); machinery and equipment (8.5%); and radio, television and computer equipment (6.8%)"[93]. India seeks to diversify through schemes like the PLI both its manufacturing quantum and its mix.

India has also benefitted from supply chain moves triggered by other Asian countries like Japan. In 2020, Japan, for instance, announced a supplementary budget of US$ 2.2 billion to help Japanese companies in "diversifying their production bases, primarily through the return of high-value manufacturing activities to Japan, or redirecting them to the Southeast Asian nations"[94]. At the moment, "Japan relies on China for more than 20% of its requirement of parts and materials, mainly electronic components such as motherboards, RAM chipsets, and hard disk drives"[95]. Japan added India to the list of relocation destinations as part of its policy to shift manufacturing bases out of China in September 2020[96].

Other BRICS countries like Brazil have hopes of rebounding from the pandemic due to demand rising once again for commodities, some on the back of Chinese growth, as in the past. For instance, as early as May 2020, the iron ore industry in Brazil was already talking about a recovery based on strong industrial demand for ore from China, based on the recovery of the Chinese economy[97]. After sharp contractions in April and May, the manufacturing sector in Brazil also recovered strongly[98]. Brazil's strong agricultural and allied industries including processed food which make up around 20% of the economy also benefitted from early moves, with government support, to ensure food supplies from the country reached parts of the world where supplies had been disrupted. In June 2020, a United States Department of Agriculture report noted that "the structure of Brazil's agricultural supply chain has also helped to minimize the potential impact of the pandemic. For instance, while Brazil has an extremely large animal protein processing sector, slaughterhouses tend to be dispersed throughout the country, so concentrated outbreaks in one region are not particularly problematic. Furthermore, compared to the United States, Brazil has more small slaughterhouses, so the closing of a few processing plants, as has been the case in the southern states of Rio Grande do Sul and Santa Catarina, has relatively little effect on the overall supply of meat products.

[93] Kogila Balakrishnan, 'Can India be the Next Global Manufacturing Hub?', Manohar Parrikar For Defence Studies and Analysis, November 13, 2020, https://idsa.in/issuebrief/india-next-global-manufacturing-hub-kogila-saurabh-131120, November 16, 2020

[94] Takashi Tsuji and Kazuhiro Furuyama, "Japan preps first subsidy to company moving production out of China", Nikkei Asian Review, April 21, 2020 (Accessed June 21, 2020); and "Japan reveals 87 projects eligible for 'China exit' subsidies", Nikkei Asia, July 17, 2020 (Accessed September 30, 2020)

[95] Eulises Quintero, "Top 10 Companies Outsourcing electronics manufacturing in 2019", Titoma, 2019 (Accessed October 15, 2020)

[96] Takako Gakuto, "Japan adds India and Bangladesh to 'China exit' subsidy destinations", Nikkei Asia, September 04, 2020 (Accessed September 30, 2020)

[97] Marta Nogueira, 'Brazil mining sector will quickly bounce back after COVID-19 disruption', Reuters, May 20, 2020, https://www.reuters.com/article/us-brazil-mining-idUSKBN22V30E Accessed November 10, 2020

[98] Akrur Barua, 'Brazil: Signs of a recovery but much depends on the pandemic', Deloitte Insights, October 15, 2020, https://www2.deloitte.com/us/en/insights/economy/americas/brazil-economic-outlook.html, Accessed November 10, 2020

To the contrary, Brazil has continued to expand year-over-year exports of pork, poultry, and beef in the first half of 2020"[99].

In South Africa, a new economic restructuring plan was unveiled to use COVID-19 as an opportunity to change the fortunes of Africa's most industrialised economy. The plan involved significant infrastructure spend of US$ 6 billion (100 billion rand), which in turn, the South African government said it hoped, would bring in another 1 trillion rand in private investment[100]. The country has already started building some projects worth US$ 44.5 billion (housing), and more are in the pipeline. Even though South Africa had relatively better integration with supply chains compared to many of its neighbours, the pandemic was an opportunity for it to strengthen its depth with the continent as the health crisis came soon after a historic free trade agreement involving most of the countries in Africa, called the African Continental Free Trade Area (AfCFTA), including its three largest economies, South Africa, Nigeria, and Egypt. Many businesses in South Africa had relied on reselling imports but as supply chains became more and more complicated following the pandemic, and powered by the AfCTA at home, there is renewed impetus to focus on manufacturing and supply chains within the continent.

While the disruption in global supply chains has been epochal and is unlikely to revert to an identical flow of an earlier age, because there is growing consensus that the new Biden government in America is unlikely to roll back the China policy of the Trump administration in its entirety[101], each of the BRICS countries have attempted to use the crisis to change something critical about their economy. The shift of global supply chains has likely moved global businesses to a new era where supply chain resilience would be, at least, as important as cheap labour or low taxes.

Conclusion

This paper seeks to, in brief, detail the contours of the birth of BRICS and the importance of the BRICS economies through their trajectory, and the transformations that they are undergoing following the historic COVID-19 pandemic.

It notes that the BRICS emerged from global attention on the economic growth in what came to be called emerging markets and the excitement about the economic and demographic size that these countries represented.

[99] Evgenia Ustinova and Katherine Woody, 'Brazilian Agricultural Sector Thrives Despite COVID-19 Pandemic', United States Department of Agriculture Foreign Agricultural Service, June 12, 2020, https://apps.fas.usda.gov/newgainapi/api/Report/DownloadReportByFileName?fileName=Brazilian%20Agricultural%20Sector%20Thrives%20Despite%20COVID-19%20Pandemic%20_Brasilia_Brazil_06-11-2020, Accessed November 11, 2020

[100] 'Ramaphosa Outlines Plan to Spur South African Recovery', Bloomberg, October 15, 2020, https://www.bloombergquint.com/business/south-african-recovery-plan-targets-jobs-new-infrastructure, Accessed November 11, 2020

[101] 'Joe Biden is hardly the free trader Asia is hoping for', DW, November 13, 2020, https://www.dw.com/en/joe-biden-trump-us-china-trade-war-asia-india/a-55588355, Accessed November 12, 2020

The paper qualifies that while the BRICS economies were not identical in many ways – both economically and politically – but they had significant common ground which allowed them to be clubbed together and seen as region/s of prosperity which could fuel the future growth of the world.

This paper notes the varying routes, some similar, and some divergent, of growth that BRICS economies have taken since their conceptualisation, and the heights they attained through a combination of smart policy decisions, a favourable global climate with demand for cheap goods, services and commodities at large volumes. It also alludes to the rise of the BRICS economies in political consciousness of the global community on the back of their economic success.

In recent years, the BRICS economies have slowed and issues of trade conflict, including most notably between the US and China, and pressure from the American government on major companies to reduce their dependence on China for manufacturing, have impacted global supply chains raising questions of security and supply chain resilience. The appearance of the COVID-19 pandemic has exacerbated such concerns with widespread disruption of supply chains around the world.

This paper notes the rethinking in supply chain resilience with the coming of the COVID-19 pandemic and different measures adopted by BRICS economies to realign their economies according to the disruptions and shifts caused by the pandemic. It also notes that the COVID-19 pandemic has thrown up new opportunities for countries like India to restructure their economic to attract a greater share of global manufacturing and upscale on value chains. Some BRICS countries like India have put in place detailed incentives to help attract capital, whereas as a country like Brazil has benefitted from the ability of its commodities, especially in agrarian produce, to insulate its supply chains from the worst impact of the crisis. Areas like infrastructure spend is a common thread across many BRICS countries which are likely to generate both jobs, leading to greater consumer spend, and investment opportunities in those countries. The BRICS countries continue to possess natural strengths in terms of demographics, growth potential and most are unlocking value through deep digitisation. It would therefore perhaps be pertinent to state that while global supply chains maybe going through a period of unprecedented mutation, the overall importance of the BRICS economies remains steadfast and this grouping would continue to be an engine of global growth in the foreseeable future.

BRICS more than an Attractive Acronym

Brahma Chellaney
Professor of Strategic Studies, Centre for Policy Research, New Delhi, India

BRICS, symbolizing South-South collaboration, represented the first important non-Western global initiative in the post-Cold War world. It brought together five major emerging powers located in different parts of the world — Brazil, Russia, India, China, and South Africa, with the first letter in their names making up the acronym BRICS. In fact, the BRICS grouping can also be dubbed the R-5, after its members' currencies — the real, ruble, rupee, renminbi, and rand.

The disparate nature of the group's membership — bringing together the world's largest autocracy and most-populous democracy, as well as commodity-exporting and resource-hungry economies — prompted cynics to dismiss BRICS as an acronymic ingenuity without substance. Its member states have very different political systems, economies, and national goals, and are located in very different parts of the world. To its protagonists, however, BRICS remains a shining product of the ongoing global power shifts, with the potential to evolve into a major instrument in shaping the architecture of global governance. BRICS, as a unified grouping, could play the role of a catalyst at a time when the qualitative reordering of economic and military power in the world has set in motion fundamental changes in the international institutional and power structures.

The Russia-India-China (RIC) initiative enlarged in 2008 to include Brazil and take the name of BRIC — a term originally coined in 2001 by a Goldman Sachs economist, Jim O'Neill. The inclusion of Brazil to turn RIC into BRIC was

launched with a meeting of their foreign ministers in 2008 on the sidelines of a RIC meeting. The addition of Brazil paved the way for the first BRIC summit in 2009, which, interestingly, piggybacked on the Shanghai Cooperation Organization (SCO) meeting at Yekaterinburg, Russia, that year. That association helped the SCO — still largely a Sino-Russian enterprise — to receive more publicity, but it left BRIC with little space to start formulating a unified action plan.

The subsequent enlargement of BRIC to BRICS with South Africa's addition in 2010 has created a more global grouping. The formation of BRICS, however, raised questions about the future of another initiative — IBSA (India, Brazil, and South Africa), which was designed to bring the developing world's three leading democracies together on the same platform.

BRICS, despite its global character, lacks the shared political and economic values that bind the Group of Seven (G-7) members together. The G-7 member states are also tied by common security arrangements under the leadership of the United States. In this light, adding concrete content to a catchy acronym has been a challenge for BRICS since the beginning.

For Brazil, Russia, India, China, and South Africa, BRICS serves as an initiative to underscore their rising economic clout and showcase their emergence as global players. But China, which needs no recognition as a rising world power, has sought to use BRICS as an instrument to advance its geo-economic agenda, including expanding the international role of its currency (renminbi, also known as the yuan) and extending renminbi loans to other states. China has valued lending and trading in renminbi as a way to boost its international clout and make renminbi eventually a rival to the U.S. dollar and euro.

The BRICS evolution has belied scepticism over its ability to establish an institutional framework for collaboration among its member states. Such an institutional framework, however, has been limited to the financial realm. The movement in this field began with the founding of the BRICS Inter-Bank Cooperation Mechanism in 2010 with the vision to develop and strengthen economic and investment cooperation among the member states. The mechanism serves as a platform for engagement among member-states' development banks.

This was followed by the establishment of the New Development Bank (NDB) and the Contingent Reserve Arrangement (CRA), which was designed as a shield against global liquidity pressures. The NDB (the first international institution set up by countries that are not members of the OECD) and the CRA were signed into treaty in 2014 and entered into force in 2015. During the coronavirus pandemic, the NDB provided important loans to help the struggling economies of its member states. With its clout, China casts a lengthening shadow over the BRICS financial architecture. Hosting the NDB and the Asian Infrastructure Investment Bank fits well with China's strategy to create an "economic hub-and-spoke system" via energy pipelines, strategic highways and ports, and railroad networks, with

the "hub" China drawing in raw materials and other natural resources from the spokes and exporting industrial and consumer goods to them.

Collectively, BRICS, as a loose bloc of five important powers, holds tremendous potential to help transform multilateral patterns of trade, investment, and finance. Its ability to do that hinges on a conducive geopolitical and geo-economic environment within and outside the grouping. The extent to which BRICS is able to live up to its promise, however, will depend on its own member states, including the trust levels between them and their readiness to build close cooperation and collaboration in an institutionalized framework.

BRICS in a Changing World

BRICS can become an important geo-economic and geopolitical force in a fast-changing world, which is characterized by increasing flux. The changing global power equations are reflected in new realities. These include the eastward movement of power and influence; the waning relevance of the international structures that the United States helped establish after its World War II triumph; and the growing importance and economic heft of the so-called emerging economies.

The world now is no longer unipolar, as it had been from the time of the Soviet Union's collapse to at least the beginning of this century — a period in which the victors of the Cold War failed to fashion a new rules-based world order under America's direction. What we have today is a world still in transition[1]. This may appear to some as a nonpolar world in which multiple engagements between and among different actors have become a strategic imperative. However, with the emergence of new players in the geopolitical marketplace, ranging from Brazil and India to South Africa and China, and America's relative decline, multipolarity has begun to characterize the international order.

In fact, Asia has become the pivot of global geopolitical change. Asian policies and challenges now help shape the international security and economic environments. While being an instigator of global power shifts, Asia is beginning to bear the greatest impact of such shifts. The spectre of a power imbalance indeed looms large in Asia. At a time when it is in transition, Asia is troubled by growing security challenges, which are manifest from the resurfacing of Cold War-era territorial and maritime disputes. It also symbolizes the global divide over political values.

Strategic and economic challenges, meanwhile, have been transformed by new technological and geopolitical realities, the rise of unconventional threats, and the shifts in trade and in energy markets. It is important to view the challenges in the broader context of global power

[1] Niall Ferguson, The War of the World: Twentieth-Century Conflict and the Descent of the West (New York: Penguin, 2006); Jeffrey D. Sachs, "Welcome to the Asian Century by 2050: China and Maybe India Will Overtake the U.S. Economy in Size," Fortune, January 12, 2004; and Joseph Nye, The Future of Power (New York: PublicAffairs, 2011)

dynamics, including the ongoing power shifts, which are altering basic power equations and economic realities. When political and economic power is widely dispersed, it creates the conditions for healthy inter-country competition, broadly shared prosperity, and inclusive international institutions[2].

BRICS is a product of such global power shifts. However, it is important to note that, unlike in the past, major power shifts now are being brought about not by battlefield victories but by a peaceful factor unique to our contemporary world — rapid economic growth. Rapid economic growth, in turn, is changing realities with respect to trade, energy, other resources, and great-power equations. Rapid economic growth by itself has spurred qualitative power shifts, even as the importance of military power remains intact.

As BRICS underscores, the nature of power in our world is changing, even if subtly. Also, power shifts are now part of an evolutionary process, rather than a revolutionary process, as was the case in the nineteenth and twentieth centuries. The revolutionary power shifts that unfolded in 1945, 1919 and 1815 as a consequence of a major bloody war among great powers now seem difficult to replicate. The international economic order too has entered an evolutionary phase, with abrupt shifts in this order unlikely in the foreseeable future.

However, the ongoing power shifts make fundamental reforms in the existing global institutional structure inevitable. International institutions, structurally, haven't changed much in more than seven decades. Even as a systemic shift in the global distribution of power is under way, the international institutional structure has remained largely static since the mid-twentieth century. Can a twenty-first-century world remain saddled with twentieth-century institutions and rules?

On the positive side, the spread of prosperity in the world is creating more stakeholders in international peace and stability. At the same time, it is making wide-ranging institutional reforms inescapable in order to effectively manage the new challenges, some of which are unique in nature, such as environmental threats and global warming.

Add to the picture, the rapid pace of technological change. Indeed, the pace of technological change has been revolutionary since the 1980s, opening the path to the rise of the post-industrial, information-based economies and facilitating the ascent of the emerging economies. The growing tide of new innovations has also contributed to the accelerated weaponization of science, even as the pace of innovations has shrunk the shelf-life of most technologies. Today, technological forces are playing a greater role in shaping geopolitics and geo-economics than at any other time in history.

Economically, the fast pace of change in technology, transportation costs, and regulatory environment has acted as a major spur to the rise of the emerging economies. Since 1991,

[2] Daron Acemoglu and James Robinson, Why Nations Fail: The Origins of Power, Prosperity, and Poverty (New York: Crown Publishers, 2012)

the annual exports of the developing economies have continued to grow faster than those of developed ones. Consequently, the share of world trade of the advanced economies in the same period has sunk from 75% to below 50%. Developing economies are also attracting increasing amounts of foreign direct investment, with such inflows significantly rising in this century. The global shifts in relative economic weight promise to only accentuate.

Meanwhile, starting from the late 1980s, the world has been transformed geopolitically. The fall of the Berlin Wall, the most momentous event in the post-World War II history, heralded the end of the Cold War. It also served as a forerunner to the collapse of the Soviet Union, which fell almost like a deck of cards. The Soviet Union's disintegration opened great strategic space for China to rise.

Given the pace of economic, political, and technological transformation that the world has been witnessing since the late 1980s, one can assume that the next 25 years will bring equally dramatic geopolitical and geo-economic change. But just as no one predicted the sudden collapse of the Soviet Union or the dramatic rise of Asia, reliable predictions on major geo-economic or geopolitical changes in the next quarter of a century will be hard to come by. That is why it is important to focus on the emerging geopolitical and geo-economic fault lines, because they tell us what the risks are and, more importantly, what the direction of future change and challenges might look like.

Can BRICS be a Force of Stability?

BRICS symbolizes the fundamental power shifts in the world, including the rise of new powers and the consequent relative decline of the old powers' dominance. To be sure, the rise and decline of great powers or regional powers, since ancient times, has been an inexorable phenomenon[3]. The global or regional power structure is never static but is continually evolving.

Developments in the second half of the twentieth century illustrated why economic power and military power are equally important. For example, it was only after the Cold War began that the Soviet Union rose as a global military power. But it failed to become a true economic power. This was an important factor in the Soviet Union's ultimate collapse. Without economic power, military power alone cannot sustain a great power.

Or take a different case. By the second half of the Cold War, Japan and Germany had emerged from the ruins of World War II as formidable economic giants. But constitutional constraints put in place by the U.S. occupying forces after the end of World War II have continued to

[3] See the ancient manual on great-power attributes and statecraft by one of greatest minds India has ever produced, Kautilya, also known as Chanakya, who wrote the Arthashastra before 150 AD. Kautilya, The Arthashastra (New Delhi: Penguin Classics, 1992). For accounts of the rise and fall of great powers in more-recent centuries, see Paul Kennedy, The Rise and Fall of the Great Powers: Economic Change and Military Conflict 1500-2000 (New York: Random House, 1987); Robert Gilpin, War and Change in World Politics (Cambridge, UK: Cambridge University Press, 1981); and Geir Lundestad (ed.), The Fall of Great Powers: Peace, Stability, and Legitimacy (Oslo and New York: Scandinavian University Press and Oxford University Press, 1994)

crimp Japanese and German security postures. Germany and Japan still focus on staying as industrial giants and export powerhouses while leaving the geopolitics to other major powers. They largely continue with the tradition they set over the past seven decades to not seek the limelight but to focus their priorities on economic and trade issues. Yet, tellingly, they remain as rule-takers rather than being accommodated as rule-makers.

The United States, for its part, emerged as the world's sole superpower due to a quirk of history — the sudden, unexpected collapse of the Soviet Union. Indeed, when viewed through the prism of history, the emergence of a single superpower was highly unusual. The normal pattern in history is one of uneasy coexistence among several great powers. So, the emergence of a single superpower was an anomalous development.

In this light, it is no surprise that, since at least the last decade, U.S. power has been in relative decline and American global primacy faces erosion. Today, the United States, while remaining the world's foremost power, can no longer play global guardian or set the international agenda on its own. To secure support on any important international issue, it needs to reach out to states outside its traditional alliance system. In 2008, the U.S. National Intelligence Council predicted that there will be no global hegemon by 2030[4]. That reality has arrived much earlier. The council, however, will likely prove right in another prediction — that the international alliances and networks that have dominated global affairs since the end of World War II "will be almost unrecognizable by 2025"[5].

BRICS reflects the shift from the post-World War II transatlantic order to a more international order. With just 12% of the world's population living in the West and with the emerging markets becoming important players, the transatlantic order had to give way to a new order — a shift that remains in process. Rudyard Kipling once famously said, "East is East and West is West, and never the twain shall meet." But now they do in an increasingly interdependent world. In fact, Western economies are increasingly dependent on capital inflows from the cash-laden economies of the East.

BRICS is a testament to the fact the world is becoming more interdependent not just in trade and capital flows, but also that the interdependencies extend to technological, public-health, environmental, and climate spheres. The then director-general of the World Trade Organization, Pascal Lamy, said in 2012, "Globalization first denationalized consumption, allowing consumers to buy goods and services from places where they are produced more efficiently. More recently, we have also witnessed a new phenomenon: the denationalization of production. The advent of new technologies and reduced trade costs makes it feasible to separate stages of production geographically, leading to the formation of value chains that span across borders. World trade in parts and components of manufactured goods, a

[4] U.S. National Intelligence Council, Global Trends 2025: A Transformed World (Washington, DC: National Intelligence Council, November 20, 2008)

[5] Ibid

rough measure of the importance of cross-border value chains, doubled between 2000 and 2010, rising from 1.4 to 2.7 trillion dollars. But economics is hardly the only domain where interdependence across countries has increased. Migration is a powerful vector of social interaction across diverse cultures. In the past ten years, the total number of international migrants has increased by over 40%, reaching 214 million people worldwide. This means that migrants today would constitute the fifth most populous country in the world"[6].

The interdependencies, paradoxically, have developed side-by-side with the resurgence of populism, nationalism and protectionism, including within the BRICS member states. Meanwhile, the ascent of new powers from South America to Asia, as attested by BRICS, throws up challenges for the old powers with regard to co-option, integration, and power equilibrium. A world characterized by greater distribution of power will be fundamentally different than the vision behind the Bretton Woods system or the still-prevailing old power structure of the United Nations. In fact, the shifting international economic-power structure presages major shifts in the balance of military power.

Against this background, can BRICS serve as a force for stability and the rule of law? Liberal theorists have long argued that restraint by hegemonic powers in exercising their power demands a rules-based international system that can, through creative and durable multilateral institutions, compel hegemons to eschew arbitrary exercise of power in their own interest[7].

Are all the BRICS member states willing to emphasize the centrality of international law in interstate relations and in resolving international disputes? In other words, is BRICS willing to pitch for a truly rules-based international order? In truth, this will happen only if its own member states abide by international rules. If any BRICS member state, for example, refuses to accept an adverse award of an international arbitral tribunal, it will dent the BRICS group's credibility as an upholder of international law.

International law should not be powerful against the powerless and powerless against the powerful. Rather, it should be equally applicable to all states. Just because some states are veto-wielding permanent members of the U.N. Security Council cannot justify a unilateralist approach to international relations by any of them. The only mechanism to enforce international law is the U.N. Security Council, yet the Council's permanent members have used international law against other states while breaching it at will. This is one reason why, even in the twenty-first century, the world is witnessing the triumph of brute power over a rules-based order.

[6] World Trade Organization Director-General Pascal Lamy, Speech at the Singapore Global Dialogue at the Rajaratnam School of International Studies, September 21, 2012, http://www.wto.org/english/news_e/sppl_e/sppl248_e.htm.

[7] G. John Ikenberry, After Victory: Institutions, Strategic Restraint, and the Rebuilding of Order after Major Wars (Princeton, NJ: Princeton University Press, 2001), p. 36

Refusal to comply with rulings from international arbitration or adjudication, including on issues relating to the United Nations Convention on the Law of the Sea (UNCLOS) and trade and investment disputes, send the wrong message — that power respects power and money talks louder than words. Likewise, if one BRICS member state wages territorial aggression against another country or weaponizes trade as a political instrument, it will have a major bearing on the standing and credibility of the entire group. Military or economic expansionary activities incompatible with international law are a challenge to the international community's vision of a peaceful and harmonious world, as reflected in the United Nations Charter.

Although globalization has fundamentally transformed economics, politics, cultures and communications, the world has remained the same in one basic aspect — the powerful cite international law to other states, demanding compliance, but ignore it when it comes in their own way. To change such behaviour, new initiatives and groupings must seek to underscore the imperative for a rules-based order and for universal compliance with it. To be a force for stability, BRICS must stand out as a rules-promoting group seeking to shape a world truly governed by international law.

BRICS also has a role to play in ensuring that the baggage of history does not impede building of trust and close collaboration, especially within the grouping itself. The failure to come to terms with history weighs down a number of important bilateral relationships in the world. Some nations are even resurrecting the ghosts of history. Consequently, the "history problem" has spurred a resurgence of competing and mutually reinforcing nationalisms. Some diplomatic relationships continue to be held hostage by history. BRICS indeed illustrates that challenges ranging from territorial disputes to sharpening competition over natural resources are often linked with toxic historical legacies between countries, even when they are members of a multilateral initiative.

Another important international challenge is the union between autocratic politics and state capitalism. Such a fusion is usually accompanied by disdain for international rules and the pursuit of territorial or maritime revisionism. Yet, in a reflection of the changing balance of financial power, autocracies increasingly are financing democracies. As a result, the foreign assets of the world's undemocratic governments are on the rise while those of the deeply rooted democracies are on the decline.

As modern history attests, regime character can hamper observing international norms and rules. Ordinarily, the readiness to play by international rules ought to matter more than regime form. But regime character often makes playing by the rules difficult. Communism was never a credible alternative to liberal democracy, but authoritarian capitalism is. Even if authoritarian capitalism does not pit an axis of autocracies against a constellation of democracies, building international rules that all major powers respect and adhere to remains a major challenge. Democratic governments may not be more wedded to peace than autocracies, yet it is well established that democracies rarely go to war with each other.

No less significant is the fact that booming trade, as exemplified by Asia, has failed to mute or moderate territorial and historical disputes, highlighting that economic interdependence by itself cannot deliver regional stability unless rival states undertake genuine efforts to mend their political relations. Good politics remains central to good economics.

Meanwhile, the increasing competition for natural resources is fuelling territorial and maritime disputes, raising maritime-security concerns, and leading to a scramble for resources in distant lands, such as Africa. Moreover, the use of economic tools to advance a major power's geostrategic interests is apparent from the advent of debt-trap diplomacy, or the practice of extending huge loans to support infrastructure projects in strategically located developing countries, with the intent of ensnaring such nations in debt traps that leave them vulnerable to the creditor country's influence. Often the infrastructure projects are designed not to support the local economy but to facilitate the outside power's access to natural resources or to open the local market for the external power's exports. In many cases, the outside power has even sent its own construction workers to the project sites, minimizing the number of local jobs that are created.

The heavier the debt burden on smaller countries, the greater the external power's own leverage becomes. In fact, some countries, overwhelmed by their debts to the external power, are forced to sell to it stakes in the externally-financed projects or hand over their management to that major power's state-owned firms. In effect, this means colonization by debt, with the foreign power's debt grip crimping even the autonomy of the targeted state's foreign, finance, and commerce policies. The practice of debt-trap diplomacy challenges the cohesion and solidarity of BRICS. It has also spawned the contours of a twenty-first-century version of the Great Game.

BRICS has been buffeted by the transformation of the global energy markets due to the shale revolution. The shale boom has shifted the centre of gravity in the hydrocarbon world away from the oil sheikhdoms of the Persian Gulf. Gas and oil reserves that geologists and analysts previously thought were unrecoverable or uneconomical to exploit have, with new technologies like "fracking" and horizontal drilling, become available and profitable. Gas and oil extracted from shale and other "tight rock" fields have proved a game changer, with the United States surpassing Russia as the world's largest gas producer and India emerging as a significant importer of U.S. oil and gas.

BRICS is made up of both oil-exporting and oil-importing countries. The oil-importing countries were directly affected by then-U.S. President Donald Trump's effort to financially throttle Iran by imposing an oil-export embargo against it. The action, given the history of such embargoes, also raised the spectre of military hostilities. Although the 1941 Pearl Harbour attack took the United States by surprise, the attack was triggered in some measure by a U.S.-British-Dutch oil-import embargo against Japan as part of a larger economic squeeze of

that country that began in 1939. The United States stopped importing Iranian oil way back in 1987, but some of the BRICS member states have long been major importers of Iranian oil.

Yet another challenge to BRICS is to uphold the sanctity the world attaches to existing borders, especially when one of its own member states violates that sanctity. Sanctity of borders has become a powerful norm in world politics. Border fixity is seen as essential for peace and stability[8]. Yet the norm intended to build peace and stability has been breached within the BRICS itself, thus creating conditions for regional conflict and instability. In fact, territorial revisionism, including by one BRICS member state against another, has contributed to new geopolitical fault lines and sharpened interstate competition.

In history, whenever the rise of an aggressive power disturbed the power equilibrium, it led to war, as was exemplified by the Napoleonic wars and the two world wars. However, it is important to remember that conflict is not built into the rise of any new power. The United States, for example, rose as a great power without triggering conflict with the then leading powers. Nor is conflict inherent in a rising power's efforts to gain greater international influence. The risks of geopolitical instability or conflict, however, grow when a new power accepts norms and rules selectively, pursues aggressive expansionism, including seeking unremittingly to alter the territorial and maritime status quo, and secures unfair advantages in trade, resource, security, currency, intellectual property, investment, and other issues.

Today, the growing importance of maritime resources and sea lanes, as well as the concentration of the world's economic boom zones along the coasts, has made maritime peace and security more critical than ever for international prosperity and security. The oceans and seas not only have become pivotal to security, trade and economic growth, but they also constitute the strategic hub of the global political, economic, and military competition, including between some of the BRICS member states.

It has become imperative to deal with international challenges in a holistic strategic framework. Non-traditional challenges — from energy security and climate security to transnational terrorism and environmental degradation — are as important as traditional issues, like threats to unhindered trade, freedom of navigation and security of sea lanes, disputes over maritime boundary and domain security, proliferation of weapons of mass destruction, and challenges to law and order (including piracy and sea robbery, criminal activities like drug, people and arms smuggling, illicit, unreported and unregulated fishing, illegal immigration, and terrorism). The non-traditional issues extend to the maritime aspects of economic security, food security, environmental security, and human security. Simply put, the oceans and seas have become closely linked with national and international security and the building of broader environmental and climatic security.

[8] Boaz Atzili, Good Fences, Bad Neighbors: Border Fixity and International Conflict (Chicago: University of Chicago Press, 2012)

As a grouping that embodies several of today's major international challenges, BRICS can chart a clear direction for itself and become a force to reckon with if it is able to deal with those challenges. If not, the BRICS may find it hard to live up to its promise or realize its potential.

A Major Test for BRICS

Time, circumstance, and financial clout may have conspired to increase the profile and relevance of BRICS. The power shifts and new international challenges symbolize the birth-pangs of a new world order. Although the world is clearly in transition, with the age of Atlantic dominance in clear retreat, the contours of the new order are still not visible. Will BRICS be able to play a notable role on the pressing geo-economic and geopolitical challenges facing the world? The answer to that question hinges on the ability of BRICS to cohesively overcome its internal challenges.

The promise of BRICS is apparent from the economic and political weight its member states have enjoyed in history. Whereas the era of West European and North American domination is not even two centuries' old, China and India were the world's largest economies in the period up to 1820. In the year AD 1, according to the late British economic historian Angus Maddison, India's economy made up 33% of the world's GDP compared with China's 26%. But by the sixteenth century, China's economy matched India's, before vaulting into significant lead under the Manchu-led Qing dynasty, which, like the Mughal dynasty in India, was set up by invaders[9]. Today, the international shifts in the basic-commodity, energy, and metal markets, with the non-Western economies making up the largest growth in demand, mirror the way the centre of gravity in international relations has moved away from the transatlantic region. Indeed, Brazil, Russia, India, China, and South Africa, as BRICS members, illustrate that the world is moving toward historically "normal" power conditions.

Economically, the BRICS countries are likely to remain the most-important source of global growth. The BRICS grouping, after all, represent more than a quarter of the Earth's landmass, over 43% of its population, nearly 25% of world's GDP, and nearly half of all foreign-exchange and gold reserves. Four of the group's member states, in fact, rank among the world's largest countries by population or landmass. In a spectacular reversal of fortunes, the emerging economies, with their large foreign-currency holdings, now finance the mounting deficits of the wealthy economies, whose accumulation of sovereign debt and other concerns are fostering an uncertain environment for global economic growth.

In this light, BRICS, with its member states' collective weight, can exercise significant global financial clout if it gets its act together. The BRICS economies recovered relatively quickly from the 2007-08 global financial crisis, and continue to increase their share in

[9] Angus Maddison, *The World Economy: A Millennial Perspective* (Paris: Organization for Economic Cooperation and Development, 2001)

world trade and output. However, the BRICS economies, other than China, were hit hard by the prolonged coronavirus pandemic. The coronavirus crisis, with its associated business closures, lockdowns, and work-from-home policies, sparked deep economic downturns in four of the five BRICS countries.

BRICS must ensure that free trade within the grouping is based on fair trade. When free trade becomes unfair trade, it challenges not just international rules but also the core interests of the disadvantaged country. BRICS, for example, needs to ensure that none of its member states use hidden export subsidies to systematically undermine manufacturing in the other BRICS economies. It would constitute a double whammy if one member state employs hidden export subsidies while also using tariff and non-tariff barriers to shut out, from its own market, goods and services of the other members in which they may have a comparative advantage. Also, manipulating the value of a national currency to secure an advantage in export competitiveness also runs counter to free but fair trade.

With a forward-looking approach backed by a common action plan, BRICS could serve as a catalyst for reforms in the architecture of global finance and governance. The global institutional structure has remained virtually static since the mid-twentieth century despite the rise of non-Western economic powers. Even the formation of the Group of Twenty (G-20) was an improvisation designed to defer genuine reforms.

On international institutional reforms, however, not all the BRICS member states are on the same page. Those that are permanent members of the U.N. Security Council are essentially status quo powers with respect to the United Nations system but revisionist powers concerning the global financial architecture. In other words, they support international institutional reforms that would give them a greater say but not measures that would dilute their status by increasing the space for others. It is such thinking that long has blocked India's admission even to the Nuclear Suppliers Group, with one BRICS member state remaining a holdout. However, there is no disagreement in BRICS about reforming the global financial architecture, with all five BRICS member states seeking an overhaul of the Bretton Woods system.

BRICS can become a powerful pressure group in international relations only if its members are able to agree on a common action plan. The BRICS states, for example, are generally united in their frustration with — but not in their proposed response to — the dollar's status as the world's reserve currency. Indeed, the most-important bilateral relationship that each BRICS country has is with the United States. It will aid their cause if the BRICS member states develop a clear and unified position on the specific changes they desire in the global financial architecture, including with respect to quota and governance reforms in the International Monetary Fund and changes in the World Bank's governance structure to overcome, as BRICS has called it, "an outdated donor-recipient dichotomy."

The evolving architecture of global governance will determine how the world handles the pressing challenges it confronts. The problem of political myopia — or looking at issues in a short-term framework — that afflicts leaders and institutions has been a principal handicap to formulating a forward-looking approach. That handicap extends to BRICS too. This explains why institutionalized cooperation in BRICS has been limited to the economic realm, with little joint action on the political front. Geopolitics still drives geo-economics, with political risk dominating the financial markets. So, BRICS's geopolitical initiatives cannot continue to lag far behind its geo-economic actions.

BRICS must evolve into a cohesive grouping with defined goals and institutional mechanisms to help pluralize the global order. If it is able to develop brick by brick, BRICS could find itself on the evolutionary path treaded by the G-7, which also began as a discussion platform before advancing to joint coordination and action among its members on key international issues. The extent and timing of reforms in international institutions hinge on the ability of BRICS states and other new powers to provide the necessary push for wide-ranging institutional changes in order for the world to effectively manage its pressing challenges. Strengthening BRICS with an institutional structure and agenda can positively influence international relations.

With the world at a defining moment in its history, BRICS faces the challenge of becoming a significant global player while simultaneously having to cope with major issues within the grouping itself. The BRICS concept represents, above all, its members' desire to pluralize the international order. But that vision can be advanced only with common objectives and concerted action. While operating away from the limelight is a strength, shirking responsibility is not. Striking a balance between quiet pragmatism and a readiness to positively shape geo-economic and geopolitical developments in the world represents a test that BRICS must pass in order to become a real force for reform and change.

BRICS in a Post-Pandemic World: Macroeconomic Stability and the Growth Imperative

Dr. Sajjid Z. Chinoy
Chief India Economist at J.P. Morgan

Toshi Jain
India Economist at J.P. Morgan

Introduction and Motivation

The focus on the BRICS economies for much of the last two years has centered largely around the economic scarring inflicted by COVID-19, and how quickly these economies – with the exception of China[1] can get back on their pre-pandemic economic paths.

But even as these questions linger, new questions are emerging. The unprecedented fiscal and monetary stimulus that developed economies brought to bear during the pandemic, and the easing of global monetary conditions that it engendered as a result, cannot go on ad infinitum. With inflation surprising to the upside across developed economies, markets are slowly bracing for monetary policy to be normalized, albeit gradually.

The immediate focus is on when the U.S. Federal Reserve will begin to taper its asset purchases. Notwithstanding near-term concerns about the spread of the Delta variant, the U.S. is rapidly heading back to its pre-pandemic path on the back of the vaccination roll-out and the vast and coordinated fiscal-monetary stimulus. Against this backdrop, and with inflation surprising to the upside, the stage is set for the Federal Open Market Committee (FOMC) to contemplate tapering its asset purchases later this year. Indeed, the recent

[1] China had already surpassed its pre-pandemic path by the end of 2020, even as it currently faces slowdown concerns on fiscal and credit tightening.

minutes of the July FOMC meeting reinforced expectations of a first tapering announcement some time in the October-December quarter, with "most participants" believing the conditions to start reducing the pace of purchases would be met this year[2].

Prospects of any taper, however, bring back painful memories for emerging markets. The 2013 Fed "taper tantrum" started a multi-year trauma for EM assets, with EM local bonds seeing peak-to-trough returns of (-) 33% over three years[3]. Despite the fact that the Fed has been careful not to unduly surprise markets, and has been at pains to separate balance sheet normalization from interest rate guidance, the FOMC acknowledged in the July minutes that it may be difficult for the public to divorce taper timing from liftoff discussions.

The question, therefore, is whether another taper will result in another tantrum for emerging markets? Why is this relevant for BRICS countries? Because during the 2013 Taper tantrum, three of the five "Fragile Five" – Brazil, India, South Africa – were BRICS economies. Furthermore, concerns about how emerging markets will react to a Taper have gained currency because many of these economies are left with much higher fiscal deficits and debt levels, necessitated by the pandemic response.

The purpose of this paper is therefore to analyze how the BRICS economies are positioned to withstand monetary normalization in developed economies. How different are BRICS macro fundamentals in 2021 versus 2013? On what dimensions are these economies more fortified this time around? On what dimensions could they be more vulnerable?

What do we find?

External vulnerability is much lower in 2021 than it was in 2013. Unlike in 2013, there is no evidence of overheating in 2021 reflected in lower current account imbalances and inflation levels in most of the BRICS economies , though Brazil's inflation is a concern. To be sure, external debt profiles are more varied with that of Brazil and South Africa higher, but that of India and Russia lower. That said, all the current account deficit economies (India, Brazil, South Africa) have higher reserve cover this time around, with India's improvement particularly stark and underpinned by a doubling of its stock of FX reserves.

However, in contrast to the improved external sector metrics, fiscal positions are much more stretched in some economies – manifested in much higher deficits and public debt levels – necessitated, in part, by the fiscal response to the pandemic. Consolidated public sector deficits and debt levels could potentially become pressure points in a few economies (e.g. Brazil) and will necessitate both credible medium-term consolidation alongside pushing up trend growth for debt sustainability.

Where could this growth come from? In the near term, strong global growth – powered by the glacial rollback of unprecedented fiscal and monetary stimulus in developed economies

[2] "Minutes still point to late '21 taper start," by Michael Feroli, JP Morgan, August 19, 2021

[3] "EM fundamentals less vulnerable to a Fed taper, by Nora Szentivanyi and Jonny Goulden, JP Morgan, February 26, 2021

along with vaccinations and re-openings around the world – can provide a meaningful growth impulse to the BRICS economies , through stronger exports and terms-of-trade effects. Over time, however, sustained reforms will be required to push up trend growth to both repair the damage from the pandemic and ensure debt sustainability.

The rest of the paper is organized as follows. Section 1 analyzes external balances and vulnerability across 2013 and 2021; Section 2 discusses fiscal and public debt evolution, while section 3 discusses the growth imperative, presenting a case study on India.

1. BRICS and the Taper: 2021 versus 2013

1.1 Getting "real" about rates

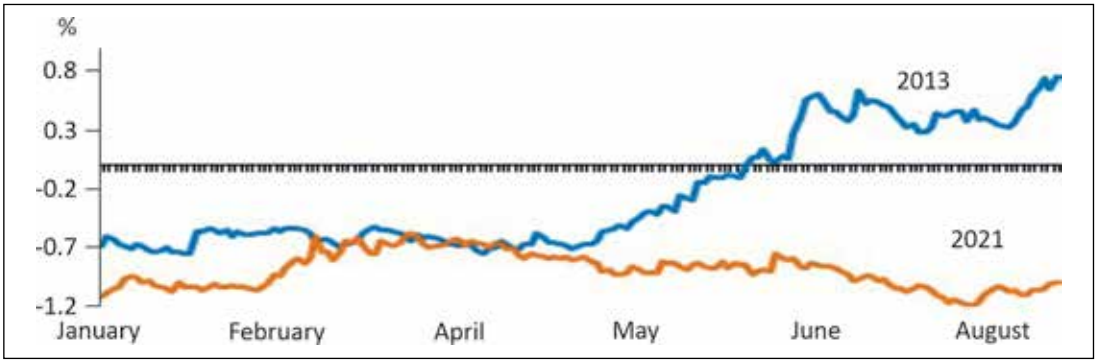
Before analyzing the macro-fundamentals of the BRICS economies and how they may be positioned to withstand monetary policy normalization in the U.S., it's important to first put the fear of rising yields into some context. Whether rising nominal U.S. yields are concerning for emerging markets often comes down to whether they simply reflect firming inflation expectations or rising underlying real yields. If higher nominal yields are simply reflecting firming inflation expectations - reflecting, in turn, stronger growth prospects -- emerging markets are typically likely to benefit. In contrast, if rising nominal yields reflect higher underlying real yields, presaging a tighter monetary policy stance, concerns arise about capital flows to and from emerging markets and the policy response they must elicit in those economies. The 2013 taper tantrum was problematic because U.S. 10-year real yields rose by more than 150 bps between May and August inducing a sudden stop of capital into emerging markets.

In contrast, real yields have flattered to deceive in 2021. After increasing by about 40 bps between January and April, inviting fears that a 2013 repeat was on the cards, real yields have drifted lower underpinned by growing fears of the Delta variant spreading, before modestly firming in recent weeks. (Charts 5.1 and 5.2).

Chart 5.1: US 10 Year: Nominal, Real and Inflation Break Evens

Source: Bloomberg Finance L.P.

Chart 5.2: U.S. 10 Year Real Yields (2013 versus 2021)



Source: Bloomberg Finance L.P.

That said, how do the macro fundamentals in the BRICS economies of 2021 compare to 2013?

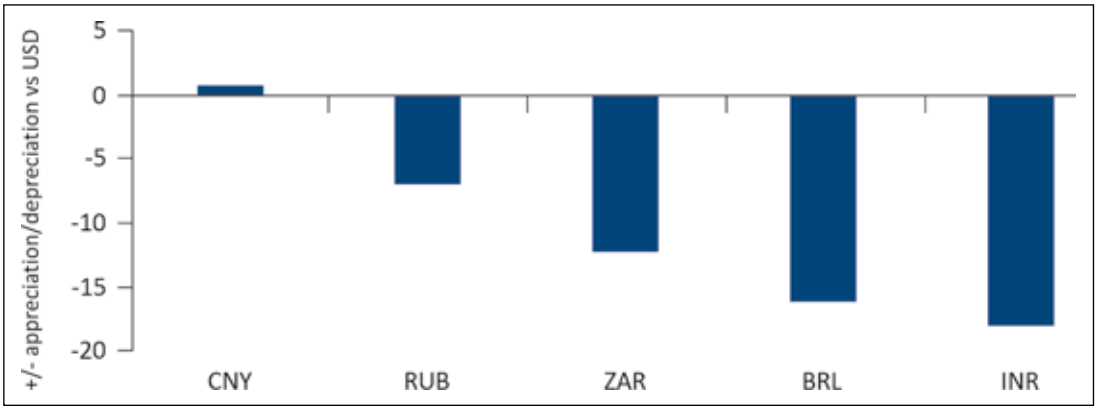
1.2 Unlike 2013, no evidence of overheating in 2021

1.2.1 Lower CAD and Inflation Levels

What made the Fragile Five economies (Brazil, India, Indonesia, South Africa and Turkey) – three of which are BRICS economies – particularly vulnerable to a sudden shift in global risk appetite in 2013 was that many of these economies were "overheating", resulting in unsustainable external (current account) and internal (inflation) imbalances.

To be sure, within the BRICS economies, China and Russia typically run current account surpluses and are therefore much less vulnerable to the vagaries of "sudden stops". Indeed, both China and Russia were not subjected to the pressures faced by India, Brazil and South Africa during the summer of 2013 (Chart 5.3).

Chart 5.3: BRICS Currencies (May to August, 2013)

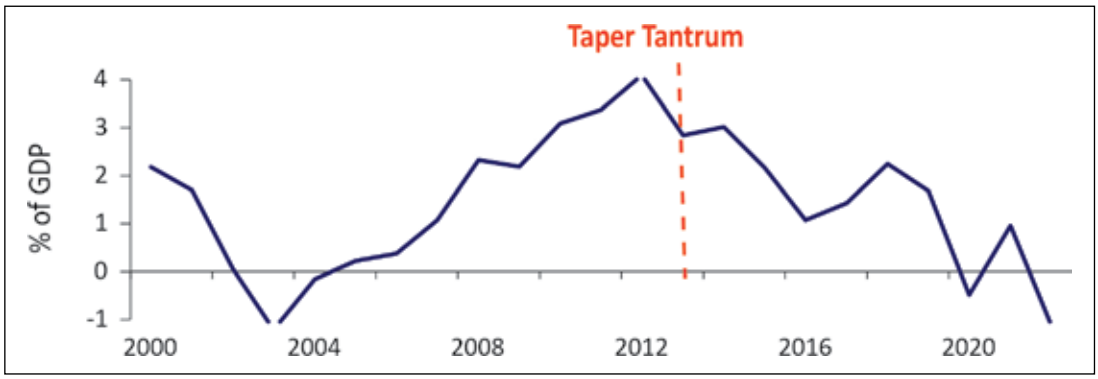


Source: Bloomberg Finance L.P.

For the remaining BRICS current account deficit (CAD) economies – hereafter referred to as BRICS-CAD - the glut of global liquidity in the run-up to the Taper Tantrum masked growing imbalances. In particular, unsustainable current account imbalances were funded through volatile and fickle portfolio flows in some of these economies. The "sudden stop" that the Taper Tantrum triggered therefore created sharp balance of payments pressures in some of these economies, wreaked havoc on their currencies, and forced an abrupt tightening of domestic policy that had knock-on effects on activity.

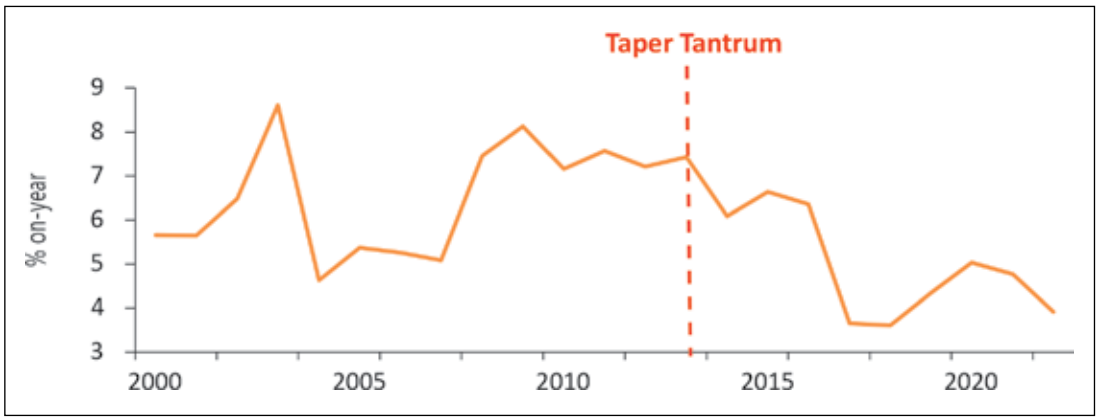
Indeed, as Charts 5.4 and 5.5 below reveal, the current account deficit for the BRICS-CAD doubled from 2% of GDP in 2009 to 4% of GDP in 2012 and inflation was running consistently above 7% in the run-up to the Taper Tantrum. The subsequent tightening meant both external and internal imbalances reduced but GDP growth slowed from a 5.5% average between 2010-12 to a 3.5% average between 2013-15.

Chart 5.4: Current Account Deficit - India, Brazil and South Africa
(Weighted Average based on Nominal GDP of each year)



Source: IMF

Chart 5.5: Inflation (India, Brazil and South Africa)
weighted average based on nominal GDP of each year

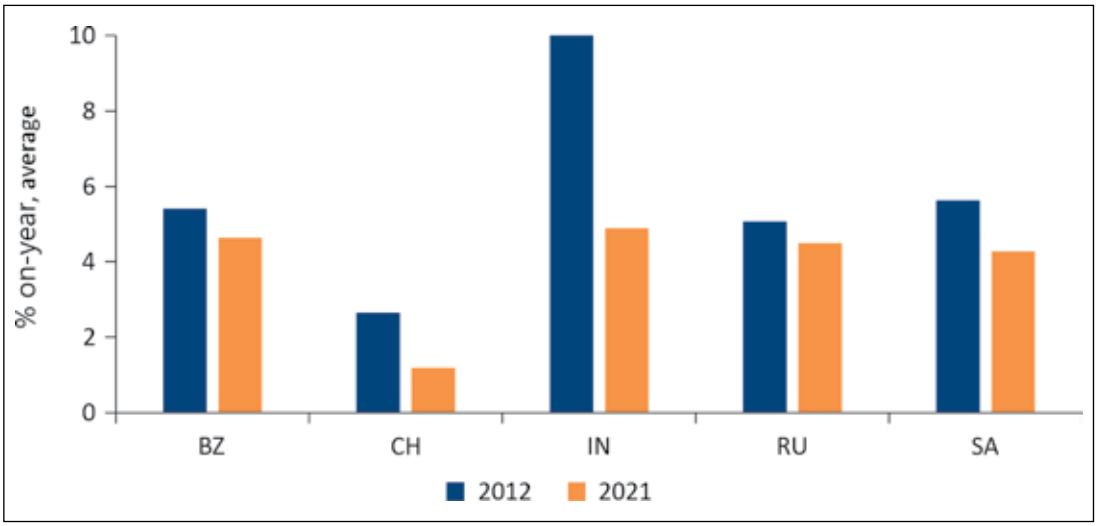


Source: IMF

In contrast, this time around, there are no obvious signs of overheating in most of the BRICS economies:

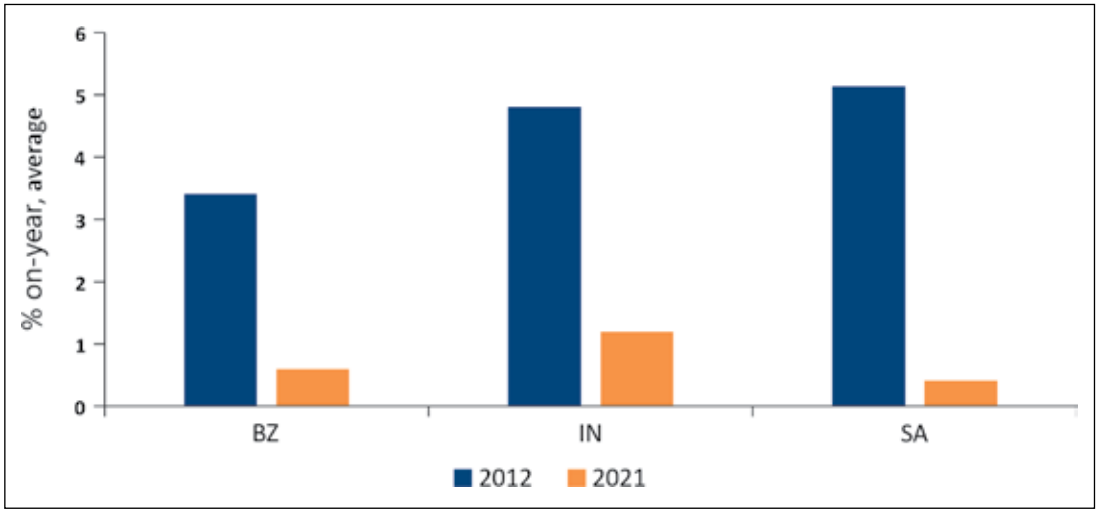
- With the exception of China, all the BRICS economies are expected to be below their pre-pandemic path at the end of this year with several estimated to have meaningful output gaps and slack; if anything, the concern is some of these economies are characterized by substantial pandemic scarring with the risk of "under heating" rather than "over heating." That said, Brazil appears to be an important exception confronting a stagflationary environment with low growth but high inflation.
- The current account deficits in the BRICS-CAD are expected to be much smaller than in 2013 (Chart 5.7). The IMF, for example, estimates that the CAD in these economies will be just 1% of GDP in 2021 vis-à-vis 4.4% in 2013. Consequently, all the BRICS economies will be running "basic balance" (CAD + FDI) surpluses in 2021 compared to large deficits in some of these economies back in 2013.
- Similarly, inflation levels in all these economies are below the levels observed in 2013 (Chart 5.6). The adjustment is the largest in India with inflation almost halving from the 10% levels witnessed in 2012. That said, with growth expected to progressively recover, and global commodity prices still elevated, inflation is expected to firm in some of these economies though not to threatening levels on a sustained basis. Firming inflation in Brazil, however, is proving to be a policy concern.

Chart 5.6: BRICS Inflation



Source: IMF

Chart 5.7: BRICS Current Account Deficits

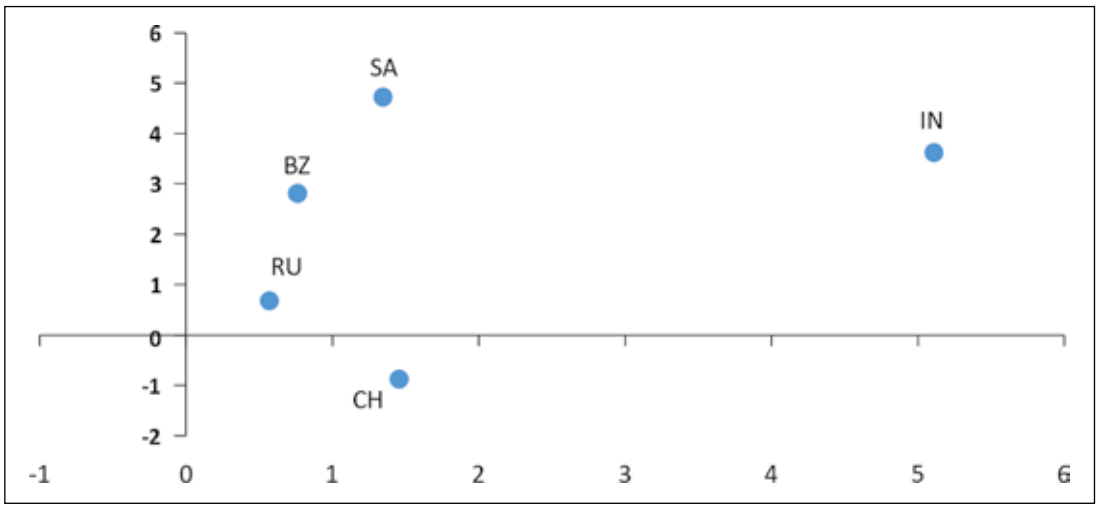


Source: IMF

The scatter plot below (Chart 5.8) collapses both these dimensions to capture improvements on both external and internal imbalances. Inflation in all of the BRICS economies has declined vis-à-vis 2013. Similarly, barring China, current accounts have improved. While China's current account has widened, it still runs a current account surplus (forecasted at 1.6% of GDP in 2021) and hence is not a source of concern. On a relative basis amongst the BRICS countries, the largest adjustment on both inflation and CAD front has been undertaken by India, albeit off elevated starting points.

Chart 5.8: Decline in BRICS imbalances between 2012 to 2021

Decline in CAD



Source: IMF

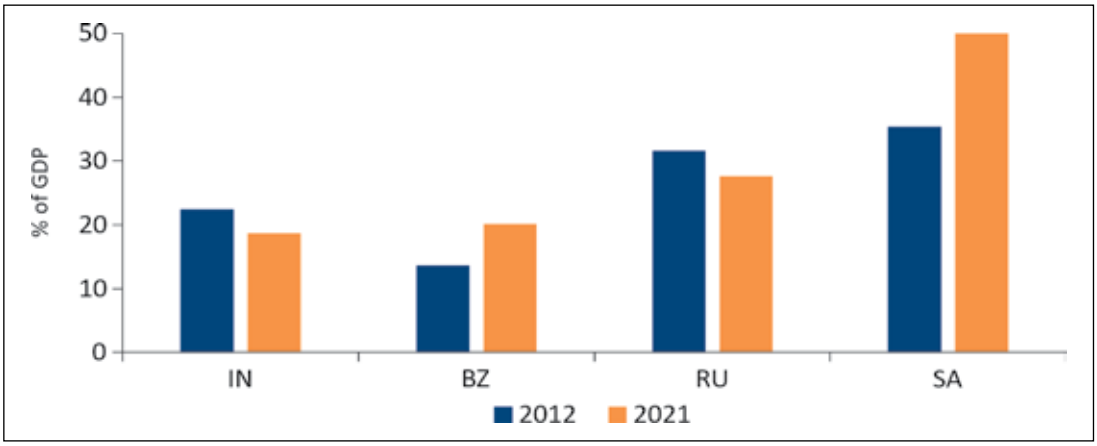
Decline in inflation

All that said, lower current accounts and inflation – while fortifying these economies from an external shock – may also be reflective of the quantum of slack prevalent in some of these economies that needs to be filled post-COVID.

1.2.2 External debt stock reveal mixed trends

In contrast to moderating current accounts and inflation, the external debt profile in the BRICS economies is more mixed. External Debt to GDP (Chart 5.9) has improved in both India and Russia compared to pre-taper levels in 2012, but is higher in Brazil and South Africa. To be sure, external debt in Brazil at 20% of GDP is still much lower than the EM average 31% of GDP. The one economy that stands out is South Africa where external debt to GDP has risen by 15 percentage points over the last eight years to reach 50% of GDP in 2021. That said, higher FX reserves – discussed below – serve as a partial offset for South Africa.

Chart 5.9: BRICS External Debt



Source: World Bank

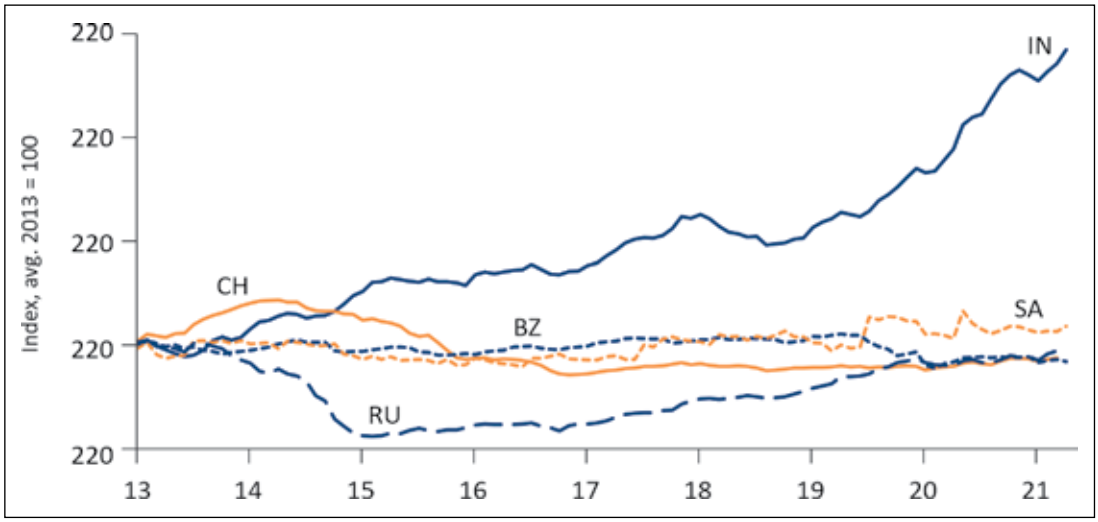
1.2.3 FX Reserves serve as a buffer

Given higher external debt levels in some economies, analyzing FX reserves becomes important. Both the Asian financial crisis and the 2013 Taper Tantrum increased the desire of emerging markets to resort to "self-insurance" by accumulating FX reserves to ward-off external shocks, dampen large swings in the currency and prevent BoP crises.

So how have FX reserves evolved across the BRICS economies? In absolute terms, while India's reserves have more than doubled, those in some of the BRICS economies (Brazil, Russia, China) are slightly lower in 2021 than in 2013 (Chart 5.10). But there are important caveats. First, two of these three economies run current account surpluses. Second, and more importantly, reserve adequacy is typically judged by comparing the quantum of FX reserves to the current account deficit and short term external debt. Based on this metric, reserve adequacy has improved in all the current account deficit economies in 2021 vis-à-

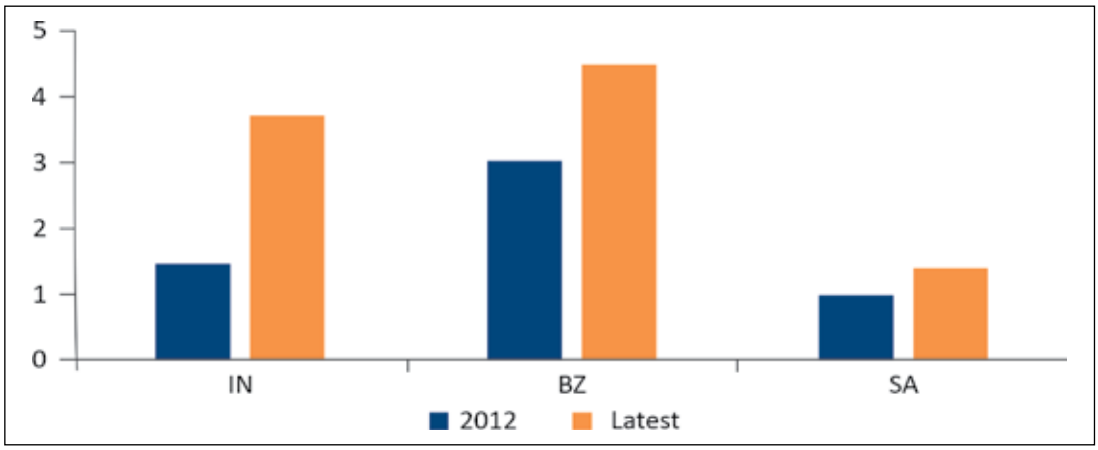
vis 2013. The improvement is sharpest in India as both FX reserves have increased and the current account deficit has narrowed. In contrast, the improvement in Brazil and South Africa is driven more by lower current account deficits[4].

Chart 5.10: BRICS Foreign Exchange Reserves



Source: National sources

Chart 5.11: Foreign Exchange Reserves Adequacy (Reserves/Short Term Debt + CAD)



Source: J.P. Morgan, IMF, World Bank

All told, BRICS economies appear substantially less vulnerable on the external front. There is no evidence of broad-based overheating as was the case in 2013, manifested in lower current accounts and inflation levels, and while External Debt/GDP has increased for Brazil and South Africa, higher reserve cover provides a protective buffer (Chart 5.11).

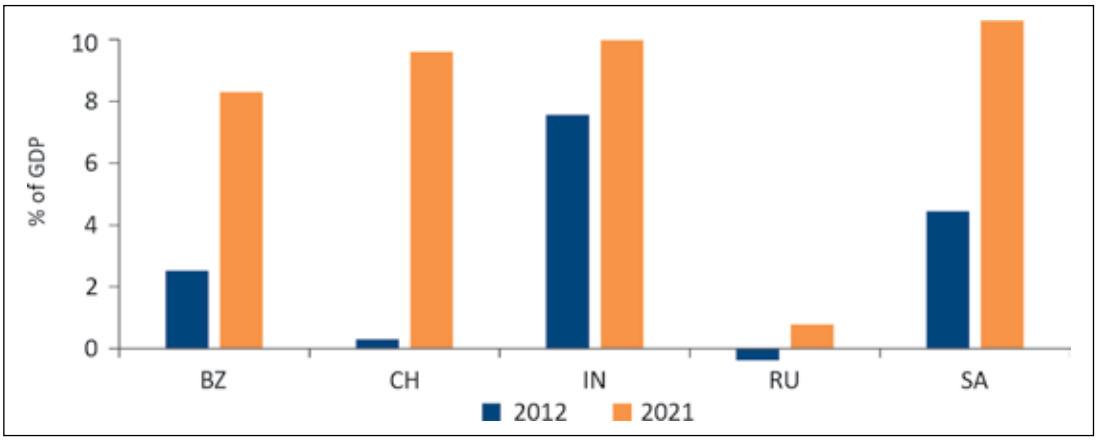
[4] Because current accounts in 2020 and 2021 may not be reflective of their steady state, we use IMF's 2022 forecasts of the current account to assess reserve adequacy.

2. Pandemic drives up fiscal deficits and public debt

In contrast to the more sanguine outlook on the external front, fiscal balances and public debt in the BRICS countries – as with emerging markets more generally – have surged as the pandemic has necessitated a large fiscal response in many BRICS countries. The result: both fiscal deficits and public debt are currently much more expansive than in the run-u to the Taper Tantrum, and could serve as a potential pressure point in some of these economies.

To be sure, even before the pandemic, the weighted average fiscal deficit of the BRICS economies – at 5.8% of GDP in 2019 – was much higher than in the run-up to the taper (2% of GDP) (Chart 5.12). Expectedly, these deficits have swelled to 11% of GDP in the pandemic year but are forecast to consolidate to about 9% of GDP in 2021. In particular, deficits will be particularly large in Brazil, South Africa and China, vis-à-vis 2013. India's consolidated deficit was already elevated in 2013 and will be wider than those levels in 2021.

Chart 5.12: BRICS Fiscal Deficit



Source: IMF

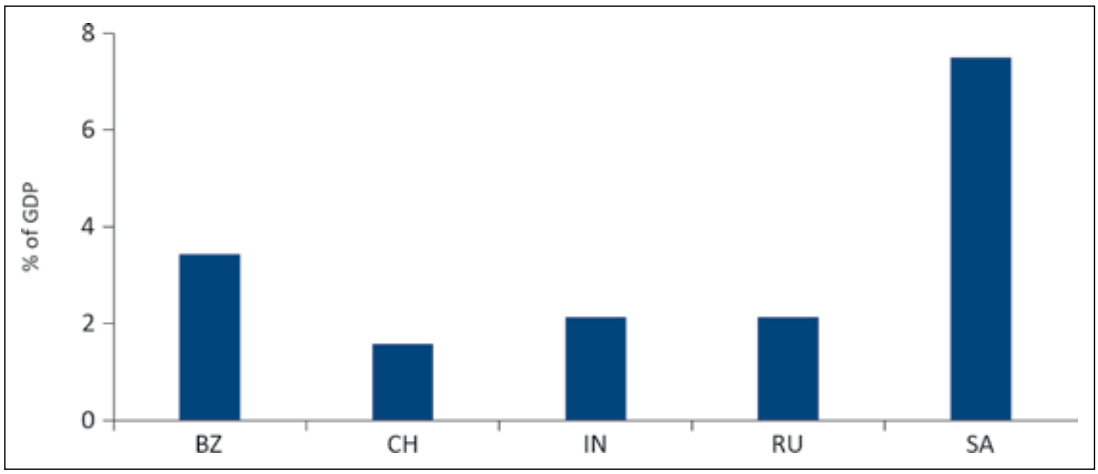
2.1. Temporary Offset: Rising private sector savings

An immediate puzzle that should emerge is the juxtaposition of widening fiscal deficits within BRICS countries without a commensurate widening of current account deficits. Recall, economic theory links fiscal deficits and the savings-investment gap with current account deficits. The current account simply represents an economy's investment-savings gap which, in turn, is the aggregate of the public and private sector's investment-savings gaps. Without an adjustment in the private investment-savings gap, the current account and fiscal deficits must move in tandem, referred to as the "twin deficits". In such a case, wider fiscal deficits translate into higher current account deficits. However, amidst the COVID-19 crisis private sector net savings also increased substantially, first as savings were forced up on account

of repeated lockdowns and then because, in some cases, precautionary savings rose. All this has resulted in current account balances in the BRICS economies not moving in line with higher fiscal deficits. Indeed, J.P. Morgan forecasts that the massive increases in private savings accumulated over 2020 will not be fully unwound in the near term. In particular, we expect BRICS private sector net savings will still be around 3%-pts of GDP higher in 2021 from its pre-pandemic levels. South Africa, in particular, stands out with 7.5% of GDP higher private net savings vis-à-vis pre pandemic levels.

Higher private savings, in turn, both prevented a sharp increase in interest rates that would have otherwise accompanied the fiscal surge, limited the amount of QE that central banks had to undertake and, to the extent they don't quickly unwind, create space for a more gradual fiscal consolidation path (Chart 5.13).

Chart 5.13: Rise in private sector net savings (2021 versus 2019)



Source: J. P. Morgan forecasts

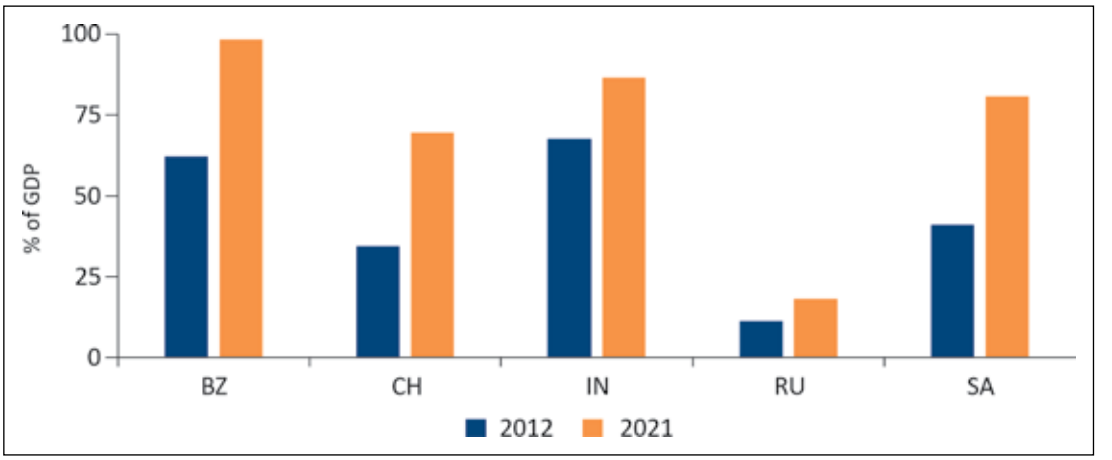
2.2 But Higher Debt Levels

Even as the impact of larger fiscal deficits on external accounts and interest rates may have been mitigated by higher private sector savings, fiscal pressures are clearly evident in the public debt trajectory of the BRICS economies. The increase is particularly stark in South Africa, Brazil, and China where public debt has increased by 35 to 40 percentage-points of GDP between the 2013-taper to 2021. In this time period, India's government debt rose by about 20% of GDP while the increase in Russia was more modest at 7% of GDP.

Changes apart, the level of public debt is highest in Brazil (98% of GDP) followed by India (87% of GDP) and South Africa (81% of GDP) with China lower at 70% of the GDP in 2021. All told, therefore, even as external sector vulnerability has reduced sharply, public sector deficits and debt levels could potentially become pressure points in a few economies, and

will necessitate both credible medium-term consolidation and pushing up trend growth, as we discuss below.

Chart 5.14: BRICS General Government Debt



Source: IMF

To be sure, absolute levels of debt may have limited efficacy in judging relative vulnerability in a post-pandemic world given that public debt levels have gapped-up almost everywhere. For instance, the IMF estimates that Advanced Economy public debt will increase to 122% in 2021. Furthermore, what is likely to matter from a sustainability perspective is what the trajectory of debt is thereafter. Can these economies stabilize debt ratios and then gradually bring them down or will Debt/GDP keep rising monotonically, symptomatic of debt unsustainability?

That, in turn, will depend crucially on medium-term growth prospects in some BRICS economies, as we demonstrate below.

2.3 Debt dynamics and importance of growth

Government debt-to-GDP dynamics depend on three factors: the primary fiscal balance, nominal GDP growth, and the cost of debt service, which, in turn, is a function of interest rates and the maturity of debt. However, changes in interest rates take a long time to filter through to debt service costs. For example, the average maturity of debt in emerging markets is about 8 years; it would therefore take 8 years for the changes in interest rates to filter through to the entire debt stock. Therefore, even as markets will focus on the public debt implications of higher rates, their impacts will be felt only down the road. In contrast, changes in the primary deficit and nominal GDP are likely to flow through immediately.

Given the gradual and uncertain recoveries from COVID-19, the primary deficit is expected to consolidate at a gradual pace. The existence of (often large) primary deficits in some BRICS

economies implies that r<g (i.e. weighted average borrowing costs lower than nominal GDP growth) is not a sufficient conditions for debt sustainability in these economies. Instead, how public debt evolves will come down both to the pace of fiscal consolidation but also, crucially, to where medium term growth settles. As we demonstrate below, in the case of India, even small changes in trend growth can have large implications for debt sustainability. Before we get there, however, a few thoughts on the evolution of debt:

Mathematically, debt evolves as follows:

$$D_{(t+1)} = D_t * (1+r) + PD_{(t+1)}$$

where D(t) is the absolute Debt Stock at time (t); r is the average interest rate on the debt, and PD(t) is the primary deficit at time t.

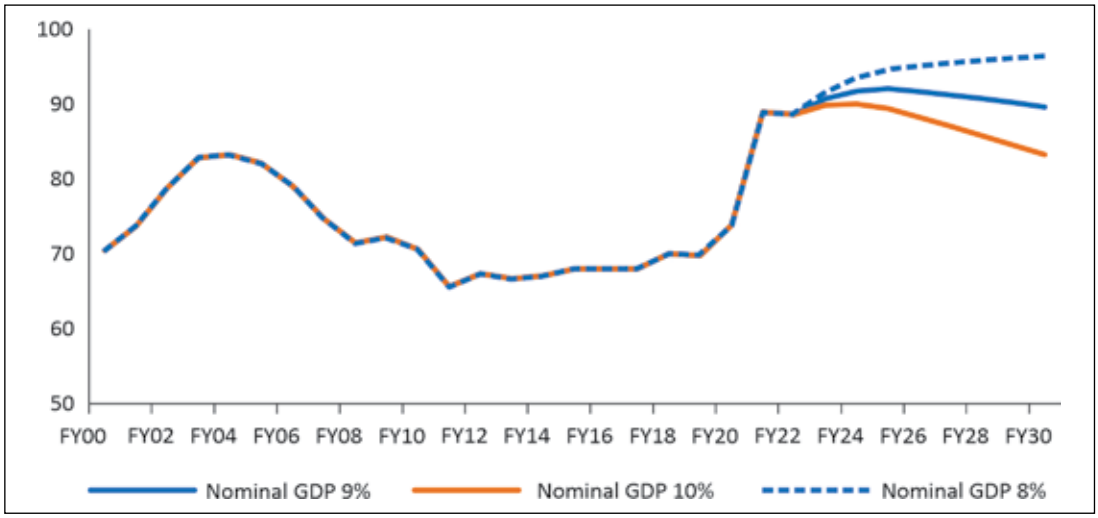
Transforming this into debt as a percent of GDP and re-arranging terms, we find that

$$d_{(t+1)} - d_{(t)} = d(t) * \frac{r-g}{1+g} + pd(t+1)$$

where d(t) is Debt/GDP at time t; g is nominal GDP growth; r is the average nominal borrowing cost; and pd(t) is the primary deficit as a percent of GDP at time t.

To demonstrate the disproportionate impact of medium-term growth on debt sustainability we consider India as an example. India's debt is estimated at about 87% in 2020-21. If India's medium-term nominal GDP growth settles at 8% (real GDP of 4.5%–5%) Debt/GDP is expected to rise monotonically over the decade (Chart 5.15). Qualitatively, this is true even

Chart 5.15: India's Debt Dynamics



Source: J. P. Morgan Calculations

if the pace of fiscal consolidation is hastened. In contrast, if nominal GDP growth settles 2 percentage points higher, at 10% (real of 6.5%–7%) Debt/GDP would first stabilize and then start declining by the end of this decade, even if the pace of fiscal consolidation is more gradual. All told, small changes in trend growth can have disproportionate impacts on debt sustainability in India, a lesson that's likely to apply to some other BRICS economies as well.

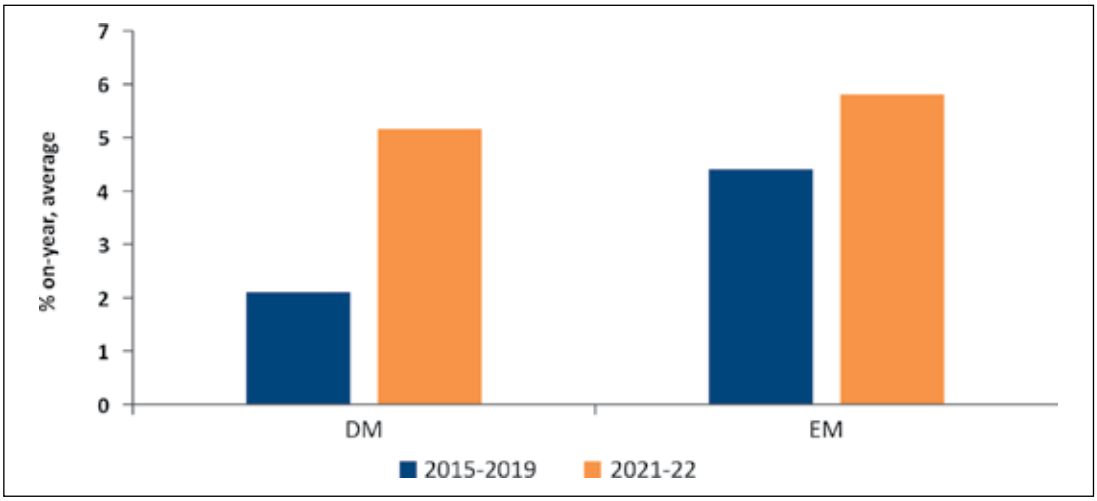
3. The Growth Imperative

3.1 Global Growth and BRICS Exports

The imperative for strong growth in a post-pandemic world characterized by economic scarring and elevated public debt levels therefore appears self evident. The real question is where will that growth come from?

The expected strength of the global economy over the next 4-6 quarters creates promise that exports could become a meaningful tailwind for growth for some BRICS economies. The sequential momentum of global growth is currently tracking its strongest pace since the Second World War, fueled by vaccinations and re-openings across the developed world. To be sure, global growth is expected to rotate away from the U.S. and China and towards Europe and Emerging Markets, as the latter get progressively vaccinated. Near-term concerns about the global spread of the Delta variant, notwithstanding, global growth is forecasted to stay well above trend through the rest of 2021 and 2022. Therefore, sustained above-trend demand growth bodes well for the export outlook of several BRICS economies.

Chart 5.16: DM and EM growth

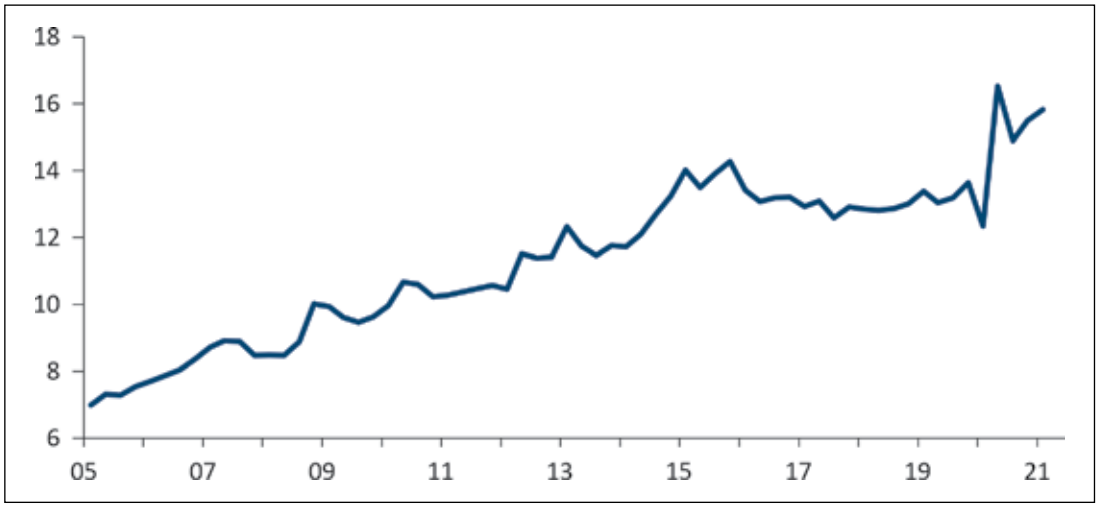


Source: IMF

Recent months bear testimony to this. In 1Q21, Chinese export growth was strongly helped by not just the demand for medical supplies and personal protective equipment (PPE)

exports but also from tech products. This helped China push up its share in global exports. On the heels of that strong growth, recent data shows some mean-reversion in exports. Yet, for 2021, China's exports are expected to grow more than 20%, and China's share in global exports is likely to stay in the elevated range of 15-16%.

Chart 5.17: China's Share in Global Exports



Source: J. P. Morgan

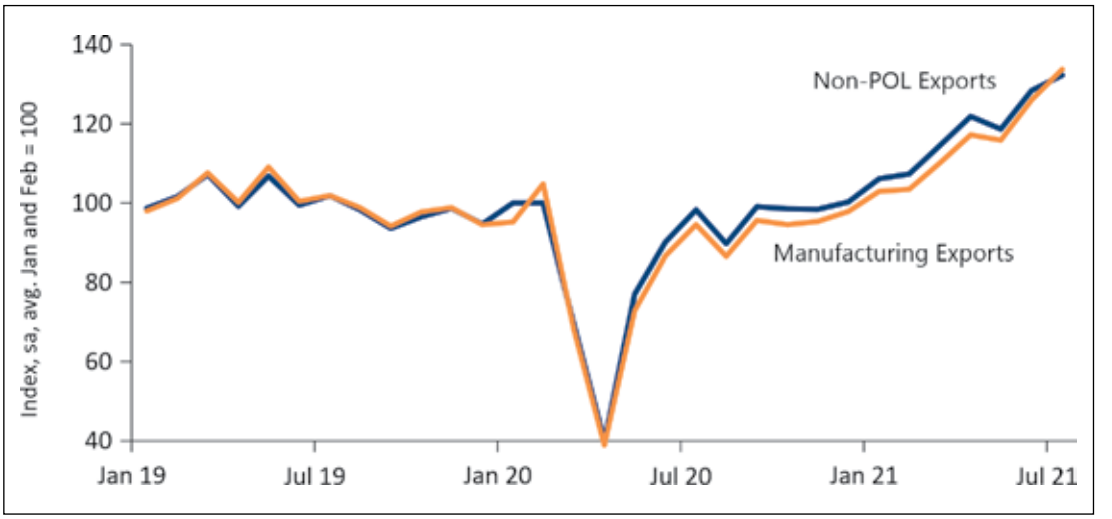
Meanwhile, Brazil, Russia and South Africa have been benefiting from the commodity price rally, which constitutes a positive terms-of-trade shock for these economies. For example, commodities are the mainstay for Brazilian exports – which now account for more than 70% of total exports basket – and these exports have jumped in recent months. Similarly, Russia's exports have been helped by the increase in crude prices.

Chart 5.18: Brazil's Exports

Source: Economy Ministry

Meanwhile, strong global growth has boosted India's exports with manufacturing exports currently at 130% of its pre-pandemic levels and, though some of this is led by increase in metals prices, underlying volumes are also growing in double digits.

Chart 5.19: India's Exports



Source: MoSPI

While strong global growth in the coming quarters will provide important tailwinds to several BRICS economies, it remains to be seen (i) whether just one growth engine firing (exports) will be enough to repair the scars from the pandemic in some of these economies and (ii) how long these global tailwinds will sustain, and whether the export lift is purely cyclical. Furthermore, BRICS economies that are excessively reliant on commodity exports remain vulnerable to a sharp unwind in commodity prices.

Therefore, BRICS economies will be well served in trying to ignite other growth drivers as well. To illustrate the opportunities and challenges that the pandemic has engendered, we use India as a case study to analyze where growth could come from.

3.2 Case Study: India - Looking for Growth Drivers

To examine what could drive India's growth in a post-pandemic world, we evaluate the near-term prospects of the different components of GDP on the expenditure side:

GDP = Consumption (C) + Investment (I) + Govt. Spending (G) + Net Exports (X-M)

3.2.1 Consumption

There is a reflexive consensus among analysts that consumption and private investment will step up to the plate and drive India's post-pandemic growth. Consumption, after all, was the

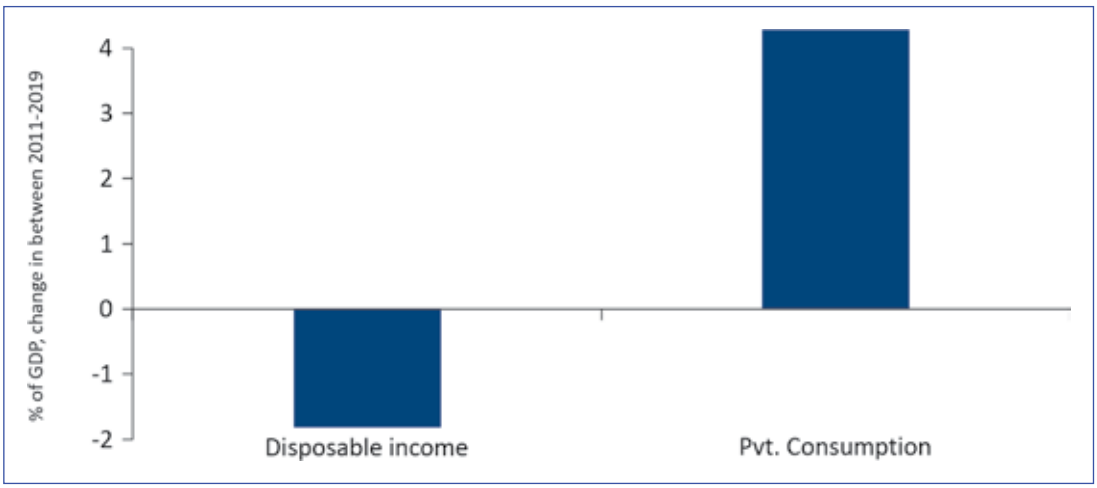
flagbearer of growth for much of the last decade. Why won't it just pick up from where it left off?

To understand why, one needs to analyze India's growth dynamics this millennium. Recall, growth had been powered by the Siamese twins of exports and investment in the first decade. But by 2012, that story had petered out. Exports began to slow and a combination of investment overcapacity and implementation bottlenecks meant the economy was beset with a "twin balance sheet" problem: corporates left with unsustainable debt and banks laden with high NPAs.

Unwittingly, this set the stage for the next era of growth. As banks were recovering from infrastructure and large-corporate NPAs, they turned their attention to the one segment of the economy that had been under-saturated: households. What began was a multi-year retail credit boom, spurring the rapid proliferation of Non-Bank-Financial-Companies (NBFCs). On their part, households welcomed access to cheaper, institutionalized sources of credit. For a young, aspirational population, this was a means to smooth consumption over lifetimes.

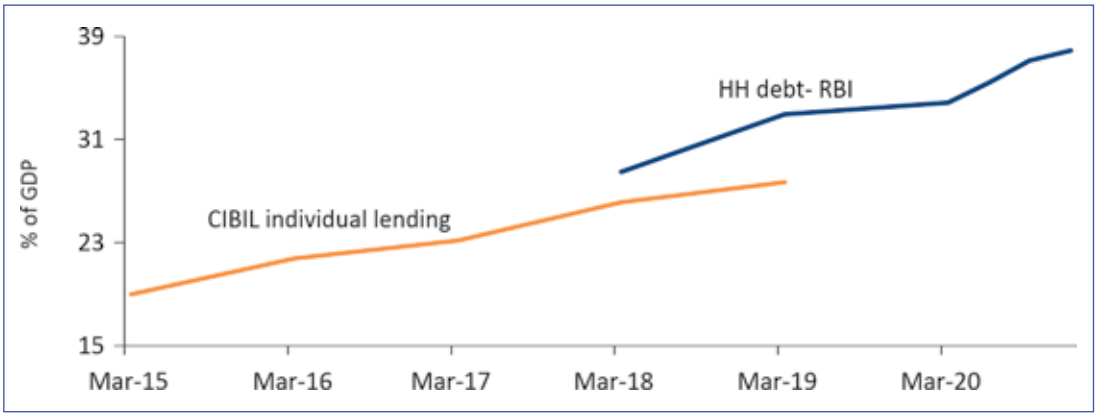
But under the radar, household income perceptions began a secular fall from 2012. Disposable income/GDP fell by 2 percentage points over the decade pre-COVID, even as private consumption/GDP rose by 4 percentage points (Chart 5.20). Essentially, consumption was being financed by households running down savings and running up debt (Chart 5.21). Debt-fueled growth works in the good times, but as the economy began to slow from 2017-18, and income perceptions continued to soften, it was a matter of time before households became cautious.

Chart 5.20: Disposable Income versus Private Consumption



Source: MoSPI

Chart 5.21: Household Debt (as a % of GDP)



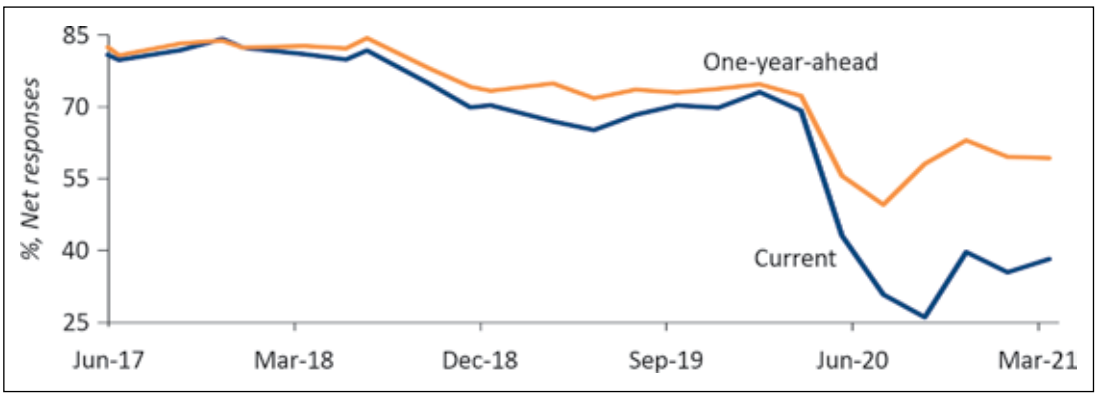
Source: MoSPI

Unsurprisingly, retrenchment in consumer goods began in early 2018, and broadened out by 2019. Tighter lending standards after the NBFC shock in late 2018 accentuated these trends but incipient balance sheet pressures had pre-dated the shock.

Against this backdrop, it's hard to envision a sharp and sustained consumption revival, once pent-up demand is exhausted. The pandemic has inevitably accentuated household balance sheet pressures, soberly reflected in successive RBI Consumer Confidence Surveys. Households express visible caution about future spending (Chart 5.22), particularly on discretionary goods, understandable given heightened income and job uncertainty. It's therefore unsurprising that consumption was the slowest to recover to pre-pandemic levels on the demand side.

All told, a sustained consumption recovery is likely to lag a jobs and income recovery that first helps heal household balance sheets.

Chart 5.22: Household Spending Perceptions



Source: RBI, JPM

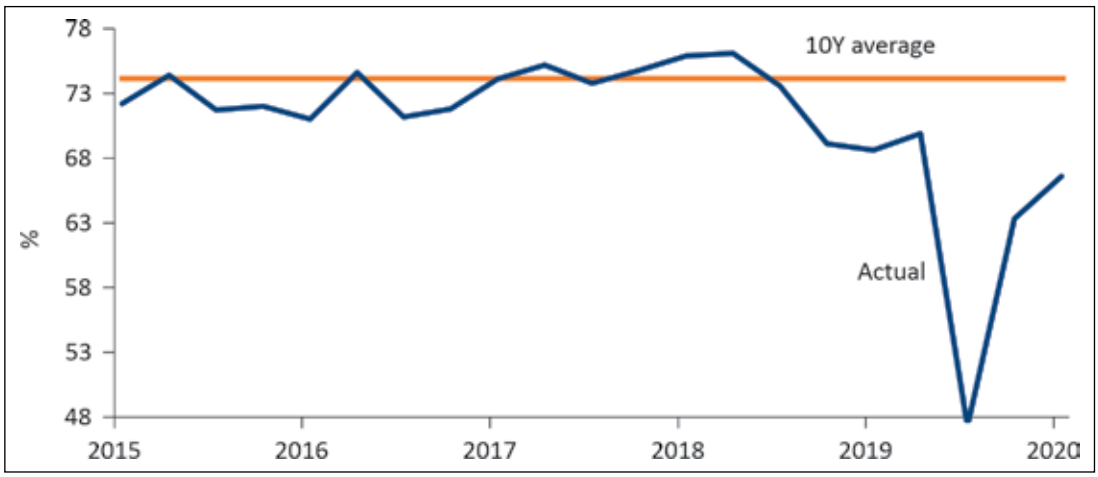
3.2.2 Investment: From Balance Sheets to Demand

The key to a consumption recovery therefore is a jobs recovery. But the key to a jobs recovery is an investment recovery.[5]

For several years, private investment was held back by the "twin balance sheet" problem whereby unsustainable levels of debt on some corporate balance sheets and correspondingly high NPAs on bank balance sheets, constrained credit, investment and growth. But after years of deleveraging – reflected in muted credit growth to corporations –leverage has become much less of a binding constraint for large companies.

Instead, the current binding constraint for larger corporations is demand. Even as balance sheets have improved, capacity utilization has continued to fall in the run-up to COVID. Manufacturing utilization fell below 70% for two quarters before the pandemic in the RBI's OBICUS Survey—the first time this has happened since the Survey started in 2008—reflecting weak demand. Utilization fell further to 45% during the pandemic and has since recovered but still remains below 70% (Chart 5.23). Therefore, a broader private investment cycle upturn is unlikely before utilization rates first go up meaningfully.

Chart 5.23: Capacity Utilization



Source: RBI

Where can that demand come from?

3.2.3 Exports Provide a Silver Lining

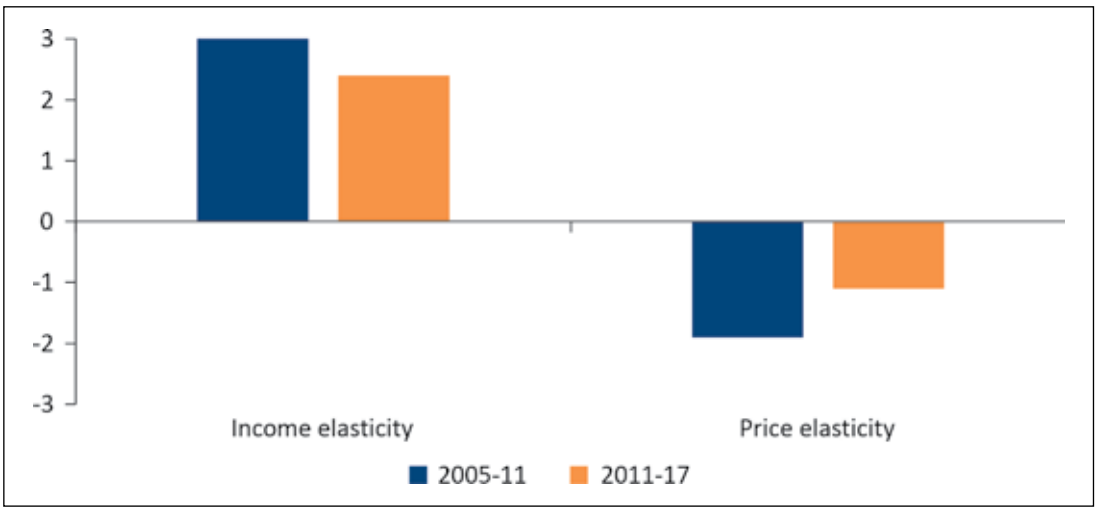
As discussed above, strong global growth has boosted India's merchandise exports, providing an important source of demand. This should, however, not necessarily come as a surprise. We have previously found that India's merchandise and services exports are very

[5] This is consistent with the RBI's findings that investment drives consumption, through employment and income creation, and therefore investment is key to a sustainable post-COVID recovery.

sensitive to global growth impulses (Chart 5.24). This result, in part, reflects the sectoral shift that has characterized India's manufactured basket. Within the export basket, the share of new-economy exports (IT and business services, engineering goods, chemicals and pharmaceuticals) have grown sharply at the expense of old-economy exports (agriculture, textiles and gems and jewellery) and, as we have previously found, the former are more elastic to global demand than the latter.[6]

To be sure, these relationships are estimated during "normal times" and the unique nature of the recovery from COVID – where re-openings across the world are likely to result in disposable income being directed disproportionately towards contact-intensive domestic (non-tradable) services – could partially interfere with these relationships.

Chart 5.24: Export Elasticities



Source: Chinoy and Jain (2018), India policy forum paper

That said, COVID-19 has dramatically boosted technological adoption around the world and that bodes promisingly for India's Information Technology (IT) exports. Already, India's share in global service exports has increased from 3% in 2014 to 4.2% in 2020, and the aftermath of the pandemic creates fresh opportunities for IT and service exports.

What are the associated policy implications? To harbor an ecosystem conducive to export growth. This would entail avoiding tariff increases that make exports uncompetitive (an import tariff is equivalent to an export tax), continued focus on attracting MNCs (particularly those diversifying from China) to help integrate into global value chains, and keeping the real effective exchange rate anchored (by containing inflation and avoiding undue nominal appreciation) to preserve competitiveness.

[6] Chinoy and Jain, 2018 (https://www.ncaer.org/Events/IPF-2018/Papers/Paper-V-IPF-2018-Chinoy-Jain-Conf-version.pdf)

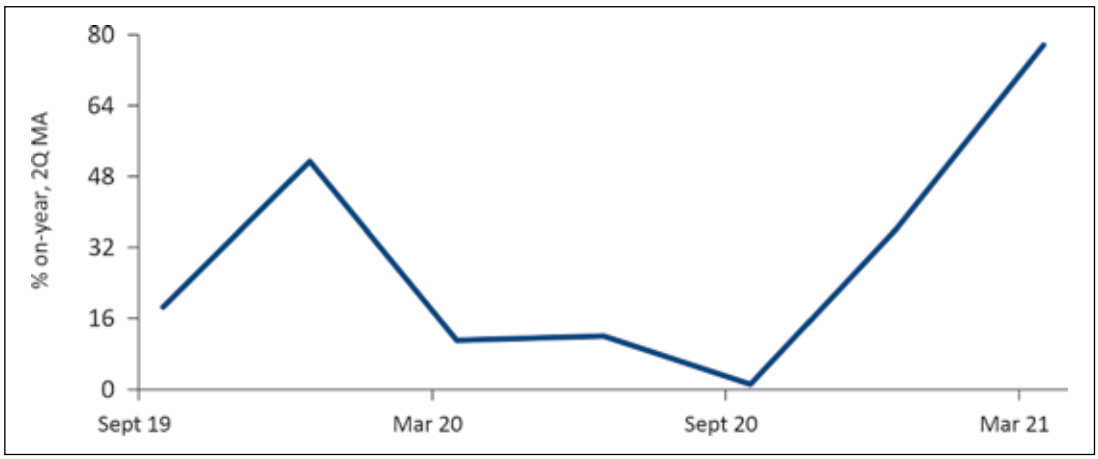
3.2.4 Government Capex: Execution is Key

The larger question, however, is whether export growth, by itself, will be able to crowd in a private investment upturn. This was certainly the case in the first decade of the millennium, but that was a period of hyper-globalization with exports growing 15% per year for almost a decade. It's unlikely we get that kind of sustained buoyancy this time around.

India therefore will need a second demand driver. In our view, that would have to be a sustained public investment push. The case for more physical and social infrastructure outlays is self-evident. First, it will support near-term demand and its large multiplier effect on activity should eventually catalyze private investment. Second, infrastructure spending will create jobs for the bottom of the economic pyramid and alleviate pandemic-induced scarring. Third, sustained public investment boosts the economy's internal and external competitiveness and can be expected to boost trend growth.

To policymakers' credit, a public investment push appears central to the government's strategy. From the second half of last fiscal year, central and state governments have been pushing hard on capex. In particular, central government capex surged 75% on-year in the second half or FY21 (Chart 5.25) and was key to the recovery as well as a key contributor to the strong fixed investment growth in the January-March quarter.

Chart 5.25: Central Government's Capex



Source: CGA

Furthermore, both central and state budgets have budgeted strong capex growth in FY22 (30% and 37% growth, respectively) which will be key to the recovery. To be sure, at the aggregate level, there is a large swing in the fiscal thrust between FY21 (+4.5% of GDP) and FY22 (-1.3% of GDP). To combat this tightening, it's crucial that the planned capex, with its large multipliers, be delivered in FY22.

But boosting public investment will need to be a multi-year strategy that extends beyond FY22. The question therefore is how will that be financed given that deficits and debt are already at expansive levels, and credible fiscal consolidation will be needed from here on? The answer must be to (i) double down on privatization, disinvestment and asset sales, (ii) improve the quality of expenditure (rationalize current expenditures to create more room for capex), and (iii) reform both direct taxes and GST to eventually generate more revenue buoyancy.[7]

All told, exports and government capex will need to combine to create a growth bridge in India till private investment and consumption recover. More generally, like in other BRICS economies, India's economy will require sustained reforms to push up trend growth to both alleviate the impact from the pandemic and secure medium term debt sustainability.

[7] Chinoy and Jain, 2021 (https://www.epw.in/journal/2021/9/budget-2021%E2%80%9322/fiscal-policy-and-growth-post-covid-19-world.html?0=ip_login_no_cache%3D7c4fae4bd4254f29e7ec7103f392baa9)

Financing Infrastructure & Development - Insights from NDB and DFIs in BRICS

Anil Kishora*
Vice President
New Development Bank

** The author thanks Xu Bing (PhD), Meng Qingwei (PhD), Fabio Batista and other NDB staff for their inputs to this article. The views expressed in this article are those of the author and do not necessarily represent the views of NDB, its Executive Board or NDB management.*

Introduction

It is a great paradox of the twenty-first century that funds equal to one-fifth of the global GDP remain invested in assets with near or sub-zero yields and yet financing infrastructure and development that could generate positive returns for economies over a long time horizon continues to be a challenge. Blame it on the short-sighted focus of stock markets, analysts' obsession with quarter-on-quarter growth, under-development of bond markets, mechanical risk models, inability to measure externalities or on the unintended rigours of regulations, but the point stays.

The necessity of investing in infrastructure and development requires concerted steps to address the challenges and bottlenecks to infrastructure financing. Against this background, this paper attempts to present a perspective on the growing infrastructure financing needs within the BRICS countries, explores the stories of their development finance institutions (DFIs), delves into New Development Bank's (NDB) own evolution as a multilateral development bank (MDB), and highlights some aspects that may provide insights into the working of DFIs within BRICS. Drawing from the NDB experience, it also elucidates the scope for collaboration between MDBs and national DFIs. Such an exposition might be useful as India moves to scale up financing of infrastructure and development by setting up a new DFI in the country.

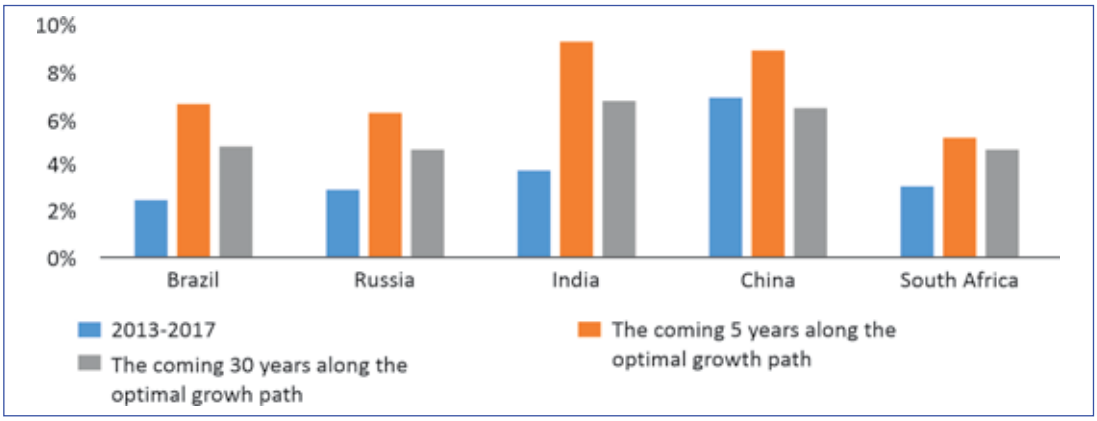
Infrastructure and Economic Growth in BRICS

In the last two decades, the BRICS countries have been consistently expanding their role and weight in the global economy. Leaders in their respective regions, the five countries stand out by almost any metrics, accounting for about 25% of total world landmass, 41% of global population and 31% of total global GDP in PPP terms in 2019, up from 18% in 1999[1]. BRICS are home to 142 of the Fortune 500 companies in the world[2]. BRICS are also responsible for nearly 16% of international trade[3], and by 2060, expected to contribute 50% of global GDP in terms of PPP[4].

In line with their rising share of the global economy, the BRICS countries have also become important investors in infrastructure, accounting for over 40% of global infrastructure investment in 2019, with the share expected to continue growing in the future[5]. However, despite the impressive progress, there are huge infrastructure investment gaps in BRICS and in the world as a whole. According to McKinsey (2016), global infrastructure investment needs are estimated to be US$ 3.3 trillion per year during 2016-2030 (equivalent to 3.8% of global GDP) to support current economic growth projections, suggesting an annual gap of US$ 350 billion, and to achieve the UN's Sustainable Development Goals (SDGs), the size of this gap would triple.

For the BRICS countries taken together, NDB's in-house estimates reveal substantial infrastructure investment gaps (Chart 6.1), suggesting an annual infrastructure investment requirement of 8.5% of GDP in the coming five years. The requirement is relatively higher for China and India, both above 9% of GDP, due to their higher projected growth potentials. India in particular, requires the largest infrastructure investment in the near term, about

Chart 6.1: BRICS Average Annual Infrastructure Investment (as a% of GDP)



Source: NDB staff calculations

[1] World Development Indicators, 2019

[2] Fortune 500, 2020. https://fortune.com/fortune500

[3] World Development Indicators, 2019, goods and services

[4] OECD Economic Outlook, December 2020

[5] Data from the Global Infrastructure Hub's Infrastructure Outlook (accessed on 17 February 2020)

9.3% of GDP, significantly higher compared to its 2013-17 average investment of 3.8% of GDP. This result is similar to World Bank (2019) estimates requiring annual infrastructure investment of 8.8% of Indian GDP until 2030[6]. South Africa, Brazil and Russia would need to invest up to 5.2% to 6.7% of their respective GDPs annually over the next five years. Box 6.1 presents an overview of methodologies for estimating infrastructure gaps.

Box 6.1: Infrastructure Investment Gap

Estimates of the infrastructure gap can vary significantly in terms of methodologies. For example, based on growth projections to achieve UN SDGs, UNCTAD (2014) estimates an annual global investment need of US$ 5 to US$ 7 trillion. GI Hub (2017) estimates the infrastructure investment gap by benchmarking with peer economies and concludes an annual infrastructure investment requirement of US$ 3.7 trillion between 2016 and 2040, indicating a gap of 0.6% GDP annually over its current trajectory. Sustained infrastructure gaps can cause congestion and thereby adversely affect economic efficiency and growth.

Unlike existing studies, NDB's in-house research estimates the infrastructure gap in BRICS countries by subtracting the current level of relative infrastructure capital stock from its long-run benchmark level derived from a dynamic growth model. In this model, countries with higher GDP growth potential and higher absolute level of depreciation (associated with larger existing infrastructure capital stock) naturally need more infrastructure investment to maintain a stock of infrastructure capital to be compatible with the investment in non-infrastructure capital. Incompatibility causes congestion.

Compared with peer benchmarking, wherein an economy's infrastructure investment gap is calculated by benchmarking against peer economies given a set of control variables, the NDB's method provides a valuable alternative conceptual framework that does not require any peer country comparison.

Under this framework, the results reflect the demand for infrastructure capital conditional on both current and future accumulation of non-infrastructure capital in each economy. Within BRICS, India and China demonstrate higher growth potential, which leads to higher non-infrastructure capital accumulation, and therefore requires a larger level of infrastructure capital to avoid congestion.

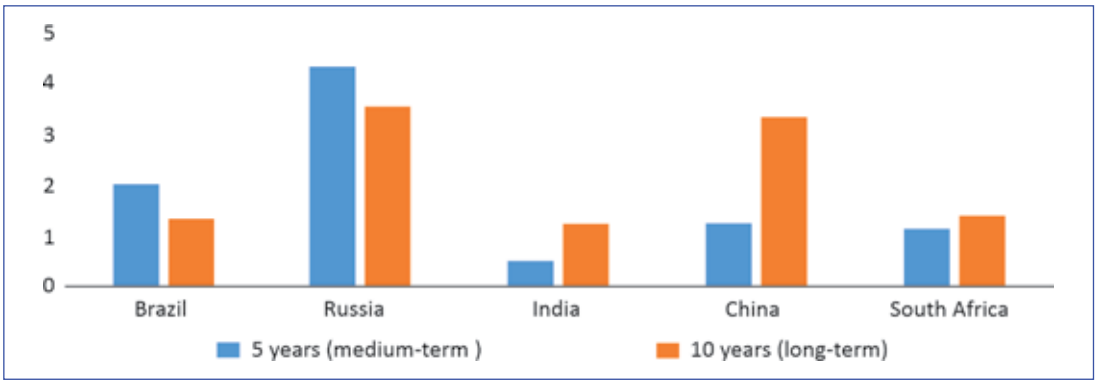
It is important to fill the infrastructure investment gap as it has several positive spillovers on economic growth. Most importantly, it can (i) improve supply-side economics by increasing marginal productivity of labour and private capital (e.g. Abiad et al., 2016; Agenor and Moreno-Dodson, 2006); and (ii) crowd-in private investment and increase aggregate demand (e.g. Abiad et al., 2016; Erden and Holcombe, 2005; Aschauer, 1989).

[6] https://www.worldbank.org/en/results/2019/10/15/supporting-indias-transformation

Quantitatively, Abiad et al. (2016) find that in advanced countries, US$ 1 of public investment can raise output by US$ 0.4 in the first year and US$ 1.4 in the fifth year. For developing countries, the IMF (2014) estimates that US$ 1 of public investment can increase GDP by US$ 1-1.3 in the fifth year.

For the BRICS countries, NDB's research shows that public investment generates a persistent and positive effect on output[7,8], with 10-year cumulative multiplier ranging from 1.2 to 3.5 (Chart 6.2). Within BRICS, the long-term multiplier of public investment in Russia (3.5) is the highest, followed by China (3.3), South Africa (1.4) and Brazil (1.3). For India, every US$ 1 increase in public investment raises GDP by US$ 1.2 after 10 years. With higher share of infrastructure in public investment (Goyal and Sharma, 2018; Mallick, 2019) and better infrastructure project selection post-1990, the multiplier effects in India turned stronger, recording at 1.94 after 10 years compared to 0.73 in the pre-1990 period[9]. These results point to substantial economic gains in the medium to long term for India and other BRICS countries from investing in infrastructure. In addition, the social benefits of infrastructure investment, such as employment creation, are also substantial. One study finds that 1% increase in infrastructure spending can create roughly 1.4 million jobs in India (Dangra, 2016).

Chart 6.2: Cumulative Output Multipliers of Public Investment



Source: NDB staff calculations

[7] The analysis here uses public investment from the IMF's Investment and Capital Stock Dataset as a proxy for infrastructure investment. According to IMF (2014), the estimated long-term effects of public investment can serve as the lower bound for the effects of infrastructure investment

[8] The multipliers vary across BRICS depending on the availability of infrastructure capital stock and the share of infrastructure investment in public investment. In general, countries with low infrastructure capital stock enjoy larger multiplier effects as the marginal productivity of infrastructure investments is higher. Countries with higher share of infrastructure investment within their public investment is also likely to generate higher multiplier effects. This is because infrastructure may provide more direct productivity gains compared to other public investment, such as amusement parks (e.g. Aschauer, 1989)

[9] The multiplier effects may have increased further recently to 2.0 for 2015-2017 period, according to A. Dangra, 2016, "The Missing Piece in India's Economic Growth Story: Robust Infrastructure." S&P Global

DFIs and Infrastructure Investment

As demonstrated in the previous section, even though infrastructure investment brings socio-economic benefits, large infrastructure gaps exist globally, BRICS included. The lack of access to financing is one of the main reasons for such gaps. Certain characteristics of infrastructure projects, such as long gestation period, high underlying risk, relatively low financial return, and large capital investment requirement, make their financing a major challenge.

The conventional wisdom expects capital markets to provide long-term capital for infrastructure. However, in many developing countries, capital markets are still at early stages of development, with relatively shallow market depths, inadequate liquidity, shortage of long-term institutional investors, and regulatory and institutional barriers. Hence, commercial banks have been at the forefront of financing infrastructure in many emerging market and developing countries (EMDCs). However, it has not been the best model for funding big ticket infrastructure. Commercial banks' restricted appetite for the risk-return combination of the typical infrastructure projects, combined with their lack of patient capital, constrains long-sighted views. Infrastructure projects tend to lock up big portions of banks' loan books, which could crowd out other investment opportunities. Moreover, the asset-liability maturity mismatch is a central problem for commercial banks due to the long-term nature of infrastructure projects and the short-term profile of their liabilities. Maturity mismatch may cause liquidity and even asset quality problems, and in severe cases, bankruptcies and systemic risks. As a result, commercial banks often turn reluctant to invest in infrastructure, particularly with Basel III increasing the regulatory capital burden for long-term assets (OECD, 2015).

It is therefore essential to call for joint efforts of different development actors to address the challenges of financing infrastructure. Among them, as DFIs are well positioned to play a critical role in solving market failures, new DFIs are being lately established both in developing and developed economies. It is noteworthy that the UK, a developed country, has also announced establishment of a new DFI, the UK Infrastructure Bank headquartered in Leeds, away from London, for funding infrastructure.

DFIs are normally established and partly or fully owned by sovereign governments to fund economic and social development projects. DFIs do not seek to maximise profits for their shareholders, but focus on multiple goals such as providing infrastructure investment, reducing inequality, fostering incipient industries and supporting small and medium enterprises. These institutions are most needed when market failures are acute and lack of capital and private sector participation impede development, especially in under-served regions and sectors, where economic and social development impacts as well as environmental benefits could be the greatest.

Because of their development mandate and government ownership, most of the DFIs enjoy budgetary support for long-term funding at low cost (World Bank, 2018). In addition, DFIs are increasingly issuing bonds in capital markets by leveraging their strong credit ratings and sovereign backing. Bond issuances not only help DFIs diversify their source of funding, but also improve the depth and liquidity of countries' domestic bond markets.

From a risk perspective, DFIs are often better positioned to address the risk associated with maturity mismatches. These institutions can leverage the capital provided by government and their strong credit ratings to attract competitively priced long-term financing from capital markets. Allowing designated DFIs to focus on infrastructure also helps mitigate systemic risk in the financial sector. Unlike commercial banks, most DFIs are not deposit-taking, which in turn limits the public's direct exposure to losses, should investments get under stress (World Bank, 2018)[10]. The implicit or explicit sovereign guarantee available to DFIs also provides confidence under stressful conditions, although it may need to be ensured that the guarantee does not distort markets through unfair competition.

A distinctive feature of DFIs is their ability to offer countercyclical lending during crisis periods, which not only allows infrastructure investment to continue, but also supports economic recovery in general. In contrast, commercial banks tend to be reluctant to invest during crisis times to preserve the soundness of their balance sheets. During the global financial crisis of 2008-2010, most DFIs played a countercyclical role by providing credit to private firms that were temporarily unable to access funding from commercial banks or capital markets (Martinez and Vicente, 2012). Nevertheless, countercyclical lending by DFIs needs prudent management to mitigate any post-lending spikes in non-performing loans (NPLs), which may jeopardize the health of the banking sector and complicate macroeconomic management.

Beyond financing, DFIs also provide technical assistance, consultancy, trainings, standard-setting, pre-investment studies, and post-investment evaluations, at project, sector and strategy levels. These soft contributions help generate and disseminate knowledge, which is crucial for developing bankable project pipelines - lack of which is widely considered as a big hurdle to infrastructure investment in developing countries. Creating bankable project pipelines requires not only sectoral knowledge, but also the understanding of development bottlenecks across sectors. DFIs are in a good position to identify, in coordination with national and sub-national development agencies, these bottlenecks with a forward- looking vision, thereby facilitating development of appropriate remedial actions and strategic plans. There is a broad consensus that more than financing, DFIs can contribute through their specialized skills and convening power.

[10] 2017 Survey of National Development Banks (World Bank, 2018) reports only 21% of DFIs surveyed take retail deposits

Major DFIs in BRICS

Due to the intrinsic advantages of DFIs, many economies have established national DFIs to lead infrastructure investment, and promote industrialization in general. The BRICS countries are no exception.

Brazil established Brazilian Development Bank (BNDES) in 1952, and its operations have evolved in accordance with Brazil's socio-economic challenges, from serving as the main financing vehicle for government programmes related to import substitution in the 1970s, privatization in the 1980s–90s, to regional economic decentralization in the 1990s. In the 21st Century, BNDES has emphasized its role in promoting socio-economic development with a commitment to environmental sustainability and innovation. BNDES is now ranked the world's seventh-largest national development bank in terms of total assets[11].

In Russia, the State Corporation Bank for Development and Foreign Economic Affairs (Vnesheconombank, or VEB) was established in 2007 and was renamed as VEB.RF in 2018. VEB.RF aims to strengthen Russia's technological potential and to improve the quality of life through investment in infrastructure, industrial production, and the social sphere. It is ranked as the world's eighth-largest national development bank.

China, a late-comer in establishing DFIs compared to other BRICS countries, created China Development Bank (CDB) and two other policy banks (Export-Import Bank of China and Agricultural Development Bank of China) in 1994. Chinese DFIs have been progressing extremely fast, with CDB currently positioned as the world's largest DFI.

South Africa established Industrial Development Corporation (IDC) back in 1940, and Development Bank of Southern Africa (DBSA) in 1983. With "financing social and economic infrastructure investment and promoting regional integration and sustainable development" as its mandate, DBSA is currently ranked as the world's 23rd largest DFI.

India has been a pioneer in establishing DFIs. In 1948, just one year after its independence, India established its first DFI, Industrial Finance Corporation of India (IFCI). Over the following two decades, a number of other DFIs were set up, such as Industrial Credit and Investment Corporation of India Ltd. (ICICI Ltd) in 1955, and Industrial Development Bank of India in 1964, among others. In 1990, Small Industries Development Bank of India (SIDBI) was established for financing micro, small and medium enterprises.

Up until the 1990s, the DFIs in India provided substantial industrial financing, with access to concessional funds from tax-exempt bonds (Vaidya and Vaidya, 2010), government and the Reserve Bank of India (RBI). Following the economic reforms of 1991, there was a move away from traditional approaches. This led to a questioning of the role and effectiveness of DFIs in the Indian financial architecture, resulting in gradual dilution and eventual conversion

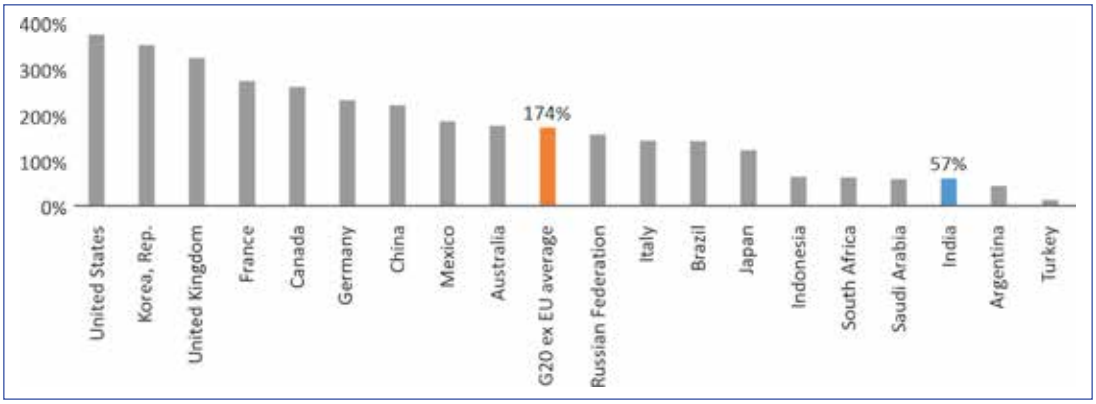
[11] The ranking of DFIs in this section is obtained from: https://www.swfinstitute.org/fund-rankings/development-bank

of DFIs to universal banks. The policy shift relied on the fast evolving financing capacity and maturing risk management capabilities of banks and concurrent deepening of capital markets to substitute for the role played by DFIs.

However, bond markets in India grew at a slower pace than expected, with corporate bond issuances averaging only 57% of GDP during the period 2000-17, as compared to the G20 average of 174%, and lower than its emerging BRICS counterparts (Chart 6.3). In the absence of deeper bond markets, the burden of infrastructure fell on banks, with some non-banking financial companies (NBFCs) later joining hands.

Chart 6.3: Corporate Bond Issuance as % of GDP

(G20 ex EU, Average of 2000-17)



Source: "Corporate bond issuance as a%age of GDP" indicator from the World Bank´s Global Financial Development Database to measure the degree of bond market deepening in the country

Bank credit became one of the largest sources of infrastructure finance, second only to budgetary support. However, in tandem, asset quality took a hit. By the end of March 2020, 36.2% of bank credit to the industrial sector was for the infrastructure sub-sector, of which 13.1% was under stress[12]. Banks also found it difficult to mitigate asset-liability mismatches on their books. Illustratively, at the end of March 2019, only 15.7% of scheduled commercial banks' borrowings had a maturity of over five years, whereas more than 50% had a maturity of less than one year[13].

Asset quality and other issues led to a reduced risk appetite on the part of banks towards long-term finance, especially in the infrastructure sector. Sensing an opportunity, NBFCs attempted to grab a slice of the pie, offering more flexibility in loan terms and conditions. However, the NBFC model did not work out well, with one of the largest infrastructure-focussed NBFCs almost going under.

[12] RBI, Financial Stability Report July 2020, Chart 2.3 (b), p. 25

[13] RBI, Report on Trend and Progress of Banking in India 2018-19, Table IV.3 (Bank Group-wise Maturity Profile of Select Liabilities/Assets), p. 44

However, India's infrastructure investment needs have been growing over the years, from ₹ 24 lakh crore (~US$ 331.2 billion) between 2008 and 2012, to ₹ 56.2 lakh crore (~US$ 775.6 billion) between 2013 and 2019[14]. Recognizing that re-establishing a DFI with a specific national mandate would help finance long term projects better, India announced in the Union Budget of 2021-22, setting up of "The National Bank for Financing Infrastructure and Development (NaBFID)". According to Finance Minister Nirmala Sitharaman, the new DFI is expected to act as the "provider, enabler and catalyst for infrastructure financing and as the principal financial institution and development bank for building and sustaining a supportive ecosystem across the life-cycle of infrastructure projects." The NaBFID, starting with an authorized capital of ₹ 1 lakh crore (~US$ 13.8 billion), is to build a loan book of ₹ 5 lakh crore (~US$ 69.0 billion) in three years. The National Infrastructure Pipeline (NIP) that lists infrastructure projects worth US$ 1.5 trillion, to be executed over the next five years, demonstrates availability of sufficient bankable projects in the country. As such, the new DFI would surely play a strong catalytic and complementary role to the banking sector and capital markets.

Challenges and Lessons from BRICS

India's massive infrastructure needs and ready availability of project pipelines create unparalleled potential for the country's new DFI. Given that actual realization depends on many factors, this section intends to distill some lessons from the experiences of other DFIs, including from BRICS.

1. Operating within Clearly Defined Mandate

For any DFI to succeed, operating within a clearly defined mandate is a precondition, yet often difficult to achieve in practice. Globally, DFIs have established a wide range of developmental mandates, which can be classified as narrow or broad (World Bank, 2018). The narrow mandates state explicitly the sectors, customers, activities and targets of DFIs, while the broad ones formulate development targets in general terms. Each has its own pros and cons. A narrow mandate allows specialization and focussed business activities. It also mitigates the risk of crowding out viable businesses of other financial institutions. Shipping Credit and Investment Corporation of India (SCICI), which later merged with ICICI Ltd is a case in point. However, a narrow mandate also invites more concentration risk. A broad mandate gives DFIs the flexibility to engage in a wide range of business activities across sectors, but it requires strategic coordination among multiple institutions that may have different development priorities.

How narrow or broad the mandate is to be ultimately determined by a country's development status and needs, but operating within a clearly defined mandate works much better. It also

[14] https://www.dailyexcelsior.com/need-for-infrastructure-financing-in-india/

limits the risk of crowding out private investment, mitigates external interferences and levels playing fields. The experiences in late 90s in India and many countries have demonstrated that when DFIs operate beyond their mandates, it creates sentiment against DFIs as concessional finance and state guarantees often create unfair competition that may distort markets (Gupta and Murthy, 2012).

2. Better Governance through Diversified Ownership and Independent Advisory

Like any financial institution, the governance of DFIs is challenging, and sometimes more complex than that of traditional commercial banks. DFIs are usually owned and controlled by a group of government institutions whose objectives may not necessarily be aligned with each other. It is therefore fundamental that the Board of Directors and senior management comprise, besides public officials, professionals and sector experts, and allows senior management to run the operations with full functional independence. In addition, having an International Advisory Panel (IAP) may also contribute to stronger linkages with the global development community and boost standards of governance. Experts who understand both specific country conditions and international best practices may make the IAP invaluable. Senior members of (international) development bank community, academia, ex-central bankers and former policy makers could often be the right pool to provide independent advices to DFIs on strategy, operation and policies. Such intellectual support has worked well for many DFIs around the world.

DFIs may often benefit from a more diversified public and private ownership mix. Diversified ownership structures may not only curb unproductive influences, but also improve efficiency and performance. In addition, highly rated institutional shareholders may also improve the credit rating of a DFI, and in turn, enhance its funding capacity. Nevertheless, deviation from development mandate is a possibility to watch out for as private shareholders may tend to emphasize profitability over development impact.

3. Ensuring Diversified Long-term Funding Sources at Lower Costs

One of the key conditions for DFIs to succeed at scale is the capacity to secure long-term funding at lower costs, which requires deep and diversified funding sources. Budgetary and other public resources may continue to provide some low-cost funding for DFIs, but this may also add fiscal burden, especially after COVID-19 pandemic. Take India for example, IMF estimations suggest India's primary deficits would increase from 3.3% of GDP in 2019 to 7.2% of GDP in 2020, and not return to the pre-COVID-19 level until 2024. In addition, debt level would increase from 72% of GDP in 2019 to 89% in 2020. Given the fiscal constraints, it may be useful for the new DFI to tap sources beyond subsidized capital.

Raising funds in capital markets through bond issuance is a viable approach, as demonstrated by many DFIs in BRICS. CDB, for example, is one of the first financial institutions to issue

development finance bonds in China. As of September 2020, CDB's outstanding debt securities totalled RMB 9.7 trillion (US$ 1.4 trillion), or 64.2% of its total liabilities and around 10% of financial bonds in China[15]. Owing to strong government support and its healthy risk profile, CDB could issue long-term debt at rather low interest rates: for bonds with a 10-year tenor, it only pays a premium of about 50 basis points over the Chinese Treasury Bonds[16]. In Brazil, BNDES has been issuing bonds for more than thirty years, accessing diverse markets and raising proceeds in different currencies including in USD, EUR, CHF and JPY. By end of 2019, BNDES' bond issuance balance totalled BRL 9.2 billion (US$ 2.3 billion)[17].

To fully benefit from bond financing, nurturing of long-term investor bases, including insurance, pension funds, and foreign investors such as sovereign wealth funds may be required. With prevailing low interest rates, infrastructure projects could provide opportunities for such long-term investors, who globally held close to US$ 100 trillion in resources as at the end of 2018 (GI Hub, 2019). A mere 10% allocation to infrastructure would be more than enough to finance the infrastructure investments required to meet the SDGs by 2030[18]. Survey results show that 80% of institutional investors, who represent US$ 10 trillion in assets under management, intend to increase their asset allocation in the infrastructure sector (GI Hub, 2019). Using its convening power, a new DFI can play a catalytic, even a lead role, in helping develop a well-functioning private infrastructure finance market to attract long-term domestic and overseas capital.

To attract these investors, there might be a need to further liberalize and streamline processes and policies to allow long-term investors to assume greater risks[19]. It also calls for the availability of broad mix of financial instruments, such as corporate bonds and infrastructure bonds with sufficiently long maturities. Tax incentives for investing in these market instruments could be formulated to encourage capital flowing into infrastructure projects. Reforms in legal framework to ensure better protection of investors and creditors can provide assurance for private sector to engage in infrastructure (Humphrey, 2018).

4. Provision of Multiple Financing Models for Infrastructure Projects

The new DFI in India is expected to go beyond being a financier and assume a catalytic role in mobilizing private and institutional participation in the infrastructure space. Globally, most of the DFIs provide medium-to-long-term loans to finance infrastructure investment projects.

[15] China Development Bank Annual Report, 2019

[16] Data obtained from Wind Economic Database

[17] BNDES Annual Report, 2019

[18] UNCTAD estimates that to meet the SDGs by 2030, total annual investments in SDG-relevant sectors in developing countries will need to be between US$ 3.3 trillion and US$ 4.5 trillion, which implies an annual financing gap of around US$ 2.5 trillion. UNCAD, 2014. World Investment Report

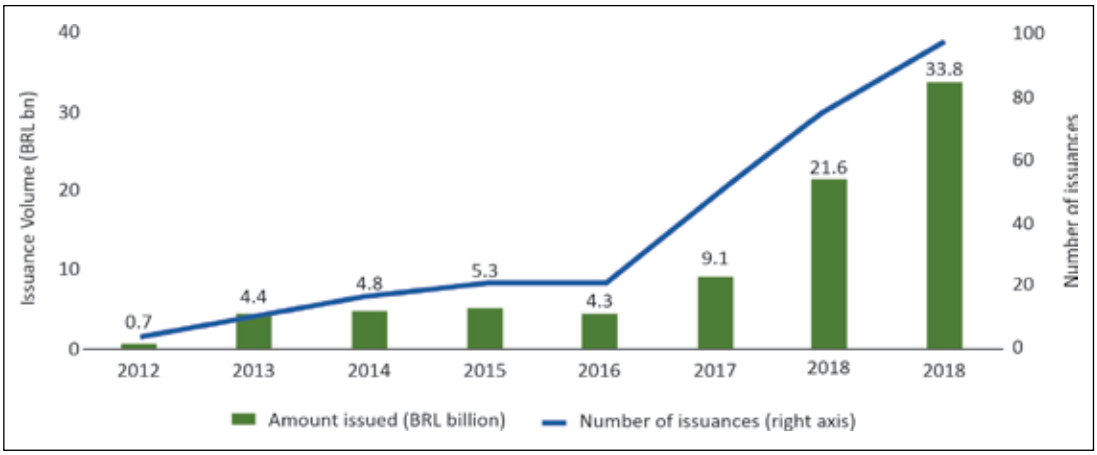
[19] For example, as some authors and literature point out, insurance and pension funds are affected by statutory constraints restricting these funds from investing in infrastructure assets in bond markets in India, out of concerns on investing in lower rated bonds. E.g., S. Ray, Infrastructure Finance of Asia, in *Routledge Handbook of Banking and Finance in Asia*. Ed. U. Volz, P. J. Morgan and N. Yoshino, ADB Institute and Routledge, 2019

However, many also support in the form of equity, bond purchases, guarantees, and on-lending via commercial banks. This operational flexibility can be highly valuable in attracting private investors' participation in infrastructure.

In this aspect, the Russian experience could be of value. The Russian government appointed its major national development financing institution, VEB.RF, to set up the Project Finance Factory (PFF) in 2018, with the aim to channel private capital into long-term financing for investment projects by syndicating loans with government support. This financing model prefers syndication of up to 80% of total project investments through borrowings from commercial banks and other institutional investors combined with government guarantees and subsidies.

Another solution to promote private, especially retail investors' participation is infrastructure debentures, which are project bonds exempt from income tax. This model has been applied in Brazil quite successfully. Brazil's infrastructure debentures market has been growing rapidly since its establishment in 2011. The volume of issuances increased nearly eight-fold from BRL 4.3 billion (US$ 1.1 billion)[20] in 2016 to BRL 33.8 billion (US$ 8.4 billion) in 2019 (Chart 6.4). Total cumulative issuances reached BRL 83.9 billion (US$ 20.9 billion) by 2019, which financed infrastructure projects worth BRL 284.6 billion (US$ 70.8 billion), implying that each BRL 1 in infrastructure debenture issuance may have encouraged up to BRL 2.4 in funding from other sources. The volume of such issuances is now larger than the BNDES disbursements to infrastructure projects, which has traditionally been the main source of financing for infrastructure investments in Brazil. This route can also be attractive for pension and insurance funds which have to arrange for payouts to their customers over long terms.

Chart 6.4: Volume of Infrastructure Debenture Issuances in Brazil



Source: Ministry of Economy, Brazil – Infrastructure Debentures Newsletter, NDB staff calculations

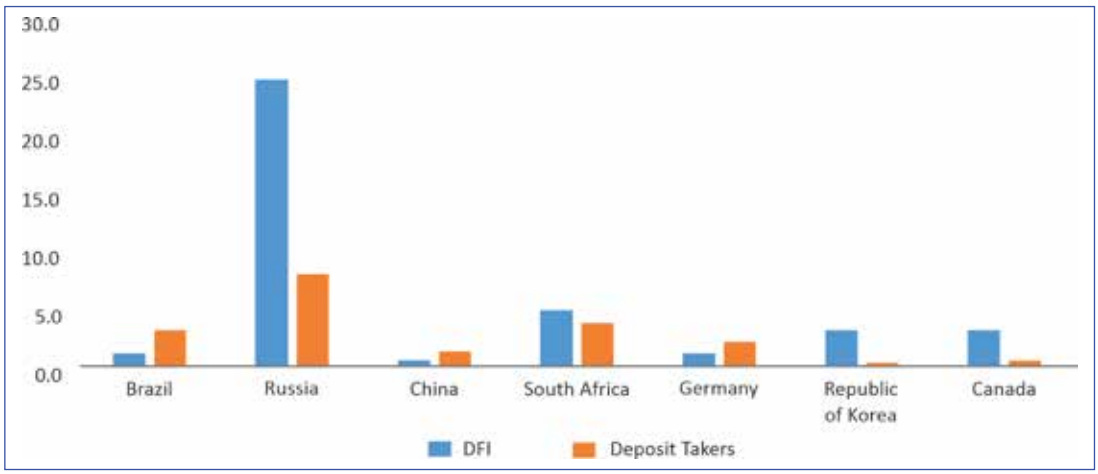
[20] Quotation of December 31, 2019 (US$ 1 = BRL 4.02)

5. Primacy of Risk Management

A common issue faced by many DFIs is asset quality problem. According to a survey by the World Bank (2018), nearly one-third of DFIs reported NPL ratio between 5%-30%, and more than half experienced higher NPL ratios than the average of their respective banking sector during 2011-2015. The higher NPL ratios are to some extent related to DFIs' riskier portfolios compared to those of commercial banks, but it also highlights the importance of a robust risk management framework. According to the survey's findings, "strengthen their risk management capacity" is listed amongst important challenges facing DFIs.

The risk management of DFIs in BRICS offer some valuable lessons (Chart 6.5). BNDES of Brazil has been able to keep its NPL ratio consistently lower than that of the average of deposit-taking banks. These low rates are consistent with the practice of BNDES asking for considerable collateral in its operations and offering subsidized credit (Frischtak, et al., 2017). The NPL ratio for DBSA of South Africa has been higher than that of the deposit takers in the last decade, but remained below 5% on average. China's CDB managed to reduce NPL ratio to below 1% from 42.7% in 1997, and maintained NPL ratio lower than that of depository financial institutions in the past decade. The creation of asset management companies (AMCs) played an important role in cleaning up the loan books in late 90s, but the subsequent healthy loan book is attributed to CDB's comprehensive reforms in risk management mechanisms (Downs, 2011)[21]. One important experience learnt from CDB is the separation of loan application evaluation and approval authorities, which improved the

Chart 6.5: NPL Ratio of DFIs and Deposit Takers



Source: S&P Global Intelligence, IMF Financial Soundness Indicators; NDB staff calculations

[21] In the late 1990s, China set up four AMCs to take over a large number of NPLs from state-owned banks. These Big Four AMCs are: China Orient Assets Management Co., Ltd. ("China Orient"), China Cinda Assets Management Co., Ltd. ("China Cinda"), China Huarong Assets Management Co., Ltd. ("China Huarong"), and China Great Wall Asset Management Co., Ltd. ("China Great Wall"). In 1999, the China Development Bank transferred RMB 100 billion problem assets to China Xinda Asset Management Corporation, which led to a large reduction of 13.97% in its NPL ratio in that year. Downs, E. S. (2011). Inside China, Inc: China's Development Bank's Cross-border Energy Deals

quality of lending decisions. Specifically, loan applications are evaluated separately by four bureaus within CDB. The bureaus forward their assessments to a separate lending committee, which votes on each application by registered ballot. CDB's Chairman can veto positive recommendations, but does not have the authority to overturn negative ones (Downs, 2011).

6. Collaboration with MDBs

It may also be beneficial for the new DFI in India to collaborate with regional and global MDBs that aim to invest in India's infrastructure via a local partner. According to the World Bank (2018), 77% of DFIs are allowed to receive assistance from official agencies or multilateral institutions, in terms of loans and grants[22]. Besides on-lending, there are many areas for cooperation between MDBs and DFIs, including knowledge transfer, technical assistance, capacity building, and project pipeline preparation. MDBs can also leverage their reputational and financial strength to attract more institutional investors by mitigating specific risks such as construction risks, which limit institutional investors' involvement in green-field infrastructure projects.

In this aspect, NDB has been providing infrastructure investment while collaborating with DFIs in its member countries. The next section intends to provide some of its experiences and highlights.

NDB's Operations in BRICS

NDB operates with a clear mandate to mobilize resources for infrastructure and sustainable development projects in BRICS and other EMDCs, complementing the existing efforts of multilateral and regional financial institutions for global growth and development. This mandate is much more focussed in comparison with those of other major MDBs, allowing NDB to build specialized expertise and develop targeted operations.

NDB strives to be a "new" institution as it fulfills its mandate. A new type of relationship with member countries stands as one of the core pillars of its approach. This allows operations to be driven by country development priorities and as per country systems encompassing nationally-defined guidelines, corporate laws, procedures and processes to guide project preparation and implementation.

Within a few years of starting operations, NDB has become one of the largest providers of resources for infrastructure and sustainable development in the BRICS countries. In 2019, the five countries got US$ 23 billion in financing approved from MDBs to finance a range of projects, of which, US$ 7 billion were sourced from NDB (Table 6.1).

[22] World Bank (2018). 2017 Survey of National Development Banks

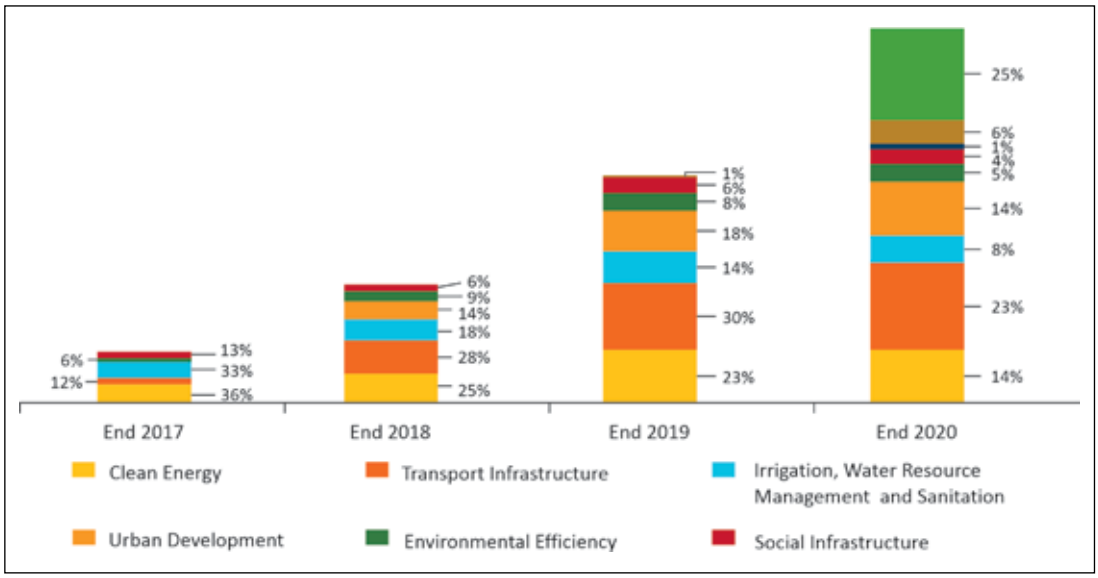
Table 6.1: MDBs' Financing Commitment to BRICS (US$ million), 2019

	Brazil	Russia	India	China	South Africa	Total
ADB	-	-	4,145	2,195	-	6,340
AIIB	-	500	885	500	-	1,885
CAF	1,591	-	-	-	-	1,591
IBRD	617	-	3,003	1,280	-	4,900
IDB	1,468	-	-	-	-	1,468
NDB	900	1,316	1,783	1,478	1,715	7,192
Total	**4,576**	**1,816**	**9,816**	**5,453**	**1,715**	**23,376**

Source: Data derived from MDBs' annual reports, financial statements, or list of projects/country page from their websites

NDB chooses to focus on a set of key operational areas, which are strategically selected in line with the BRICS countries' development priorities and their commitments to global development and climate goals (Chart 6.6). As outlined in NDB's "General Strategy: 2017–2021", the bank's key areas of operation include clean energy, transport infrastructure, urban development, and water and sanitation, all of which are critical enablers of inclusive and sustainable development. In response to the evolving development needs of its member countries, NDB has gradually expanded into environmental efficiency and social infrastructure. Since the outbreak of COVID-19 pandemic, NDB has acted countercyclically

Chart 6.6: Evolution of NDB's Portfolio by Area of Operation (US$ Billion)



Source: NDB staff calculations

by providing emergency assistance to address the immediate challenges and support the recovery efforts to preserve longer-term development focus.

DFIs and similar institutions of member countries are among NDB's key partners. NDB has entered into memoranda of understanding on general cooperation with several major DFIs in BRICS and with the BRICS Interbank Cooperation Mechanism, involving BNDES, Vnesheconombank, Export-Import Bank of India, CDB and DBSA, to facilitate collaboration in infrastructure investments, knowledge sharing, training and staff exchange.

By working with like-minded DFIs and similar institutions, NDB not only extends the outreach of its operation, but also helps enhance the quality of projects in member countries, ensuring that their environmental, social and governance (ESG) risks and impacts are properly managed. In the management of projects' ESG risks and impacts, NDB takes borrowing country's legislation, regulations and oversight procedures (country systems) as the starting point, and engages with clients to put in place supplementary measures, if found necessary, at the project level to achieve compliance with NDB's standards. Over the past years, NDB has accumulated extensive knowledge and experience in using and strengthening country systems. Periodic assessments of country systems have been conducted to identify areas that require further interventions by NDB to ensure alignment with leading ESG practices. NDB is increasingly building its internal capacity to better support its clients in achieving high ESG standards and its member countries in strengthening their systems. NDB is well set to share this expertise with DFIs and similar institutions.

NDB had cumulatively approved six loans for about US$ 3 billion for on-lending through DFIs in South Africa, Brazil and China (Table 6.2), of which three loans support low-emission development through clean and renewable energy operations, two loans intend financing a broader range of areas, including renewable energy and energy efficiency, water and sanitation, transport and logistics, and information and communication technology, and one supports COVID-19 economic recovery.

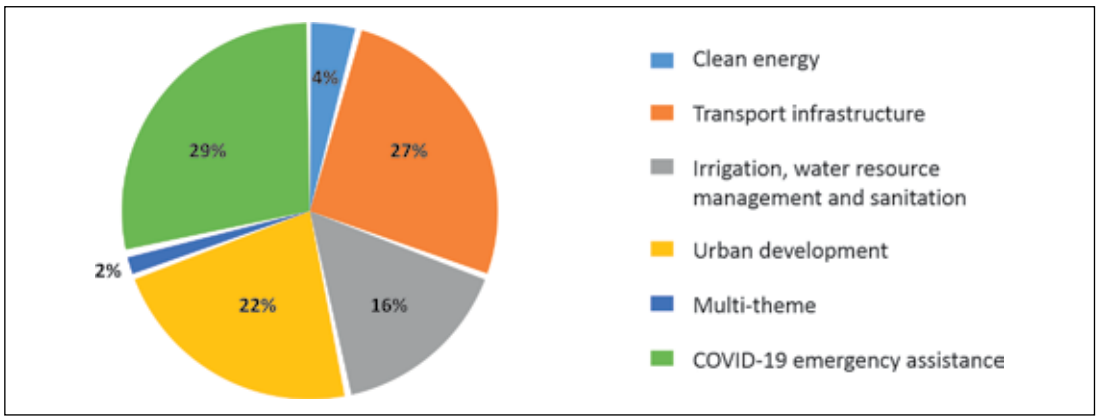
Amongst the BRICS countries, NDB's operations in India thus far, have been the largest. Cumulative approvals of close to US$ 7 billion till 2020 for 18 infrastructure and sustainable development projects in India account for about 28% of NDB's total approvals since its inception. Apart from two COVID-19 emergency assistance loans of US$ 1 billion each, NDB's lending to India covers transport infrastructure, urban development and irrigation, water resource management and sanitation, which respectively represent 27%, 22% and 16% of NDB's total financing to the country (Chart 6.7).

Table 6.2: List of NDB Loans that Entail On-lending through DFIs

Projects and Loans	Year of Approval	Recipient Country	DFI	Approved Amount (US$ million)
Renewable Energy Projects and Associated Transmission	2017	Brazil	Brazilian Development Bank	300
Greenhouse Gas Emissions Reduction and Energy Sector Development Projects	2018	South Africa	Development Bank of Southern Africa	300
Renewable Energy Sector Development Projects	2019	South Africa	Industrial Development Corporation	78
Sustainable Infrastructure Projects	2020	Brazil	Brazilian Development Bank	1,200
Urban, Rural and Social Infrastructure Program	2020	Brazil	Far South Regional Development Bank	166
COVID-19 Economic Recovery Loan	2021	China	The Export-Import Bank of China and Agricultural Development Bank of China	1,000

Note: Exchange rate as of 31 December 2020

Chart 6.7: Financing Provided by NDB to India by Area of Operation



Source: NDB staff calculations

These projects would bring significant socio-economic outcomes. For example, the transport infrastructure projects financed by NDB for the construction and upgrading of around 10,000 km of roads and 800 bridges would help enhance connectivity and improve accessibility in rural areas. The urban development projects supported by NDB focus on strengthening intra- and inter-city mobility through the expansion of urban rail transit networks in five Indian cities. NDB's interventions in areas of irrigation, water resource management and sanitation will help bring 150,000 hectares of land under irrigation and provide improved access to water and sanitation to over 6 million people.

In addition, NDB has also provided financing through financial intermediaries in India. A US$ 300 million loan to REC Limited, a NBFC, for renewable energy plants and associated evacuation transmission lines is a case in point. It is estimated that the project will build over 600 MW of power capacity, generating 1,600 GWh of electricity from renewable sources and avoiding almost 1 million tons of CO_2 emissions every year. NDB has also approved an equity investment of US$ 100 million in National Investment and Infrastructure Fund (NIIF). The NDB investment will help catalyze additional resources, including from the private sector, for infrastructure and sustainable development.

Overall, the financing provided by NDB to India is long term, with a weighted average tenor of approximately 25 years. Such long-tenor financing not only enhances the financial and economic viability of the projects, but also helps mitigate the risk of crowding out private investment, as financing with similar terms and tenors is practically unavailable from the market.

Conclusion

Infrastructure is key to development and sustainable growth, but it remains undersupplied globally and in BRICS. Addressing this challenge, national DFIs have been playing a pivotal role in supporting infrastructure investment in Brazil, China, Russia and South Africa. The proposed new DFI in India has likewise great potential to help bridge the country's infrastructure financing gap, pave the way for a much needed growth impetus and play a major role in building a highly developed ecosystem for financing infrastructure in India.

In the context of BRICS experience with DFIs, the conclusion is inescapable that leading governance practices, clearly defined mandates, agile risk management, professional staff, ability to tap into international knowledge networks, strategically diversified shareholding and partnerships with lenders and investors globally are likely ingredients that can enable a new DFI such as NaBFID to contribute substantively to infrastructure and development. India's own learnings from infrastructure financing and project execution over the previous decades too will support the new DFI as it raves up to make its mark.

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Assessing The Effects of a Free Trade Agreement between Brazil and India: A General Equilibrium Approach

Fernando J. Ribeiro

Coordinator of International Economic Relations at the International Studies Department of IPEA.

Introduction

The bilateral relationship between Brazil and India has advanced substantially in recent decades, following the globalization process, that strengthened the integration and cooperation among most countries. Until the 1990s, the two countries had a tenuous relationship, which was due to some factors, like the geographical distance, the differences in cultural and historical background and the fact that both countries adopted inward-oriented economic development models, based on an import substitution strategy that gave little value to economic integration with other countries (Mukherji, 2013; Oliveira et al. 2019). One important instrument in this strategy was the high import tariff rates. In Brazil, the simple average of most favored nation (MFN) tariff was 42.9% in 1990 (48.3% for manufactures). In India, the average tariff was 80.9%.

This has changed since then with both countries putting in place liberalization measures concerning trade and capital flows, aiming at taking advantage of the globalization forces to give exports a more important role in domestic production and to reap the efficiency gains that could be provided by an easier access to imported products, especially capital goods and intermediate goods, as well as services.

Besides this liberalizing trend, the two countries started to notice that they had common characteristics and shared many interests, especially in face of the new opportunities and challenges brought by globalization.

Both are big emerging countries, with extensive areas, big population and high levels of poverty and inequality; both are relatively young democracies, still in the process of solidifying its institutions and modernizing its political practices and policy-making; both were plagued by corruption practices and suffered with extensive, time-consuming and costly bureaucratic rules; both were laggards in terms of education levels and research and development investments; and, last but not the least, both had a largely inefficient and non-competitive industrial sector constructed in the import substitution period.

The two countries faced big challenges in pursuing the economic and political changes needed to bring them to a new path that could lead to achieving higher levels of income and welfare. And this had to be addressed in a world facing a rapid changing environment, with fast technological progress, integration of production via global value chains, and a raising number of bilateral and regional trade and investment agreements.

Recognizing the huge possible gains of more cooperation and integration between them, Brazil and India embarked on some joint initiatives. One of them is IBSA (India-Brazil-South Africa) Dialogue Forum[1], established in 2003, encompassing cooperation in themes like agriculture, culture, defense, education, energy, and environment. In spite of its clear geopolitical and economic relevance, uniting three big democratic countries from three different continents, this forum is yet to deliver more concrete results.

Other relevant initiative is the BRICS Forum, composed by five emerging countries: Brazil, Russia, India, China, and South Africa. Since 2009, these countries developed sectoral cooperation in more than 30 subject areas, such as science and technology, trade promotion, energy, health, education, innovation, and fight against transnational crime[2]. Although much of the work of BRICS is also at an embrionary phase and trade and investment agreements have been a challenge to negotiate, it is important to go ahead with some common initiatives that are of the best interest to Brazil and India.

The two countries signed a trade preferential agreement in 2004[3] – an agreement between Mercosur and India since Mercosur is a customs union and any trade agreement must be signed by the bloc. The agreement was enforced only in 2009 and has a very limited scope. Mercosur gives tariff reductions between 10% and 100% for only 452 items of the Mercosur Common Nomenclature (NCM) − mostly related to chemicals, pharmaceuticals, machinery, and equipment products − whereas the NCM has approximately 10,000 items. India also offers 10% to 100% reduction of tariffs to only 450 items, mainly related to chemicals, leather products, textiles, iron and steel, and machinery and equipment.

[1] http://www.ibsa-trilateral.org/

[2] http://brics2019.itamaraty.gov.br/en/about-brics/what-is-brics

[3] http://siscomex.gov.br/acordos-comerciais/mercosul-india/

For many years, the possibility of enlarging this agreement has been discussed by the countries, with no advances. In fact, both countries have been reluctant in negotiating and signing free trade agreements, especially comparing to what was done by many other emerging and advanced economies in the last 30 years[4]. The political forces behind protectionism continue to have a great say on policy making in these countries. That explains why both countries apply import tariffs that are higher than the world average or even the average of emerging economies. In 2019 the simple average tariff imposed by Brazil was 13.4%, a bit higher than India's 10.2%.

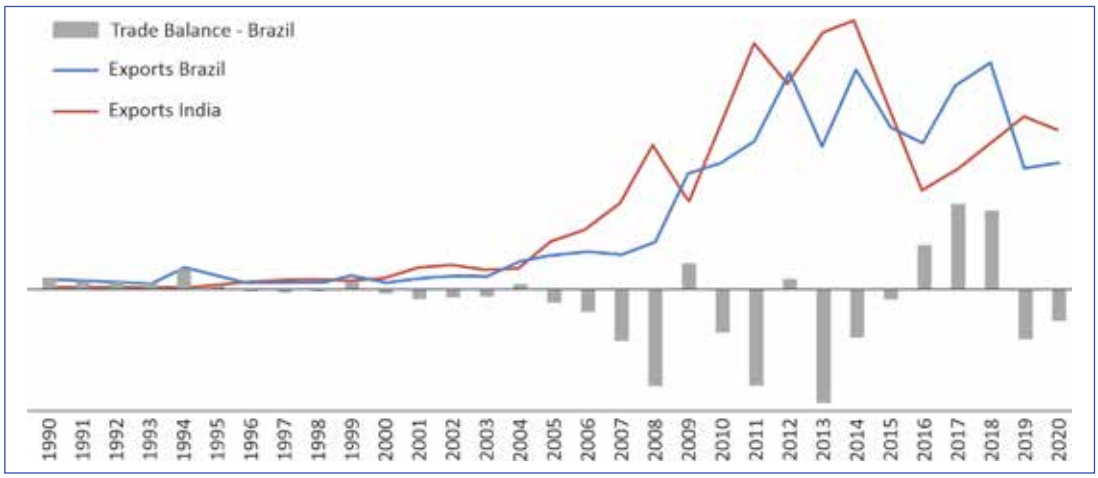
It is possible to claim, therefore, that Brazil and India have space to strengthen their ties in many different areas, especially trade flows. The aim of this article is to assess the possible economic impacts of a free trade agreement between India and Brazil (and also its Mercosur partners), using a computable general equilibrium model based on GTAP database, version 10. After a brief analysis of the bilateral trade in goods and services, in section 2, the features of the simulation are presented in section 3 and the results are discussed in section 4. Finally, section 5 presents the main conclusions.

Bilateral Trade

Trade flows between Brazil and India had their best moment in the years from 2004 onwards – by coincidence or not, right after they signed the partial trade agreement. Chart 7.1 shows that, during the 1990s, bilateral trade flows remained at relatively low levels, although Indian

Chart 7.1: Brazil-India Bilateral Trade – 1990-2020 (in %)

(in US$ million)



Source: Comtrade/UNCTAD

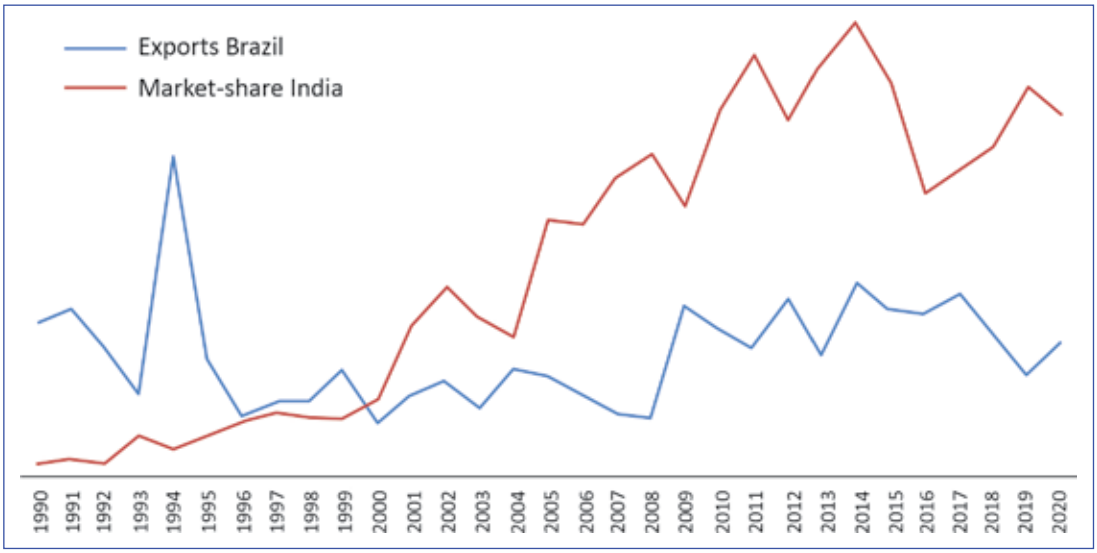
[4] According to Mario Larch´s RTA-Data (https://www.ewf.uni-bayreuth.de/en/research/RTA-data/index.html) and WTO´s Regional Trade Agreements Gateway (https://www.wto.org/english/tratop_e/region_e/region_e.htm).

exports to Brazil had a significant growth during this period. But between 2004 and 2014 Brazilian exports to India grew at 23.5% annually, reaching US$ 5.4 billion, while Indian exports to Brazil grew 28.2% per year, to US$ 6.6 billion. The figure also shows that trade balance shifted from side to side, but most of the time it was favorable to India, reaching its peak in 2013 (US$ 2.8 billion).

From 2015 to 2020 bilateral trade performance stalled, with a sharp decrease of Indian exports in 2015 and 2016 – probably due to economic recession in Brazil, that led to decreasing total imports – and Brazilian exports to India varied, falling significantly in 2019 and 2020 – when total Indian imports were also reduced.

Chart 7.2 shows that India was more successful in terms of raising its market-share in Brazilian imports. It grew from less than 0.5% in the 1990s to almost 3% in 2014. In recent years it went down to 2.4%, but the country was able to consolidate a higher market-share even in a period of economic turmoil in Brazilian economy. Brazil was able to raise its market-share in India´s imports to something near 1.2% in 2014, but this went back to 08% in the last three years. This percentage is not so different to the one that prevailed in the 1990s and, in fact, is lesser than the market-share enjoyed between 1990 and 1994. In short, Brazil was not able to take advantage of the accelerated Indian trade growth since the 1990s.

Chart 7.2: Market-share of Brazil´s and India's Exports on the Partner Imports – 1990-2020 (in%)



Source: Comtrade/UNCTAD

This is probably related to the difficulties faced by Brazilian industrial sector to compete in international trade, especially with Asian countries, natural partners of India due to geographical proximity. In fact, more than half of the growth of Brazilian exports to India

between 2004 and 2014 was only due to oil exports. And most of the remaining exports were sugar, soybean oil, iron ore, and copper[5].

India`s exports to Brazil were also very concentrated. More than half of the export growth between 2004 and 2014 was related to oil refinery products, and they also explain almost all of the reduction registered in the following years. The remaining exports were mainly of chemical products, but also with a significant contribution of motor vehicles, machinery and equipment, textiles, and wearing apparel. In short, bilateral trade is highly concentrated and has a clear sectoral pattern: Brazil exports some mineral and food commodities and India exports industrial products.

Additionally, India has benefited much from the partial trade agreement with Mercosur, as 40% to 50% of its exports to Brazil since 2004 were related to products covered by the agreement. It´s not true for Brazil, since less than 10% of the Brazilian exports in recent years were related to products in the agreement.

These features reinforce the potential relevance of an extensive free trade agreement as a way to promote greater trade flows and also to diversify these flows. Table 7.1 shows the sectoral profile of applied tariffs. Brazilian tariffs are higher than 10% in almost all sectors, except agriculture, forestry, fishing, mining, oil and oil refining, and chemicals. The tariffs are especially high in textiles, wearing apparel, and leather and shoes. They are also high for automobiles (35%), but not for all types of motor vehicles. India has higher tariffs on agriculture, forestry, and food and beverages, sectors that are of big interest to Brazilian exporters. They are also relatively high for non-metallic mineral products, textiles, wearing apparel, leather and shoes, and motor vehicles.

Both countries also apply a great number of non-tariff barriers, in such a way that they can be more restrictive than tariffs. According to estimates made by Niu et al. (2018), the ad valorem equivalent (AVE) of non-tariff barriers was 76% for Brazil and 74% for India, based on data for 2015. The authors also estimate that the ad valorem equivalents for these countries rose significantly since 1997 (as it also did for most countries), when they were 39% for Brazil and 6% for India.

Finally, trade in services has also to be taken in account. Numbers from Brazilian registers[6] show that Brazilian services exports to India amounted to only US$ 158.3 million, just 0.5% of Brazilian total, and imports from India were US$ 133.3 million, only 0.3% of total imports. Although they represent a substantial growth compared to some years ago, they´re clearly below potential, considering both countries' sizes.

[5] According to data available at Comtrade/UNCTAD website

[6] Data from Siscoserv (Sistema Integrado de Comércio Exterior de Serviços e Intangíveis, in it´s Brazilian initials). Available at: https://www.gov.br/produtividade-e-comercio-exterior/pt-br/assuntos/comercio-exterior/estatisticas/estatisticas-do-siscoserv

Table 7.1: MFN Average Import Tariffs in Brazil and India, by Sectors

(in%)

Products	Brazil	India
Total	**13.4**	**10.2**
Agriculture	7.7	42.5
Fishing	8.0	0.0
Forestry	7.6	19.8
Metal ores	2.0	2.5
Mining	4.0	13.0
Basic metals	11.1	7.9
Food and beverages	12.6	41.3
Chemicals	7.9	9.5
Oil refinery	3.0	10.0
Rubber and plastics	14.9	10.9
Paper	14.2	9.6
Publishing and printing	10.7	9.3
Metal products	16.3	10.5
Non-metallic mineral products	12.0	13.6
Textiles	25.9	13.4
Wearing apparel	34.4	18.6
Leather and shoes	27.1	15.2
Wood products	11.1	10.0
Machinery and equipment	12.7	8.0
Eletrical machinery and apparatus	14.9	9.7
Medical, optical and precision equipment	12.7	7.1
Motor vehicles	15.4	25.2
Office and computing machinery	10.3	2.3
Other transport equipment	15.7	12.1
Communication equipment	10.0	4.8
Furniture and other manufacturing	16.8	16.0

Source: GTAP and Niu et al

Features of the Simulations

The simulations of the effects of a trade agreement between Brazil and India are made with the computable general equilibrium model GTAP (Global Trade Analysis Project), in its 10th version, calibrated with data for 2014, encompassing 141 countries/regions and 65 sectors. The complete documentation of this model is presented in Hertel (1997) and all the information about databases and the characteristics of GTAP version 10 can be found in Aguiar et al. (2019). The theoretical structure of the dynamic GTAP model is described in detail in Ianchovichina and McDougall (2000) and Ianchovichina and Walmsley (2012).

For the present purposes, the regions are aggregated in just four − Brazil, India, Other Mercosur countries (Argentina, Paraguay and Uruguay), and Rest of the World – and the sectors are aggregated in 25, as shown in Table 7.2.

The simulation considers two different scenarios:

- Scenario 1: 100% reduction in tariffs for all sectors, uniformly distributed in a 10-year timeframe (2021 to 2030);
- Scenario 2: 100% reduction in tariffs for all sectors and also a non-tariff barrier reduction of 25% for all sectors, uniformly distributed in the same timeframe.

In fact, many recent studies show that non-tariff barriers are becoming a more important restriction to trade flows than tariffs (Marks and Rahardja, 2012; Kee, Nicita, & Olarreaga, 2009; Niu et al., 2018). Almost all free trade agreements have clauses aimed at reducing non-tariff barriers between the parties, especially related to reduction or elimination of quantitative restrictions, simplification of customs procedures, harmonization of rules and technical requirements etc. Assessing non-tariff barriers in trade agreements is a very important matter, especially when one takes in account that non-tariff barriers are rising in almost all countries, mostly after the 2008 financial crises, as shown by some estimates of ad valorem equivalent (Kee, Nicita and Olarreaga, 2009; Niu et al., 2018).

In the GTAP model, tariff reductions are modelled directly, by applying reduction shocks in the variable 'tms', the power of tariff in sector i, calculated as $[1 + t_i/100]$, where i is the sector and t is the initial level of AVE in percentage points. The initial tariff levels used in the simulations are not the MFN tariffs, but the effectively applied tariffs by country A on imports from country B in the base year of GTAP version 10 (2014). These are calculated from the input-output tables available in GTAP database and are calculated by dividing the amount of import tariffs effectively charged by country A on imports products of sector **i** came from country B by the total amount of imports by country A of products of sector **i** came from country B. Table 7.2 shows the initial tariffs applied by Brazil and India on each sector's products.

In order to simulate the effects of changes in other factors that affect imports, like non-tariff barriers or trade costs in general, it can be used the variable 'ams**',** that is defined as "Iceberg Trade Costs import-augmenting 'tech change' variable" that can be used to consider "(...) efficiency-enhancing measures that serve to reduce the effective price of goods and services imports"[7]. In the simulations made in this article, the shocks on ams were calculated by taking the ad valorem equivalent (AVE) of non-tariff barriers for each of the sectors considered and applying a moderate (albeit arbitrary) reduction of them, in a uniform manner throughout ten years (as well as tariffs).

Once the reduction of non-tariffs barriers brings an increase in the efficiency of imports (and/or a reduction in prices of goods and services), the percentage change of ams for each sector in each year has the opposite sign of the corresponding AVE reduction.

The initial AVEs for the sectors are obtained from the estimations made by Niu *et. al.* (2018), that uses the methodology first developed by Kee, Nicita and Olarreaga (2009). The authors calculate AVEs for a large sample of countries, for products at 6-digit level of the Harmonized system (HS) international classification, and for some years between 1997 and 2015. For this article, the most recent estimations were used, referred to Brazil, India and Argentina (as a proxy for AVE's for the other Mercosur countries). Departing from HS data, the average AVE for each of the 25 GTAP sectors considered in the simulations is obtained by using a table of concordance that links each HS-6 item to one of the GTAP sectors, provided on the GTAP website[8]. The initial average AVEs for the sectors considered in the simulations in Brazil and India are shown in Table 7.2.

Choosing the magnitude of the reduction on AVEs is quite an arbitrary decision, depending on the degree of ambition of the agreement and on the timeliness and effectiveness of implementation. It´s cautious to consider just a moderate reduction, in order to not overestimate the effects. In this article, it has been applied a 25% reduction on AVEs over ten years. It´s important to keep in mind that a larger (smaller) reduction would imply a greater (smaller) impact on growth of bilateral trade.

The reductions in AVEs are calculated by the same way as tariffs, by first obtaining the initial power of tariffs (defined as $1+t_i/100$, where i is the sector and t is the initial level of AVE in percentage points) and the final power of tariffs (that is $1+(t_i \times 0.75)/100$ in the case of AVEs). Then the percentage change between final and initial power of tariffs are obtained and this change is uniformly distributed through ten years.

The simulations are made for the period 2021 to 2035, so as to consider the ten years on which the policy shocks are applied (2021 to 2030) and some years ahead, to capture some important lagged effects of the shocks. The simulations were made using the software

[7] https://www.gtap.agecon.purdue.edu/resources/res_display.asp?RecordID=576

[8] https://www.gtap.agecon.purdue.edu/resources/res_display.asp?RecordID=5111

RunDynam and all the results are presented as deviations from the baseline simulation, say, the evolution for all the variables that would prevail if there were no policy shocks.

Table 7.2: Initial Tariffs and *Ad Valorem* Equivalent of Non-tariff Barriers in Brazil and India, by GTAP Sectors

(in%)

Sectors	Brazil		India	
	Scenario 1	Scenario 2	Scenario 1	Scenario 2
Cereals	0.00	0.71	0.03	7.26
Other Agropecuary	7.38	41.30	26.92	58.64
Oil Seeds	4.00	17.76	0.00	28.34
Oil and Gas	0.00	30.90	0.00	37.72
Minerals	3.57	58.44	3.29	83.42
Meat	0.00	39.80	0.00	43.84
Sugar	16.00	38.49	60.00	45.57
Food and beverages	11.20	54.02	2.31	73.47
Textiles and Apparel	24.39	54.67	11.24	68.48
Leather and shoes	25.04	55.41	7.37	57.69
Wood Products	12.67	42.39	10.00	45.45
Paper	6.50	74.20	7.18	97.88
Oil Products	0.82	72.63	5.67	69.95
Chemicals	8.31	46.94	7.90	59.08
Pharmaceuticals	7.53	26.50	9.83	35.35
Rubber and plastics	13.69	87.64	9.97	112.23
Mineral and metals products	13.81	66.90	7.96	68.61
Electronic equipment	11.92	108.38	3.13	120.94
Electric equopment	13.75	73.52	7.75	82.03
Machinery and Equipment	12.97	95.86	7.47	101.12
Vehicles and parts	13.22	55.54	9.83	72.29
Other Transport Equipment	11.55	57.09	5.04	67.32
Ohter Manufactures	13.29	77.80	8.41	79.92
General Services	0.00	n.d.	0.00	n.d.
Business Services	0.00	n.d.	0.00	n.d.

Source: GTAP and Niu *et al*

Results

Macroeconomic Variables

The effects of a trade agreement between Mercosur and India on selected macroeconomic variables for Brazil and India are shown in Table 7.3, for the two scenarios described in the previous section. The results are presented as deviations from the baseline scenario, showing the cumulative change until 2035. In general, the numbers are positive for GDP, investment, real wages, exports, imports, and terms of trade for both countries. The two main exceptions are Brazil´s GDP growth in scenario 1 and Brazilian negative trade balance in both scenarios. In fact, import growth is significantly higher than the export growth (in US$ values or quantities) in Brazil, in both scenarios.

In India, import and export growth rates would be very similar in both scenarios, what means a modest increase in overall trade balance. It must be said that import growth rates would be much higher in Brazil than in India, a feature that will be best understood when sectoral trade numbers are considered. Anyway, the free trade agreement would have a positive effect on total trade flows in both countries.

The effects on GDP growth would be modest, an expected result once bilateral trade is very low as compared to both economies size, but not negligible, especially in scenario 2. The negative effect on Brazilian GDP in scenario 1 is not a common result in general equilibrium simulations of tariff reductions. Probably, the efficiency gains and the cost reducing effects of the agreement would not be enough to counteract the production reducing effects due to the substitution of imported products for domestic ones. Anyway, the GDP effect turns positive in scenario 2, what highlights the importance of including measures to reduce non-tariff barriers and other bilateral trade costs in Mercosur-India FTA.

In terms of investment, the trade agreement would be more helpful to Brazil than to India, so that investment gains in this country would be very low. It probably reflects the fact that Brazil, and Mercosur in general, is not a competitive supplier of capital goods, so India would not retain significant gains from improving imports of this kind of goods under the FTA.

Finally, both countries would obtain modest but significant gains of real wages and terms of trade. In these variables, like all the others, the gains are higher in scenario 2 than in scenario 1. This is a clearly expected result, once the non-tariff barriers reduction is equivalent to a productivity shock, and this kind of shock typically has positive effects on macroeconomic variables.

Table 7.3: Macroeconomic Effects on Brazil and India of a Mercosur-India FTA (% deviation from the *baseline*, cumulative until 2035)

Variables	Brazil		India	
	Scenario 1	Scenario 2	Scenario 1	Scenario 2
GDP (in%)	-0.02	0.07	0.03	0.10
GP deflator (in%)	0.11	0.46	0.06	0.22
Investiment (in%)	0.56	1.68	0.03	0.10
Real wages (in%)	0.06	0.21	0.08	0.23
Export quantitiy (in%)	0.49	1.24	0.40	0.89
Export value (in%)	0.59	1.68	0.48	1.14
Import quantitiy (in%)	1.39	3.85	0.47	1.08
Import value (in%)	1.25	3.51	0.47	1.09
Trade balance (in US$ million)	-1,139.8	-2,965.8	46.4	418.1
Terms of trade	0.23	0.77	0.08	0.24

Source: Simulations by the author

Welfare Analysis

Traditional trade theory, based on partial equilibrium analysis, highlights the welfare gains brought by international trade, with the reduction in import tariffs raising consumer surplus in such an amount that compensates for the reduction of producer surplus and of the government revenue. On general equilibrium analysis, the welfare effects are much more complex, being derived from the allocation of national income between private consumption, government consumption and savings. Hanslow (2000) argues that welfare effects of a trade policy change depend on what the change does to its national income and on the effect of the policy change on prices, and hence the purchasing power of that income.

In general, welfare changes depend mainly on four factors (Hanslow, 2000): (i) Endowment contributions from changes in the availability of primary factors, such as the stock of machinery, buildings and agricultural land; (ii) Technical efficiency contributions from changes in the use of available inputs in production, such as improvements in labor productivity; (iii) Allocative efficiency contributions relative to pre-existing distortions; and (iv) terms of trade effects, once an increase in these means an increase in purchasing power.

Table 7.4 shows that the Mercosur-India FTA would bring significant welfare gains for both Brazil and India, though they would be greater for the latter. The gains would also be more significant in scenario 2 than in scenario 1. In Brazil, the welfare gains would amount to US$ 872.3 million in scenario 1 and to US$ 6.65 billion in scenario 2, in both cases, due to technical change and = terms of trade gains. The endowment and allocative effects are negative on welfare, meaning that the trade agreement would not eliminate distortions on resource allocation and also would not bring relevant changes on capital accumulation.

In India, the welfare gains would amount to US$ 3.2 billion in scenario 1 and to US$ 12.0 billion in scenario 2. The bulk of the gains are related to technical change, meaning that the country would experience significant improvements in productivity. Allocative and terms of trade effects are also positive, and only endowment effects are negative, meaning that the trade agreement would not have positive effects on capital accumulation.

Table 7.4: Welfare Changes and Decomposition for Brazil and India, Resulting from a Mercosur-India FTA (Deviation from the *baseline* in US$ million, cumulative until 2035)

Variables	Brazil		India	
	Scenario 1	Scenario 2	Scenario 1	Scenario 2
Total	**872.3**	**6,652.8**	**3,210.8**	**12,005.9**
Endowment effects	-275.8	-995.9	-372.8	-1,255.1
Allocative effects	-498.5	-319.2	694.3	896.5
Technical change	660.2	4,316.3	2,519.3	10,708.2
Terms of Change	842.8	3,019.6	30.8	367.3
Other effects	143.5	632.0	339.3	1,289.1

Source: Simulations by the author

Main Sectoral Variables

The FTA would have a negative effect on production levels of a majority of sectors in Brazil, as can be seen on Table 7.5. In scenario 1, just eight sectors would experience production gains, highly concentrated on sugar (5.0%), other agricultural and forestry products (0.4%), and minerals and metals products (0.5%). The most negatively affected sectors would be textiles and apparel, with a 2.9% reduction on production, and leather and shoes (-0.5%). These two are the sectors with the highest current tariff levels, and are typically labor-intensive, making Brazilian production sensible to competition from low wage countries, like India. In fact, India is a relevant exporter of textiles and apparel, and these are still among the most important in Indian exports to Brazil in recent years.

Table 7.5: Impacts on Sectoral Production of Brazil and India of a Mercosur-India FTA (% deviation from the *baseline*, cumulative until 2035)

Sectors	Brazil		India	
	Scenario 1	Scenario 2	Scenario 1	Scenario 2
Cereals	-0.1	-0.5	0.1	-0.2
Other agricultural and forestry	0.4	0.2	-0.2	-0.4
Oil Seeds	-0.4	-0.9	-0.0	-0.2
Oil and Gas	-0.1	0.5	-0.3	-1.4
Minerals	-0.0	-0.1	-0.1	-0.2
Meat	-0.4	-1.1	-0.4	-1.2
Sugar	5.0	5.3	-6.5	-8.1
Food and beverages	-0.1	-0.1	0.1	-0.1
Textiles and apparel	-2.9	-5.4	1.1	1.5
Leather and shoes	-0.5	-1.4	0.2	-0.1
Wood Products	-0.1	-0.4	0.0	-0.0
Paper	-0.1	-0.5	-0.0	-0.1
Oil Products	0.1	-0.9	0.0	0.3
Chemicals	-0.1	-0.3	0.5	0.9
Pharmaceuticals	-0.1	-0.5	0.1	-0.1
Rubber and plastics	-0.2	-0.5	0.3	0.6
Minerals and metals products	0.5	1.4	0.0	-0.0
Electronic equipment	0.1	0.4	0.0	0.2
Electric equipment	-0.3	-1.2	0.3	0.8
Machinery and Equipment	0.0	-0.0	0.1	0.3
Vehicles and parts	-0.1	-0.2	0.3	0.5
Other Transport Equipment	0.2	1.0	0.2	0.3
Other Manufactures	-0.1	-0.1	-0.1	-0.3
General Services	0.0	0.1	0.0	0.1
Business Services	-0.1	-0.8	-0.2	-0.2

Source: Simulations by the author

In scenario 2, the picture is similar, but with bigger positive and negative changes. Sugar, and minerals and metals products remain having the biggest production increases, but now there would be significant gains in other transport equipment, and oil and gas. In fact, with the reduction on non-tariff barriers, there would be an increase in Brazilian exports of oil and gas (0.5%), but a decrease of oil products (-0.9%), showing a kind of substitution.

In India, the highest production gains in scenario 1 would be in textiles and apparel (1.1%), while the biggest decrease would be in sugar (-6.5%) – a mirror image of what happens in Brazil. 16 of the 25 sectors would register production gains, especially chemicals, rubber and plastics, electric equipment, and vehicles and parts. Considering scenario 2, the differences from scenario 1 are not so significant as they are in Brazilian case. The main differences relate to oil and gas, meat, and sugar, in which the production would decrease at higher taxes than in the first scenario, and in textiles and apparel, oil products, chemicals, rubber and plastics, and electric equipment.

Table 7.6 shows the results of the trade agreement on Brazilian total exports, imports, and trade balance by sector. In scenario 1, exports would increase in 12 of the 25 sectors, but at low rates for most of them. The best performances relate to sugar (11.7%), mineral and metals products (2.4%), and chemicals (1.0%). Only one sector would suffer a significant export loss: textiles and apparel (-2.7%). Otherwise, imports would grow in all sectors, especially textiles and apparel (21.9%), leather and shoes (7.6%), wood products (3.8%), other manufactures (2.4%), rubber and plastics (2.3%), and mineral and metals products (2.0%).

Trade balance would deteriorate in almost all sectors, with two major exceptions: sugar, that accumulates a gain of US$ 2.3 billion through 2035, and minerals and metals products, with an increase of US$ 1.06 billion. In the remaining sectors, the biggest reduction of trade balance would be recorded in textiles and apparel, of US$ 2.08 billion. Various sectors would register a trade balance decrease of US$ 100 million or more, including general services and business services. It´s important to remember that services are not subject to import tariffs, so it´s natural that they suffer little or no impact in scenario 1.

In scenario 2 the sectoral pattern of change in exports and imports in Brazil is similar to scenario 1, although the absolute magnitude of the rates of change are higher in almost all cases. On the export side, the only sectors that would have a different performance are oil and gas, that grows 10.2%, in contrast to a decrease of 0.3% in the first scenario, and oil products, that goes from an increase of 0.4% to a decrease of 0.8%. Chemicals, minerals and metals products, electronic equipment, and other transport equipment reveal the most significant differences in rates of growth of exports between scenarios 1 and 2. On the imports side, all sectors would see a larger increase in scenario 2, highlighting the high rates registered by textiles and apparel, lleather and shoes and wood products. It´s an expected result, considering that the non-tariff barriers reduction is equal to a productivity shock that directly implies an increase in imports.

Table 7.6: Impacts on Sectoral Trade in Brazil of a Mercosur-India FTA (% deviation from the *baseline*, cumulative until 2035)

Sectors	Exports		Imports		Trade balance (US$ million)	
	Scenario 1	Scenario 2	Scenario 1	Scenario 2	Scenario 1	Scenario 2
Cereals	-0.7	-1.8	0.4	1.0	-30.7	-77.5
Other agricultural and forestry	0.2	-0.2	1.3	2.1	-28.2	-98.3
Oil Seeds	-0.5	-1.2	1.3	2.3	-79.3	-210.3
Oil and Gas	-0.3	10.2	0.2	5.2	-131.0	2,116.6
Minerals	0.0	0.0	0.2	0.5	17.3	19.1
Meat	-1.0	-3.0	0.6	1.5	-302.1	-892.2
Sugar	11.7	12.8	1.3	2.6	2,344.5	2,555.3
Food and beverages	-0.3	-0.3	0.6	1.5	-147.8	-251.3
Textiles and apparel	-2.7	-5.5	21.9	36.5	-2,080.4	-3,503.9
Leather and shoes	-0.3	-1.2	7.6	15.6	-173.4	-430.3
Wood Products	-0.1	-1.2	3.8	7.7	-15.3	-68.9
Paper	-0.4	-1.5	0.4	1.2	-75.6	-294.6
Oil Products	0.4	-0.8	0.3	2.0	-4.5	-748.6
Chemicals	1.0	2.7	0.9	2.1	-72.9	-32.3
Pharmaceuticals	0.4	-0.3	0.9	2.1	-48.8	-213.3
Rubber and plastics	0.3	1.1	2.3	5.9	-162.4	-404.1
Minerals and metals products	2.4	7.2	2.0	5.2	1,057.8	3,283.8
Electronic equipment	0.3	5.7	0.5	1.8	-87.2	-125.2
Electric equipment	-0.2	-0.8	1.4	4.2	-136.0	-429.1
Machinery and Equipment	0.2	1.1	1.2	3.9	-163.6	-489.1
Vehicles and parts	-0.3	-0.9	0.8	1.8	-264.3	-626.3
Other Transport Equipment	0.6	3.0	0.7	2.4	11.3	125.8
Other Manufactures	0.0	-0.2	2.4	6.8	-75.4	-227.7
General Services	-0.3	-0.7	0.2	1.4	-325.2	-1328.2
Business Services	-0.3	0.0	0.2	1.8	-166.6	-615.2

Source: Simulations by the author

Trade balance also shows a similar sectoral pattern in comparison to scenario 1, with deficit sectors registering a higher deficit and surplus sectors having higher surpluses. The only exception is oil and gas, that would go from a little deficit to a surplus of US$ 2.1 billion. Sugar, and minerals and metals products would continue to have the biggest surpluses, while the higher deficit comes from textiles and apparel, and general services.

Table 7.7 shows what would happen to sectoral trade in India. In the first scenario, exports would grow significantly in some manufacturing sectors, especially textiles and apparel, rubber and plastics, electric equipment, vehicles and parts, and machinery and equipment. Negative rates of growth would be concentrated in commodities like cereals, meat and oil and gas, as well as in other manufactures and general and business services. On imports side, sugar would register the highest increase (185.5%), while almost all the remaining sectors would have a small increase – with the exception of leather and shoes (2.8%), oil seeds (1.7%) and wood products (1.4%).

Table 7.7: Impacts on Sectoral Trade in India of a Mercosur-India FTA (% deviation from the *baseline*, cumulative until 2035)

Sectors	Exports		Imports		Trade balance (US$ million)	
	Scenario 1	Scenario 2	Scenario 1	Scenario 2	Scenario 1	Scenario 2
Cereals	-0.3	-0.9	0.3	0.7	-23.0	-65.5
Other agricultural and forestry	-0.1	-0.5	0.6	1.3	-133.7	-362.4
Oil Seeds	-0.1	-0.3	1.7	2.2	-7.2	-19.6
Oil and Gas	-1.1	-3.0	0.2	0.8	-895.4	-3,669.3
Minerals	-0.0	-0.0	0.0	-0.2	-15.0	178.6
Meat	-0.5	-1.5	0.4	1.7	-133.4	-393.1
Sugar	0.1	-0.2	185.5	215.7	-2,487.4	-2,915.7
Food and beverages	0.4	0.2	0.4	4.6	255.6	-774.0
Textiles and apparel	2.6	3.7	0.7	1.6	3,877.9	5,494.4
Leather and shoes	0.5	0.4	2.8	7.0	178.9	8.3
Wood Products	0.4	0.3	1.4	3.1	-6.7	-29.7
Paper	-0.1	-0.4	0.2	0.7	-35.2	-98.9
Oil Products	0.1	2.1	0.2	0.4	-53.4	1,424.1
Chemicals	1.8	4.3	0.6	1.1	369.3	1,283.3
Pharmaceuticals	0.4	0.3	0.4	0.9	49.2	-40.1
Rubber and plastics	2.3	5.9	0.5	1.4	317.8	800.7

Sectors	Exports		Imports		Trade balance (US$ million)	
	Scenario 1	Scenario 2	Scenario 1	Scenario 2	Scenario 1	Scenario 2
Minerals and metals products	0.7	1.8	0.5	1.3	-430.5	-1,186.1
Electronic equipment	0.7	3.5	0.1	0.5	-48.2	-17.7
Electric equipment	1.6	5.3	0.3	0.9	250.8	847.0
Machinery and Equipment	1.1	4.0	0.3	1.0	144.4	618.4
Vehicles and parts	1.4	2.6	0.5	1.2	469.9	853.1
Other Transport Equipment	0.8	1.5	0.4	1.4	132.1	168.1
Other Manufactures	-0.2	-0.4	0.3	0.8	-201.9	-545.4
General Services	-0.2	-0.1	0.2	0.8	-644.4	-889.5
Business Services	-0.3	0.0	0.2	0.7	-884.3	-250.8

Source: Simulations by the author

Most of the sectors would suffer a decrease on trade balance, especially sugar, oil and gas, minerals and metals products and, interestingly, general services and business services – considering that India has some competitive advantages on services. Among the sectors that would register an increase on trade balance, the most important is textiles and apparel.

Scenario 2 brings little change concerning export growth for the bulk of sectors, except for the largest decrease in meat and oil and gas exports, and somewhat larger increases in textiles and apparel, chemicals, rubber and plastics, electronic equipment, electric equipment, and machinery and equipment. On the import side, all sectors would have a greater increase than in scenario 1, highlighting the differences in sugar, meat, food and beverages, leather and shoes, and wood products. Concerning trade balance, some sectors would change the signal between scenarios 1 and 2, like minerals, food and beverages, oil products, and pharmaceuticals. The highest surplus would continue to come from textiles and apparel, while the greatest deficits would be in oil and gas, sugar, and minerals and metals products. General services and business services would also register a decrease in trade balance, while this would be smaller in business services.

Bilateral Trade

Brazilian exports to India would grow at a strong pace in almost all sectors in Scenario 1, highlighting sugar, other agriculture and forestry products, and textiles and apparel, all of them with rates of growth of more than 100% in comparison to the baseline (Table 7.8). The growth rates are also high for all manufacturing sectors, including electric equipment,

machinery and equipment, vehicles, chemicals, pharmaceuticals, wood products, and leather and shoes. The reduction of import costs would be enough to induce India to increase its imports from Brazil even of products where this country is not so competitive in the international market, probably substituting for imports from third countries.

Table 7.8: Impacts on Exports from Brazil to India of a Mercosur-India FTA (% deviation from the *baseline*, cumulative until 2035)

Sectors	% change		Absolute change (US$ million)	
	Scenario 1	Scenario 2	Scenario 1	Scenario 2
Cereals	0.0	6.6	0.0	0.0
Other agricultural and forestry	190.0	299.8	73.8	117.1
Oil Seeds	0.0	20.7	0.0	0.0
Oil and Gas	-0.1	126.2	-5.5	7,616.0
Minerals	5.8	15.4	73.0	197.8
Meat	0.0	72.3	0.0	0.2
Sugar	211.3	243.6	2,436.9	2,827.5
Food and beverages	9.5	51.0	69.6	377.1
Textiles and apparel	127.5	357.9	8.2	22.7
Leather and shoes	74.3	222.5	57.3	172.2
Wood Products	88.6	192.2	21.5	46.9
Paper	50.2	180.5	5.6	20.1
Oil Products	26.0	72.6	87.3	247.7
Chemicals	65.0	180.4	471.4	1,311.1
Pharmaceuticals	84.1	162.1	76.8	148.9
Rubber and plastics	86.9	302.2	58.8	204.9
Minerals and metals products	72.4	224.1	1,718.8	5,345.2
Electronic equipment	30.6	297.4	37.7	367.1
Electric equipment	92.3	374.6	51.3	208.5
Machinery and Equipment	78.7	348.9	121.8	541.8
Vehicles and parts	68.8	176.9	63.5	163.6
Other Transport Equipment	51.9	228.4	102.1	450.9
Other Manufactures	82.7	281.9	23.8	81.5
General Services	-0.1	43.6	-0.9	277.4
Business Services	-0.2	41.3	-1.9	438.6

Source: Simulations by the author

The few sectors that would not have any significant growth, or even a small decrease (like cereals, oil seeds, meat, business services, and general services) are the ones in which the import tariffs applied by India area are null today. In fact, there´s a high correlation between the initial level of import tariff and the rate of change of exports among sectors (see Table 7.2).

In scenario 2, all sectors would show export growth since the reduction of non-tariff barriers have a positive impact, independent of the initial tariffs. Typically, the rates in scenario 2 are two to four times higher than in scenario 1, and some manufacturing sectors would show very strong rates (higher than 300%), like textiles and apparel, rubber and plastics, electric equipment, and machinery and equipment. Needless to say, that these numbers are highly dependent on the initial levels of ad valorem equivalent of non-tariff barriers (Table 7.2) and of the magnitude of reduction of non-tariff levels arbitrated to the simulations.

In terms of the absolute change of export value, Table6. 8 shows that this would also be more concentrated after the FTA than in the baseline scenario, with the four sectors highlighted above representing 3/4 of the total exports, rather than 2/3 on the baseline.

Looking at the Indian exports to Brazil, Table 7.9 shows that almost all sectors would have a strong growth in scenario 1, except the ones where Brazil also has zero import tariffs (cereals, oil and gas, meat, services). Many sectors would experiment an export growth higher than 100%, e.g., textiles and apparel, leather and shoes, minerals and metals products, electronic equipment, electric equipment, machinery and equipment, other transport equipment, other manufactures. not surprisingly, these are the ones that face higher import tariffs in Brazil. In scenario 2, all sectors (except oil and gas and cereals) would have significant export growth, with the ones cited above registering growth rates higher than 400%.

Table 7.9: Impacts on Exports from India to Brazil of a Mercosur-India FTA (% deviation from the *baseline*, cumulative until 2035)

Sectors	% change		Absolute change (US$ million)	
	Scenario 1	Scenario 2	Scenario 1	Scenario 2
Cereals	0.0	1.2	0.0	0.0
Other agricultural and forestry	46.3	78.1	40.8	68.8
Oil Seeds	31.4	38.1	13.1	16.0
Oil and Gas	0.0	0.0	0.0	0.0
Minerals	21.8	15.5	1.4	1.0
Meat	0.0	72.2	0.0	0.3
Sugar	80.9	202.2	1.1	2.8
Food and beverages	67.8	115.5	62.8	106.9

Sectors	% change		Absolute change (US$ million)	
	Scenario 1	Scenario 2	Scenario 1	Scenario 2
Textiles and apparel	310.4	472.1	3,831.7	5,827.5
Leather and shoes	502.9	928.4	239.1	441.4
Wood Products	157.1	228.9	19.7	28.7
Paper	63.0	148.4	10.2	24.0
Oil Products	33.1	40.4	1,095.6	1,337.1
Chemicals	80.9	158.4	1,164.9	2,282.5
Pharmaceuticals	70.6	113.0	166.4	266.4
Rubber and plastics	155.4	331.8	385.7	823.4
Minerals and metals products	182.4	368.6	706.7	1,427.8
Electronic equipment	183.8	680.5	96.1	355.7
Electric equipment	226.7	596.4	269.1	708.0
Machinery and Equipment	186.7	547.9	335.3	984.2
Vehicles and parts	113.9	199.0	411.7	719.0
Other Transport Equipment	115.9	419.5	42.8	155.0
Other Manufactures	161.4	409.3	133.1	337.6
General Services	-0.0	45.0	-0.7	816.2
Business Services	-0.1	35.9	-5.8	2,129.4

Source: Simulations by the author

In absolute terms, 76% of the export value change in scenario 1 would refer to only four sectors: textiles and apparel, chemicals, rubber and plastics, and minerals and metals products. In scenario 2, the result is less concentrated, with six sectors (the four above plus oil products, and machinery and equipment) having a 67% share in total export value change.

Anyway, as in Brazil, the FTA would reinforce the current sectoral pattern of Indian exports to Brazil, and the concentration would grow after the FTA, with the share of the six sectors mentioned above rising from 43% in the baseline to 57% in the FTA scenarios.

Finally, Table 7.10 shows the absolute change of the sectoral bilateral trade balance (from the perspective of Brazil). The biggest changes would happen on three sectors: oil and gas (a gain of US$ 7.6 billion for Brazil in scenario 2), sugar (more than US$ 2 billion for Brazil in both scenarios), minerals and metals products (an increase between US$ 1.1 billion to US$ 3.8 billion for Brazil) and textiles and apparel (a gain between US$ 3.4 billion to US$

5.8 billion for India). In scenario 1, the total trade balance would have an increase of US$ 1.4 billion in favor of India, while in scenario 2 this amount would be US$ 1.6 billion in favor of Brazil – basically explained by the growth in oil and gas.

Table 7.10: Impacts on Trade Balance between Brazil and India of a Mercosur-India FTA (% deviation from the *baseline*, cumulative until 2035)

Sectors	Absolute change (US$ million)	
	Scenario 1	Scenario 2
Total	**-1,391.6**	**1,620.8**
Cereals	0.0	-0.0
Other agricultural and forestry	45.4	51.0
Oil Seeds	-7.3	-15.7
Oil and Gas	-5.5	7,616.0
Minerals	72.8	196.9
Meat	0.0	-0.1
Sugar	2,435.7	2,825.4
Food and beverages	23.0	275.2
Textiles and apparel	-3,437.4	-5,809.4
Leather and shoes	-166.6	-281.4
Wood Products	5.9	14.9
Paper	-1.4	-5.8
Oil Products	-11.8	-1,443.3
Chemicals	-440.5	-1,036.4
Pharmaceuticals	-54.5	-116.8
Rubber and plastics	-257.6	-683.4
Minerals and metals products	1,122.4	3,794.0
Electronic equipment	-48.8	-2.3
Electric equipment	-191.7	-533.2
Machinery and Equipment	-174.1	-495.2
Vehicles and parts	-266.6	-562.9
Other Transport Equipment	57.3	323.1
Other Manufactures	-94.0	-260.3
General Services	-0.2	-538.8
Business Services	3.9	-1,690.7

Source: Simulations by the author

Conclusions

The economic relationship between Brazil and India evolved favorably in the last two decades, reflecting liberalization processes put in place by both countries since the 1990s that increased their integration to the world economy. The countries also embarked on some joint initiatives, like IBSA (India-Brazil-South Africa) Dialogue Forum and the BRICS Forum, and signed a trade preferential agreement in 2004, albeit very limited in scope.

Anyway, the political forces behind protectionism continue to have a great say on policy making in these countries, and both countries apply import tariffs that are higher than the world average or even the average of emerging economies. This fact, beside some common characteristics, interest, and challenges shared by them, points to a significant potential to strengthen their ties in many different areas, especially trade flows. In spite of the recent growth, the market-share of Brazil and India in the partner´s import is still low, and the bilateral trade bill is highly concentrated in a few products.

This article explored the possible economic effects of a Free Trade Agreement between Brazil and India (and its Mercosur partners), using a computable general equilibrium approach. Two scenarios were considered, one that applies only tariff reductions (100% reduction for all sectors in both countries, uniformly distributed in a 10-year timeframe, from 2021 to 2030) and another with this same tariff reduction and also, a 25% reduction on non-tariff barriers for all sectors, uniformly distributed in the same timeframe. The results were presented as deviations from the baseline scenario, showing the cumulative change until 2035.

The results of the simulations are generally positive for main macroeconomic variables. The effects on GDP growth would be modest, an expected result once bilateral trade is very low as compared to both economies size, but not negligible, especially in scenario 2. Concerning trade, import growth in Brazil is significantly higher than export growth (in US$ values or quantities) in both scenarios. In India, import and export growth rates would be very similar in both scenarios, with a modest increase in overall trade balance. It´s important to note thar that import growth rates would be much higher in Brazil than in India.

The Mercosur-India FTA would bring significant welfare gains for both Brazil and India, though they would be greater for the latter. The gains would also be more significant in scenario 2 than in scenario 1 and would be due mainly to technical change effects and to terms of trade gains.

As commonly happens in any tariff reducing process, there are winners and losers in terms of sectoral production. In Brazil, there would be a loss of production in the bulk of manufacturing sectors in both scenarios, though these losses would be very small − except for some labor-intensive ones, like textiles and apparel, and leather and shoes. The winning sectors would be basically sugar, other agricultural and forestry products, oil and gas, and

minerals and metals products. In India, the opposite occurs, with less production in minerals, food and agriculture commodities and gains in labor intensive and capital and technology intensive manufacturing sectors – a mirror image of what happens in Brazil. There are no huge differences between scenarios 1 and 2.

Total exports would increase in 12 of the 25 sectors in Brazil, but at low rates for most of them. The best performances relate to sugar, mineral and metals products, and chemicals. Otherwise, imports would grow in all sectors, especially textiles and apparel, leather and shoes, wood products, other manufactures, rubber and plastics, and mineral and metals products. In scenario 2, the sectoral pattern of change in exports and imports in Brazil is similar to scenario 1, although the absolute magnitude of the rates of change are higher in almost all cases.

In India, exports would grow significantly in scenario 1 in some manufacturing sectors, especially textiles and apparel, rubber and plastics, electric equipment, vehicles and parts, and machinery and equipment, while negative rates of growth would be concentrated on commodities like cereals, meat and oil and gas, but also in other manufactures and general and business services. For imports, sugar would register the highest increase, while almost all the remaining sectors would have a small increase. Scenario 2 brings little change concerning export and import growth for the bulk of sectors, although the rates of change are typically higher than in scenario 1.

Looking at bilateral trade, Brazilian exports to India would grow at a strong pace in almost all sectors in Scenario 1, except ones in which the import tariffs applied by India area are null today. In scenario 2, all sectors would show export growth. The most relevant feature though, is that three sectors would respond for 83.4% of the total value change in Scenario 1: sugar, chemicals. and minerals and metals products. In scenario 2, the oil and gas sectors appears as having the biggest absolute change (US$ 7.6 billion), and= together with the other three cited above, they would respond for 80.7% of the total change.

Concerning Indian exports to Brazil, almost all sectors would have a strong growth in scenario 1, except the ones where Brazil also has zero import tariffs. In scenario 2, all sectors (except oil and gas and cereals) would have significant export growth. In absolute terms though, 76% of the export value change in scenario 1 would refer to only four sectors: textiles and apparel, chemicals, rubber and plastics, and minerals and metals products. In scenario 2, the result is a bit less concentrated, with six sectors (the four above plus oil products, and machinery and equipment) having a 67% share in total export value change.

In summary, the FTA would have positive effects for both countries, either on welfare and macroeconomic variables, or in terms of export and import growth. In fact, both countries would experiment significant gains of exports – total and bilateral – in a great number of sectors, beyond the traditional ones. It´s true that the FTA would reinforce the current

sectoral pattern of bilateral trade. But it´s not a problem related to the FTA, but, in fact, a consequence of the productive specialization pattern of the countries – something that must be addressed by domestic policies.

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Pandemic and World Economy: A Strategy for the BRICS Development Banks

Igor Shuvalov
Chairman, VEB.RF

According to the IMF, the COVID-19 pandemic may cost the world economy an estimated US$ 28 trillion in 2020. And this figure will undoubtedly be even higher in 2021. Among the BRICS economies, only China grew (2.3%). The others contracted in the range of -8% (India) to -3.6% (Russia).

The United Nations expects a growth of 4.7% next year. But this is by no means a guarantee: this is more of a best-case scenario. Speaking about it, UN Chief Economist Elliott Harris noted that long-term infrastructure investment and financial and economic models adjusted with a stronger focus on sustainable and inclusive growth would provide the best tool for recovery. VEB.RF and Vnesheconombank Institute experts came to a similar conclusion in their estimates.

Development institutions are a natural choice for ensuring this kind of growth. They fulfil key government tasks and finance long-term economically critical projects that are not attractive to private investors due to high risks or low returns. The BRICS development banks, working together in the Inter-Bank Cooperation Mechanism (ICM), proved to be a tower of strength to their governments during the pandemic. They acted as the operators of governmental rescue programmes, made low-interest loans to businesses and helped banks with debt restructuring.

But in order for economic recovery to be sustained, the BRICS development institutions should play a major role in devising new national strategies. The BRICS ICM can become an assembly shop for putting together new

financial and investment ideas, models and projects that will be used by individual countries with slight modifications. The development institutions should start with the key areas that can bring a new quality to economic growth while unconditionally fulfilling their traditional counter-cyclical functions.

During the pandemic, the BRICS ICM development institutions were active in sharing their experience of supporting the economy. This cooperation can further be applied to the exchange of best practices in new areas.

Our efforts need to be particularly focused on healthcare and vaccination, as well as developing smart cities and new urban technologies and implementing the principles of the green economy and responsible financing.

Support for Health Systems

The BRICS members are already active in helping each other and other countries on a case-by-case basis. We launched the 'From Russia with Love' campaign, sending medications and necessary equipment, including mobile hospitals and ventilators, to BRICS, the United States, Italy, Serbia etc. In January 2021, India placed an order for 100 million doses of the Russian vaccine. Taken together, Mexico, Egypt, and Nepal reserved the same quantity.

India provided uncompensated pharmaceutical support for nearly 85 countries to mitigate the consequences of the pandemic. South Africa and Brazil helped the most seriously affected countries in Africa and South America, respectively. Chinese factories began working at full capacity to make personal protective equipment available to the other BRICS member countries and the Belt and Road partners through China's Health Silk Road initiative.

At the same time, each BRICS country fought against COVID-19 mostly on its own rather than in concert with the other members. It would, therefore, be reasonable for the BRICS development institutions to join forces with each other to create the BRICS ICM's road map, helping the member countries to cope with the repercussions of the pandemic. The road map could provide for a full range of cooperation options, from the exchange of crisis management experience to joint financing for the most important projects in our countries.

It would also be reasonable to propose that the New Development Bank (NDB) should start financing health projects. The situation where public spending on health still cannot be substantially increased extends well beyond BRICS. Consequently, urgent action is needed to improve the efficiency of spending every rouble, dollar, and yuan.

If the NDB supports efforts to set up the BRICS Vaccine Research and Development Centre, this will help to eliminate current health risks. The Centre could regularly publish research and test results, facilitating the exchange of experience and enhancing coordination in the area of vaccination and immunisation among the BRICS national ministries and agencies

responsible for emergency management, environmental and natural protection and public health. In collaboration with VEB.RF, the NDB could additionally develop and introduce new funding mechanisms for BRICS vaccine production based on the licences and certificates recognised throughout BRICS.

Smart Cities and Sustainable Infrastructure

Using digitalisation and big data to encourage economic development in cities lays the foundations for rebooted economic growth in our countries. The pandemic caused serious damage to cities and exposed inequalities between and within cities. However, lockdown measures gave a boost to critical digital services. Being an added bonus of living in a big city before the pandemic, high-quality broadband Internet access became no less important than food, water, and medical care when people were under lockdown and had to work from home. Stay-at-home orders or, at least, social distancing measures made it imperative that high-quality and efficient public digital services should be developed.

Each BRICS country chose its own way to deal with this situation. And each saw city initiatives that could be useful for the other members.

First, we need to step up cooperation in introducing urban tech, namely urban digital services that help people and businesses and make such spheres of the urban economy more resilient as healthcare, education, transport, utility services, and municipal waste management.

Second, the potential for cooperation is visible in creating smart cities, namely modernising urban management tools based on the digital city model. This model makes it possible to quickly identify problems in urban improvement and maintenance and build risk models for regional development projects supported by national development institutions.

According to US researchers, the creation of smart cities will require an estimated US$ 320–820 billion by 2025, worldwide. The primary focus is on contactless technology, such as QR code systems. The greatest pre-pandemic progress in this area in BRICS was made by China, where popular digital wallet services needed the introduction of such things long before the current crisis. Russia, India, and other countries also embarked on a course of expanding this infrastructure during the pandemic.

The increasing popularity of taxi and delivery services basically means the transition to the individualised and personalised consumption of services and goods that were previously offered to groups of customers (public transport and retail). In order for a city to cope with a new load resulting from a vast number of taxis (including self-driving cars in the near future) and delivery people, it is necessary to rebuild both hard infrastructure (roads, bridges, lighting etc.) and soft infrastructure (traffic patterns, traffic control systems etc.), install big data collection devices, and organise data processing. All this will require that cities should

undergo radical transformation. The BRICS development institutions will have to play a significant role in this process, since they are mandated to maximise public goods.

The urban topic is closely linked to the development of sustainable infrastructure. In our opinion, it is necessary to cooperate in the preparation and implementation of projects to develop social, transport, utility and energy infrastructure, projects to enhance public administration, and projects to promote integrated spatial development. Post-pandemic cities will be different: urban space needs rethinking so that every square metre has its own purpose. The restoration and improvement of abandoned or obsolete urban elements are of crucial importance. Sharing experience in this area can also be useful.

Establishing uniform sustainability criteria for infrastructural projects would help the BRICS development institutions to achieve a better quality of their lending portfolios. The G20 Osaka Leaders' Declaration of 29 June, 2019 approved the Principles for Quality Infrastructure Investment, which should be implemented at national level across the G20. VEB.RF is working on Russia's national infrastructure project assessment and certification system based on the AECOM methodology. The system makes it possible to identify the project's weaknesses and risks, assess the possibility of attracting investors and financiers on preferential terms and do much more.

The development level of urban space, services, and infrastructure is a key indicator of modern quality of life. This is understood not only by the BRICS development institutions, but also by the NDB: the New Development Bank approved at least eight projects in this area in 2020. The projects include restoring small towns of historical importance in Russia, modernising the transport system in Curitiba, Brazil, and developing rapid transit networks in India, to name a few. With its cross-border expertise, the NDB could provide a good platform for sharing experience and simultaneously financing projects in several BRICS member countries.

Responsible Business Conduct and Green Economy

The pandemic response of development institutions in the medium run should include devising new approaches for the UN Sustainable Development Goals (SDGs). This means incorporating such factors into the project selection criteria as support for equitable and universal access to healthcare, food, clean water, affordable energy and other basic services. This implies the rejection of investment projects that are environmentally harmful and inconsistent with the principles of responsible financing.

During VEB.RF's presidency in 2020, the BRICS development institutions prepared the BRICS ICM's Principles of Responsible Financing to this end. The Memorandum was signed in Moscow in November 2020. The principles include commitments to integrate into project assessment the analysis of environmental, social, and economic impacts on local communities; promote

inclusive and sustainable economic models in BRICS; give more consideration to human rights, the Paris Agreement and best practices of corporate governance in projects; achieve the maximum transparency of projects while protecting customers' confidentiality, and proprietary information. The principles aim to ensure that the development institutions will set up a system for assessing social, environmental, and economic risks of financing.

Based on the key international standards of the OECD, the United Nations, and the World Bank, they will contribute to promoting infrastructure investment, joint projects and cross-border trade, reducing non-tariff barriers between the BRICS member countries and enabling BRICS to improve its image in international capital markets. During India's presidency of BRICS in 2021, the development institutions intend to continue cooperation in responsible financing.

This topic is closely related to the green economy and green finance. Environmental changes such as temperature rise, coastal erosion, droughts, floods, hurricanes and sea level rise are transforming the socio-political and economic landscape of many countries on a massive scale. Financing for climate change adaptation and mitigation projects of the BRICS economies should be a priority for the BRICS ICM.

As a long-term investor, VEB.RF must give consideration to risk factors for 5, 10 or 15 years and, in the case of critical sectors, look much further ahead. It is necessary to answer the questions about how climate change will affect investment activities, whether global warming has passed the critical point or is a reversible process, how climate change will impact the world's transport corridors. It is obviously reasonable to take account of climate risk in formulating risk management policies, conducting assessment and due diligence for investment projects and planning investment strategies.

VEB.RF was deeply involved with the development of the national green finance system in 2020, and the system is to receive official approval from the government in May 2021. We find it useful to move towards the convergence of national systems and the exchange of experience in this area. Since certain countries intend to introduce cross-border carbon regulation, it would be reasonable to form a working group of the BRICS ICM to develop a climate risk assessment methodology and incorporate the working group's deliverables into the international standards and regulatory rules that may affect investment, export, and ratings of development institutions, their customers and partners.

As a result, we could provide the BRICS member countries with criteria for recognising projects as green and prepare proposals to establish an effective mechanism for project support. It is necessary to create a road map for the harmonisation of green finance instruments used by the national development institutions, systematise information about ongoing and planned green projects, and find a common approach to the scope and analysis of ESG information requested from companies.

BRICS Short-term Strategy

As early as today, the BRICS development institutions should take a key role in efforts to formulate new post-pandemic national development strategies, placing increased emphasis on a better quality of life. This logic should govern investment projects implemented by the New Development Bank and the national development institutions.

Each development institution has undoubtedly its own specific objectives. However, they work towards the common goal of creating an infrastructural and methodological framework designed to appeal to the other financial market participants.

The goal of the BRICS development institutions is not limited to mitigating the economic consequences of the pandemic to the greatest extent possible. It is also not limited to continuing their current lending to the most difficult and longest projects. We need to add new impetus to growth rather than win back the percentage of GDP lost due to the pandemic. As evidenced by our activities in 2020, we are able to do much more when we are together. When life unexpectedly makes us work more closely with each other. When helping each other and sharing information, new ideas come to the fore.

BRICS: Progress, Challenges, and Beyond

Harsha Bangari
Deputy Managing Director,
India Exim Bank,
India

In 2001, a Goldman Sachs' Global Investment Research Division published the report "Build Better Global Economic BRICs", in which the acronym 'BRIC[1]' was coined. After a few years, the term 'BRIC' evolved into a grouping with meetings held in the years 2006, 2008, and 2009 (year of the first BRIC summit). Soon after the invitation from the BRIC countries, South Africa joined this forum in 2011 and the present BRICS forum came into place.

While the idea of BRICS as a forum was interesting and fascinating for the policy makers, it also was a big challenge to bring together five geographically vast and culturally different nations on to a single platform. The most important factor, however, for these nations to come together, was their vision for the tone of future economic development of the world, as these economies are amongst the fastest growing nations.

Global Importance of BRICS

The underlying precept for setting up BRICS as an association is to become a more constructive and progressive group in the developing world. To play a significant role on the global stage, BRICS association was an important initiative from the involved members. This can be ascertained from the fact that even though the five members are geographically far, they share a common perspective with respect to the global order.

[1] Brazil, Russia, India, and China

Over the years, the BRICS nations have seen their influence increasing over the international business and trade rules.

The concept of BRICS gets even more importance as the nations have a lot in common. The five nations have huge agrarian economies, thriving services sector, pool of important natural resources, skilled human resources, and a manufacturing sector which is already catering to the demands of the world. Additionally, these countries offer huge markets to each other and to the whole world, as they account for almost 43% of the world population.

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 of the BRICS Nations

During the last decade, that is, 2010 to 2019, the global GDP has registered an average annual growth rate (AAGR) of 3%. The BRICS nations, on the other hand, recorded a higher AAGR of almost 4%, during the same period. The two biggest contributors to this growth were China and India. While China had an AAGR of 7.7% for its GDP during the abovementioned period, India's was 6.7%. The growth for Brazil, Russia, and South Africa during this period was 1.4%, 1.9%, and 1.7%, respectively[2].

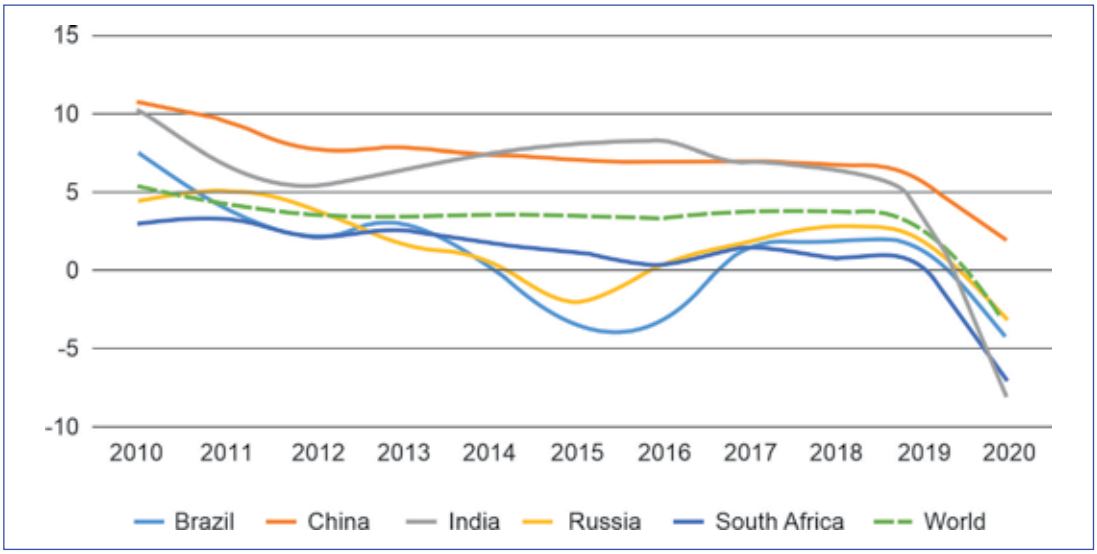
Further, the year 2020 saw the COVID-19 pandemic spreading its wings to almost every nation in the world. The BRICS countries, given that they are centers of high population, are still suffering from the pandemic, barring China and to some extent Russia. Given the initial lockdowns across the economies and eventually, only a gradual opening of the economies, the economic growth has suffered in these regions. In the BRICS nations, only China was estimated to have a positive GDP growth of 2.3% in 2020. All other nations were estimated to have a negative growth with India's decline being the highest at (-) 8%, followed by South Africa at (-) 7%, Brazil at (-) 4.1%, and Russia at (-) 3.1%[3].

Further, as per the IMF's World Economic Outlook of April 2021, the BRICS nation are expected to exhibit impressive growths in the coming years. During 2021-25, as per IMF, the BRICS countries are forecasted to grow at an average of over 4.2% every year. The highest growth during this period is forecasted to be for India at 7.9%, followed by China at 6.0%.

[2] World Bank

[3] IMF World Economic Outlook, April 2021

Chart 9.1: GDP Growth in BRICS Nations vis-à-vis World: 2010 to 2020



Source: World Bank; India Exim Bank Research

With respect to the per capita income, it is observed that the average GDP per capita of the BRICS nations has grown from US$ 7192 in 2010 to US$ 7752.7 in 2019 thereby registering an AAGR of 1.4%. The growth registered by BRICS nations in their GDP per capita during this period is however lower than the world GDP per capita growth of 2.1%, during this period. The growth was largely driven by India (4.8%) and China (9.8%). Brazil and South Africa, however, recorded a negative growth in their GDP per capita. Interestingly, both these nations are usually termed to be in the 'middle income trap'. As a result, the gap between the GDP per capita of the world and that of BRICS increased from US$ 2493.9 in 2010 to US$ 3785.8 in 2019.

Trade Scenario

BRICS Trade with the World

The collective exports from the BRICS nations were recorded at US$ 2.5 trillion in 2010. The same increased to US$ 3.6 trillion in 2019, thereby registering an AAGR of 4.5%. The global exports, on the other hand, during the same period, grew at an average of 2.8%. As a result, the share of BRICS exports in the global exports has increased from 16.4% in 2010 to 19% in 2019. China continues to be the major exporter from the BRICS nations, with its share in the BRICS exports increasing from 63.6% to over 70% in 2019[4].

[4] ITC Trade Map

Some of the major products exported from BRICS to the world in 2019 include electrical machinery and equipment (share of 19.6%), machinery and mechanical appliances (13.1%), mineral fuels and oils (9.9%), vehicles other than railway (3.3%), and furniture, bedding, etc. (2.9%).

With respect to the imports, the imports by BRICS were recorded at US$ 3.1 trillion in 2019, up from US$ 2.2 trillion in 2010, recording an average growth of 4.3%, marginally lower than the growth registered by the exports. The top products imported by the BRICS nations in 2019 include electrical machinery and equipment (share of 19.9%), mineral fuels and oils (17.8%), machinery and mechanical appliances (10.2%), ores, slag, and ash (5.6%), and vehicles other than railway (4%).

Overall, the BRICS nations are in a trade surplus scenario with their collective trade surplus being US$ 501.8 billion 2019, up from US$ 240 billion in 2010. A country-wise analysis, however, would show that barring India, all other four nations are in trade surplus.

Intra-BRICS Trade

As far as the intra-BRICS trade is concerned, the intra-BRICS exports increased from US$ 210.8 billion in 2010 to US$ 354.5 billion in 2019, registering an AAGR of almost 7%, showing signs of greater integration among the BRICS economies. The top products traded among the BRICS nations in 2019 included mineral fuels and oils (18.5%), electrical machinery and equipment (12.7%), machinery and mechanical appliances (10.1%), ores, slag, and ash (7.3%), and oil seeds and oleaginous fruits (6.1%).

Within the intra-BRICS trade, the highest exporter was China with a share of almost 50% in 2019. It is interesting to note that the share of China was almost the same in 2010. The progress in the share was observed for Brazil (increase in the share by 0.4%), and Russia (+ 6.1%). However, the shares for India (- 4.4%), and South Africa (- 1.6%) declined in the intra-BRICS trade in 2019.

It may also be observed that the share of intra-BRICS exports in the BRICS exports to the world has increased from 8.5% in 2010 to almost 10% in 2019.

Intra-BRICS Investment Scenario

The BRICS countries are amongst the top emerging economies of the world which have not just been the major recipients of the global investments but also have been the major investors across the geographies, in the last few years.

According to the fDi markets database of the Financial Times, which tracks cross-border investment in a new physical project or expansion of an existing investment creating new jobs and capital investment, during 2011 to 2020, the intra-BRICS investment was US$

119.5 billion through 1184 projects. While the top sources in terms of investment value were China (81%), and India (9.2%), the top destinations in the intra-BRICS investment were India (35%), Russia (28%), and Brazil (16%). Some of the top industry recipients of this investment were automotive OEM (15%), coal, oil, and gas (15%), real estate (12%), renewable energy (9%), and communications (7%).

It is important to observe that the intra-BRICS investment was almost 8% of the total investment to the BRICS nations by the world, during 2011-20, as per the fDi markets database. While 8% is a significant share, it can be said without a doubt that given the emerging and growing status of these economies, there is a potential for it to be much higher.

Progress of New Development Bank (NDB)

In fact, with the same objective, the New Development Bank (NDB) was established in 2015 by the BRICS nations with its aim being to mobilize the funds for investment in infrastructure and sustainable development. The Bank was established in 2015 to plug in the funding gaps in the BRICS nations. Unlike various multilateral institutions in the world, the ownership structure of the NDB does not provide any special rights or veto power to any of the BRICS nations, and each nation has an equal share.

As per the latest annual report of NDB (2019), US$ 7.2 billion worth of projects (22 projects in number) were given approval in 2019 while the cumulative approvals as on 31st December 2019 amounted to US$ 15.2 billion (53 projects in number). From within the projects approved in 2019, NDB has supported 970 MW of renewable and clean energy generation projects to be installed, which has the potential of avoiding 2.4 million tons/ year of CO_2 emissions. From the projects approved by NDB in 2019, additionally, 2300 million m^3 of water storage capacity is expected to be created and 159,000 m^3/day drinking water supply capacity will be increased which is expected to benefit 3.4 million people with improved water access and sanitation facilities. These statistics show that NDB is proving out to be an aggressive venture as far as the sustainable development goals are concerned in the BRICS nations.

Further, with respect to the geographical diversification of the approvals by the NDB, the institution has displayed an impressive progress by reducing the Herfindahl-Hirschman (HH) index from 0.28 in 2017 to 0.26 in 2018 and further to 0.22 at the end of 2019. Cumulatively, by project value, the share of China was 28% as of 2019, down from 35% in 2018, while that of India came down to 27% in 2019 from 29% in 2018. For South Africa and Brazil, the share has increased from 9% to 16% and 8% to 10%, respectively, explaining why the HH index has decreased.

Overall, NDB has progressed well in its operations since the time it was established. It has displayed some impressive credit ratings in the past few years such as AAA international credit rating from Japan Credit Rating Agency in August 2019 and AA+ rating in 2018 from

Standard & Poor and Fitch. In fact, recently in February 2021, S&P affirmed its AA+ long term issuer credit ratings on the NDB. Further, NDB is also growing on its commitment to provide local currency financing which is now a significant share of bank's portfolio with 27% cumulative approvals being in borrower member countries' currencies.

Potential Areas for BRICS Cooperation

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 specifically, India's case is taken, it is noted that India runs a trade deficit with rest of the BRICS countries, and this has increased over the years. So, from India's perspective - the country has provided huge market access to businesses in other BRICS countries, but yet to make equivalent gains in other BRICS markets. There is a huge potential for increasing mutual trade and investments within BRICS.

Possible Areas of Policy Cooperation

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.

It may be noted that that the theme for the 10th BRICS Summit (2018, Johannesburg Declaration) was 'BRICS in Africa: Collaboration for Inclusive Growth and Shared Prosperity in the 4th Industrial Revolution'. Following this Summit, BRICS Partnership on New Industrial Revolution (PartNIR) was established. PartNIR aims to address the challenges and maximize the opportunities arising from the Fourth Industrial Revolution by strengthening policy coordination; promoting human skill development in cutting edge technologies; sharing best practices in digitalization; and initiating joint infrastructure projects.

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.

The Xiamen declaration, 2017 established the 'BRICS Trade in Services Cooperation Roadmap'. The roadmap has a vision to increase services trade amongst the BRICS economies including participation of BRICS members' MSMEs in services sectors in regional and global value chains. The areas of cooperation under this roadmap include tourism and travel related services, healthcare services, audio-visual services, professional services, R&D services, financial services, among others.

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. The high cost of intra-BRICS trade can be ascertained from their global rank in 'trading across borders' under the World Bank's 'Doing Business 2020' report. While the ranks of China (56th), India (68th), and Russia (99th) are under 100, the ranks of Brazil (108th) and South Africa (145th) are above 100.

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 aspect are improving ease of doing business, exchange of best practices related to trade facilitation, engagement of BRICS customs authorities, and organizing regular workshops.

In a similar vein, the Moscow Declaration adopted during the 12th BRICS summit (2020) espoused the Strategy for BRICS Economic Partnership for the period 2021-2025 as a key guideline for enhancing BRICS cooperation in trade, investment and finance, digital economy, and sustainable development, to facilitate the speedy economic recovery and increase in living standards in the BRICS countries.

Agriculture

The IBID pandemic has disrupted the agri-supply chain and innovative solutions are needed to ensure an efficient agri-supply chain mechanism in all BRICS countries. An efficient agri-supply chain mechanism would include the best utilization of the resources such as infrastructure, logistics, finance etc. This would require 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-19 experience on agriculture.

The BRICS partners have regularly had Agriculture Ministers' Meeting and consistently shown the commitment to ensure food security, and addressing malnutrition, eliminating hunger, inequality and poverty through increased agricultural production, productivity, sustainable management of natural resources, and trade in agriculture among the BRICS countries.

Under the Goa Declaration, 2016, to further intensify cooperation among BRICS countries in agricultural research policy, science and technology, innovation, and capacity building, including technologies for small-holder farming in the BRICS countries, the BRICS nations signed an MoU for Establishment of the BRICS Agricultural Research Platform.

Digitising Trade

The BRICS countries can share experience with each other with respect to improving digital infrastructure, broadband connectivity, and internet penetration. E-commerce is another potential area that can play an important role in promoting trade growth and facilitate transformation and job creation.

The Goa Declaration 2016 (8th BRICS Summit), while understanding the importance of digitisation, has affirmed the value of sharing expertise and experiences among BRICS countries regarding usage of Information and Communication Technology (ICT) in e-governance, financial inclusion, and targeted delivery of benefits, e-commerce, open government, digital content, and services and bridging the digital divide. The BRICS partners, during the summit, committed to support the efforts aimed at the capacity building for effective participation in e-commerce trade to ensure shared benefits.

Trade in Local Currencies

The intra-BRICS trade in local currencies can have a host of benefits such as lower dependence on the US dollar which brings in more stability with respect to the currency volatility. What trading in local currency essentially means is that the countries start invoicing their products to be exported in their own currencies. For example, India would invoice or bill its exports to Russia in Indian rupees. The settlement dates can be fixed by mutual consultation — they can be daily, weekly, monthly, or quarterly.

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 save significant transaction costs and thereby 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. 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

BRICS countries should 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.

The BRICS Business Council's 2014 Annual Report recommends to the BRICS governments to make special arrangements on visas to facilitate and encourage BRICS people-to-people exchange, including simplification of the visa approval procedures and reducing the time for approval.

The 7th BRICS summit, 2015 (Ufa Declaration) noted the recommendation of the BRICS Business Council regarding the simplification of visa procedures for business travel among the BRICS countries and asked the relevant authorities to continue to work towards achieving this end.

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. For instance, all BRICS members intend to increase their share of renewable energy in their total installed capacity. 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.

Cooperation in energy, in fact, has been one of the most talked about areas in the BRICS summits. In 2015, the first official meeting on energy efficiency was held and an MoU in 'Energy Saving and Energy Efficiency among the Ministries and Governmental Agencies of BRICS, Responsible for Energy and Energy Efficiency' was signed in the same year. In 2016, the NDB founded by the BRICS members, issued its first green financial bond with issue size of RMB 3 billion. In 2018, during the meeting of BRICS Ministers of Energy, a decision was taken to establish a BRICS Energy Research Cooperation Platform (ERCP).

Financial Services

As countries evolve and pass through stages of economic development, an evident shift is seen in the structure of the economy. As a result, banking and financial services is an important area and its spread and extension play a critical role in furthering the goal of financial inclusion. A similar situation prevails amongst BRICS countries as well. 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, amongst others.

The Xiamen Declaration of the 9th BRICS summit agreed to promote the development of BRICS Local Currency Bond Markets and jointly establish a BRICS Local Currency Bond Fund, as a means of contribution to the capital sustainability of financing in BRICS countries, boosting the development of BRICS domestic and regional bond markets. Such an engagement would also include increasing foreign private sector participation, and enhancing financial resilience of BRICS countries.

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.

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 have been provided by the start-ups in the areas of manufacture of low-cost masks, cost-effective thermal scanning devices, and rapid diagnostic kits.

Additionally, there are several start-ups in 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.

In the subsequent years, BRICS countries can share their experience in the areas mentioned above. Two possible solutions could be setting up a BRICS Start-ups bridge and creating a platform for exchange program for Start-up funding.

In the area of start-ups, the International BRICS Youth Business-Incubator commenced in 2020. The BRICS Youth Business-incubator is a platform for gaining new knowledge in the field of doing business in BRICS nations, as well as exchanging experience and establishing direct business contacts among young entrepreneurs, who want to build sustainable cooperative ties.

Digital Economy

Digital economies in BRICS region have 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, and 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. Learnings from best practices could help in 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 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.

It may also be noted that there have been regular BRICS Health Ministers Meetings in the last decade and various steps have also been taken. For instance, in 2019, BRICS TB Research Network developed the Collaborative Research Program for TB, aimed at promoting new scientific, technological, and innovative approaches to tackle the TB burden, by supporting scientific projects in a wide range of relevant issues related to TB.

During the XII BRICS Summit, 2020, Russia proposed to set up a BRICS Integrated Early Warning System for preventing mass infectious diseases risks and this is likely to take shape in the coming years. Further, the BRICS countries are also working towards the timely establishment and effective operationalization of the BRICS Vaccine Research and Development Centre, which was a part of Johannesburg Declaration (2018).

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.

Understanding the importance of developing skills, BRICS countries have been holding BRICS Future Skills Challenge competitions since 2017 to identify and develop future-oriented occupations, skills, and technologies and enhance cooperation among BRICS countries in the education field.

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 include experience sharing on civil aviation, airport infrastructure and services, improving air connectivity amongst BRICS countries, BRICS aviation skills academy, BRICS hub for MRO, and access to funding.

Challenges in the BRICS Format

The BRICS nations came together to change the order of the world in which it operates. To a large extent, they have been successful too, given their shares in the world GDP, their population numbers, as well as their regional hold. However, as successful as this concept has been, it is no secret that it has not able to achieve its full potential and even for the future, this challenge of achieving the full potential or maximizing it, is probably going to exist, due to various factors.

First and foremost, while different economic structures of the BRICS nations are the beauty of the BRICS concept, they are unfortunately, also the biggest challenge for the BRICS. At the purchasing power parity (PPP) of constant 2017 international US$, the world GDP in 2019 was almost US$ 130 trillion[5]. While China's contribution in the same year was 17.3% to this GDP, the same of South Africa was just 0.6%. India, Russia, and Brazil contributed 7.1%, 3.1%, and 2.4%, respectively. Moreover, in the last two decades, during 2000 to 2019, while China and India registered average growth rates of over 9% and 6%, respectively, Brazil (2.4%) and South Africa (2.9%) grew slower than the world GDP (2.9%).

[5] World Bank

An important initiative here could be expanding the NDB and inviting other select countries to be the shareholders in NDB. It may be noted that as per Article 2 of the 'Agreement on the New Development Bank', the membership shall be open to members of the United Nations, in accordance with the provisions of the Articles of Agreement of the New Development Bank. Advanced countries as well as emerging markets and developing countries (EMDCs) are eligible for membership, although the former is restricted to a maximum of 20% of voting power and can only join the Bank as non-borrowing members. This governance structure is grounded on the conviction that it is essential to ensure the right kind of policies and projects suitable for true ownership by EMDCs of their development strategy – a goal that is facilitated by the fact that all founding members of the Bank are borrowing countries. Further, most NDB decisions are taken based on a simple majority, and no single member has veto power over any matter. These arrangements will strengthen NDB by giving all members a real stake in the success of the institution. The Moscow Declaration, 2020 supported the NDB membership expansion process based on relevant decisions by the NDB Board of Governors.

Also because of the differences in size and the growth trajectory, there are also objectives that differ for these economies. UNSC is international community's principal organ for peacekeeping and conflict management and its decisions are binding on the members. However, the issue here is that the UN composition has been almost the same since 1945, except for a marginal enlargement of non-permanent member seats in 1960s. Since 1945, almost 142 countries have joined the UN which is a huge disproportion when compared to the reforms in the UN. It will be a challenge for the BRICS to unite on this issue at the UN, given that two of the five BRICS nations are permanent members to UNSC. Under the Sanya Declaration, 2011, the BRICS nations affirmed the need for a comprehensive reform of the UN, including its Security Council, with a view to making it more effective, efficient, and representative, so that it can deal with the modern global challenges more successfully. China and Russia stated the importance they attach to the status of India, Brazil, and South Africa in international affairs, and supported their aspiration to play a greater role in the UN.

Way Forward For BRICS: BRICS+

The world, in the last few years, especially the developed, has seen weakening integrations as the countries have been becoming more inward and protectionist. At the same time, it may also be observed that the developing countries have been enthusiastic in taking the initiatives which integrate them with the developed world. For instance, the BRICS' initiative of setting up of NDB is an initiative which shows how the five nations are willing to come together to plug in their funding gaps, even if they are from different economic backgrounds.

However, as explained before, BRICS nations face a host of challenges in their integration. While BRICS as a group has made some progress by coming together, it may like to explore the possibility to expand its forum to other developing nations in the coming years. This would

also make sense because each of the BRICS nation is a leader in their own regional blocs, at least with respect to the economy size, and has been entering into various partnerships with other countries, over the years. This lays down the opportunities to set up a BRICS+ network, in where the BRICS remain the main partners or leaders of the forum, but the cooperation can be extended beyond the traditional acronym, which ultimately integrates the developing world to a large extent. The BRICS+ network could include Mexico in North America, Turkey in Middle East, Indonesia in South-East Asia, and Morocco in the developing North Africa in the alliance. It may be noted that the potential BRICS+ network can also enhance the powers of these countries, with respect to the vital decisions of multilateral institutions such as IMF.

The BRICS+ initiative could also help in taking the NDB initiative of local currency role, a step further. It could serve as a platform in promoting mutual trade and investment transactions in local currencies, which in the long run can help the developing world to be less dependent on the US dollar and Euro.

Overall, the BRICS+ initiative can help the developing world in exploring the possibilities of forming agreements and alliances, both bilaterally and multilaterally. At the same time, it could include the scope of trade, investment, strategic cooperation, intellectual property, and a host of other things. The coming together of the institutions under this framework could be of added advantage to the developing world as the funding gaps could be plugged in, through an efficient and effective manner. While just like the BRICS, the BRICS+ initiative too can throw a lot of challenges in its execution, at the same time, the BRICS+ initiative could be much flexible due to the involvement of lot of countries and freedom to forge alliances bilaterally and multilaterally.

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Responsible Financing for Green and Sustainable Development of BRICS

China Development Bank

BRICS, after an initial period of fast growth, has evolved from a mere concept into a platform for concrete cooperation. Economic cooperation, political security and people-to-people exchange have all added substances to BRICS, which has grown in strength with improved mechanisms and greater influence. Notably, the BRICS Interbank Cooperation Mechanism (BICM) has played a positive role in BRICS economic partnership and investment. We are proud of what BICM has accomplished and must level up to meet the challenges of structural adjustment and economic volatility. To bring about green and sustainable development, we must remain as committed as ever to cooperation.

BRICS Fosters a Favorable Environment for Economic Partnership

BRICS was originally a term used in the international capital market to reflect the strong growth prospects of five emerging economies. Economic cooperation is one of the pillars of the BRICS architecture. The Strategy for Economic Partnership endorsed by BRICS leaders during their Ufa summit mapped out a blueprint for "integrated markets, multi-tiered networks, connectivity by land, air and sea, and greater cultural exchanges", and set the vision for BRICS economic partnership. The various mechanisms that have since been established and improved add substances to BRICS cooperation, which

now covers more than areas, most notably economy and finance, health, science, technology and innovation, security and commerce[1].

1. **Regular Leaders' Summit.** Since their first meeting in Russia in June 2009, BRCIS leaders have held summits alternately in the five countries every year, and have reached broad consensus on BRCIS cooperation in a wide range of areas as well as on regional and international issues of shared interest. They also meet on the sidelines of G20 summits to seek synergy between BRICS and G20. In 2020, the 12th BRICS summit was held online, which further deepened BRICS strategic partnership.

2. **Multi-tiered Consultation and Exchange Mechanisms.** BRCIS foreign ministers met for the first time during the 2006 UN General Assembly. The BRICS meetings of high representatives for security affairs, ministers, coordinators, ambassadors' to multilateral organizations, and working groups on a regular or ad hoc basis shape up an architecture of cooperation at different levels. During the leaders' summit, parallel events have been held, including the CEO forum, cooperatives forum, local government and city forum, think tank forum, financial forum and business forum. These events are attended by economists, general public, government officials, and social organizations, which comprise a broad-based community of stakeholders from a wide range of areas[2].

3. **New Development Bank (NDB) and Contingent Reserve Arrangement (CRA).** NDB is a multilateral institution of emerging markets and is a milestone in the institution building of BRCIS. Under the BRICS framework, BRICS countries signed and ratified the *Treaty for the Establishment of a BRICS Contingent Reserve Arrangement*, and the central banks of the five countries signed the Mutual Assistance Agreement aimed at operationalizing the CRA. Since its launch in July 2015, NDB has played an important complementary role in promoting global growth and multilateral development through concrete actions. In July 2015, the five BICM members signed an MOU on cooperation with NDB to develop a multilateral partnership. NDB is considering expanding its membership, which will make it a more mature global financial institution. These accomplishments show that the BRICS vision is coming to fruition.

In general, BRICS is being transformed from an investment concept on the capital market to an important force in the global economy. Originally intended as a platform for dialogue on economic governance, it has grown into an all-round coordination mechanism covering both political and economic affairs. It lays the groundwork for results-oriented cooperation among BRICS countries, and creates a stable and predictable environment for achieving SDGs.

[1] http://brics2019.itamaraty.gov.br/en/about-brics/main-areas-of-cooperation

[2] *Thoughts on BRICS Cooperation Mechanism* in the paper collection of the 6th Emerging Economies Forum, Ding Gong

BRICS Economic and Financial Cooperation Yields Fruitful Results

BRICS countries have maintained regular exchanges on economic, trade and investment issues. With expanding trade, investment and financial cooperation, synergy is formed in the economic development of BRICS countries.

1. **Notable Progress in Economic Cooperation.** Since the establishment of the BRICS mechanism, BRICS members have taken larger shares in each other's import and export, a trend that is more visible in the foreign trade of Brazil, Russia and South Africa (Table 10.1). By 2019, BRICS countries as a whole had become the largest trading partner of Brazil, India, Russia and South Africa, and the fourth largest one for China (after the EU, ASEAN and the US). In 2020, despite the impact of COVID-19, BRICS remained the fourth largest trading partner of China[3].

Table 10.1: Trade among BRICS Countries (%)

	Export					Import			
	2000	2005	2010	2015	2019	2005	2010	2015	2019
Brazil	3.68	10.34	19.68	22.52	30.56	10.35	17.88	22.09	24.79
Russia	6.42	6.62	6.79	10.20	15.79	10.68	19.94	22.42	24.70
India	4.94	10.23	11.87	6.85	8.74	11.20	15.71	19.58	17.60
China	2.42	4.04	6.70	5.99	7.07	5.92	7.15	7.20	8.90
South Africa	3.57	6.23	14.66	14.37	16.15	13.55	19.04	25.47	25.33

Note: Import and export among BRICS countries as a share in the total of each of the countries

Source: UNCOMTRADE[4]

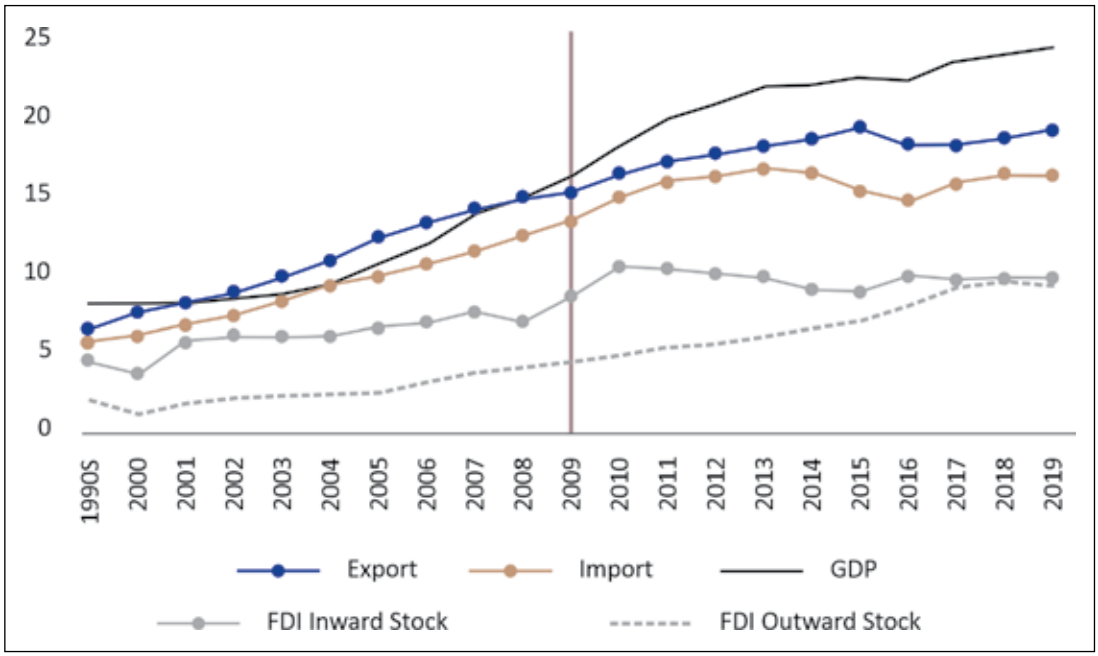
2. **Flows of Investment.** In 2017, the *Outlines for BRICS Investment Facilitation* was adopted during the 2017 BRICS Xiamen Summit. This very first document concluded by BRICS on global trade facilitation is instrumental in expanding investment among the members.

The strengthening economic links have helped to unlock the development potential of BRICS countries. Since 2019, the combined GDP growth of BRICS countries has picked up the pace, taking a growing share in world economy and trade. At the end of 2019, BRICS accounted for 24.12% of the GDP, 18.82% of the export and 16.15% of the import of the world, and 9.47% of the investment flows and 8.96% of investment outflows, all significantly larger than in 2009 (Chart 10.1). With growing contributions to the world economy, BRICS are leading the emerging economies.

[3] Calculation based on the data of the National Statistical Bureau of China.

[4] Updated as of 2019

Chart 10.1: BRICS in World Economy (%)



Source: UNCTADSTAT

3. **BICM Powers BRICS Economic Cooperation.** Since 2011, the BICM annual meeting and BRICS Financial Forum have been held on the sidelines of BRICS summits, during which cooperation documents are signed. Over the past 11 years, 15 multilateral agreements have been signed, eight of them in the presence of the leaders of BRICS countries, covering a wide range of areas, including local currency facility, letter of credit, sustainable development and infrastructure finance, and cooperation on innovation. These deliverables were all included in leaders' declarations, playing a positive role in trade and investment facilitation and deepening financial cooperation.

BRICS countries are a priority of CDB's international business. Through the BICM, CDB has pursued win-win cooperation with BRICS banks and companies. At the 2012 New Delhi meeting and the 2017 Beijing meeting, BICM members, as proposed by CDB, adopted the agreements on local currency cooperation and local currency facility, and the memorandum on credit ratings, which take forward local currency cooperation among BRICS countries. By the end of 2020, CDB had lent over US$ 100 billion in BRICS countries in support of such programs as energy, resources, infrastructure, SMEs and financial cooperation.

BRICS Countries Seek to Expand Practical Cooperation

BRICS countries work together and support each other in international organizations to increase their impact and voices on international politics and economy. They have supported

the UN in playing a leading role in promoting world peace and development, engaged in cooperation and communication in the framework of UN, and played a bigger role in global economic governance.

1. BRICS Countries Coordinate Positions on Critical Development Interests

It has been a regular practice for BRICS leaders to meet informally during each G20 summit to coordinate their positions. Such meetings provide opportunities for emerging economies to discuss international affairs, coordinate their positions, and engage in global governance. Acting together to counter trade protectionism, respond to climate change, and fight COVID-19, BRICS countries have enabled the voices of emerging markets and developing countries to be heard.

2. BRICS Countries Coordinate with Established Institutions of Economic Governance to Raise their Voice

BRICS countries have held 13.1% voting rights in the World Bank since 2009, and 14.049% voting rights in the IMF since 2010. Renminbi has also been included in the SDR. Through NDB and CRA, BRICS offer new options for the international financial order, and infrastructure finance and liquidity in emerging markets and developing economies, making a meaningful difference for developing countries. As their economic status continues to rise, BRICS countries should continue to obtain more voting rights in the IMF and the World Bank and speak on behalf of developing countries in the WTO reform.

3. Innovation of Commodity Pricing and Trading Mechanisms Boosts the Economic Impact of BRICS

BRICS countries are each other's important suppliers and buyers of commodities. Russia is a major supplier of crude oil and natural gas; Brazil iron ore, crude oil and soybeans; South Africa iron ore, coal and precious metals; India iron sand and chromium ore. Meanwhile, South Africa is the largest crude oil importer in the continent; India a major importer of crude oil and natural gas; and China the most important importer of commodities, being the world's largest consumer and importer of oil, natural gas, soybean, iron ore and copper. Despite their tremendous amount of trade, BRICS countries had long been disadvantaged in commodity pricing. The BRICS Exchange Alliance was launched in 2011 to cross-list their equity index futures. An internal gold trading platform is being prepared. Local currency settlement and currency swaps have been promoted for bilateral commodity trade within BRICS. With these efforts, BRICS are taking more proactive actions in global pricing mechanisms. BRICS will upgrade cooperation to make their pricing power stronger in the trade of commodities that are crucial to their interests, such as energy, fundamental raw materials, agri-products and precious metals.

Responsible Financing Contributes to Green and Sustainable Development of BRICS

While making proud achievements, BRICS countries, all being developing economies, face similar and common challenges. More than 70% of the world's poor populations live in low- and middle-income countries and more than 50% in BRICS countries. To achieve inclusive growth, BRICS need to expand social protection and basic public services to address economic imbalances, which have been compounded by public health challenges and economic volatility caused by the pandemic. In 2020, China succeeded in lifting close to 100 million people out of poverty. This remarkable achievement is a testimony to China's commitment to a better world. Facing up to common challenges, BRICS countries have intensified policy coordination and aligned their strategies to achieve shared goals. They seek to maximize converging interests and pursue sustainable cooperation. The China Development Bank advocates green and sustainable development, which should be prioritized in the BICM framework, and believes that responsible financing will be instrumental to the cooperation within BRICS.

1. Green Economy Opens Up New Avenues of Growth for BRICS

As defined by the UNEP, the sectors that are low carbon, resource efficient and socially inclusive constitute a green economy, which is aligned with the SDGs. BRICS countries are experiencing the shift of growth drivers and must make profound changes to their economic structure. Given the development stages of BRICS countries, infrastructure remains a major driving force for fast growth, and financing green infrastructure will help sustain economic development.

Fully aware of the importance of green economy, BRICS countries have drawn up their respective strategic plans for green industries. They could put green infrastructure at the center of their investment cooperation, integrating climate and environmental governance into sectors of energy, technology, agriculture and digital infrastructure. Through tapping into the new growth potential, productivity, efficiency, employment and household income can be boosted, carbon emission and pollution reduced, and energy and resource efficiency improved.

2. Co-financing will Lend Impetus to BRICS Cooperation on Green Industrial Chains

In 2020, the BRICS Partnership on New Industrial Revolution innovation center was launched in the Chinese city of Xiamen, aiming to shift BRICS industrial cooperation to value-added, knowledge-based activities and thus contribute to quality development.

BRICS financial institutions could explore specific areas for multilateral and bilateral financing activities. For example, a joint development and financing mechanism for green technologies could be considered. Joint research and manufacturing can be rolled out to the sectors of green cities, smart grid, new energy storage technologies, new energy vehicles, efficient renewable energy technologies, and new energy infrastructure. Through such initiatives, cooperation on green industrial chains will be lifted to a higher level and industrial R&D, conversion, production and utilization will be more efficient.

3. Responsible Financing should be Promoted to Spur Green and Sustainable Development of BRICS

Opportunities lie ahead for green finance. ESG has been integrated in the business models of many banks across the world. Such practice will help boost the soundness of the global financial system and be an important part of sustainable banking.

Ecological conservation is part of China's development strategy. President Xi Jinping pledged that China will reach carbon peak and neutrality in 2030 and 2060 respectively. Russia and Brazil have already peaked their carbon emissions.

BRICS countries may explore the approaches and pathways of financing green economy, seek consensus on such topics as green industries, policy environment and financial risks, improve and innovate cooperation mechanisms, and synergize their strategies and plans. The *BRICS Green Finance Guidelines* launched by BICM members in 2020 was an important step towards green cooperation. On a voluntary basis, member banks will improve and implement the measures in the Guidelines, delivering responsible financing on the ground.

While conducting financing activities, member banks could jointly expand green credit capacity, reduce the risks from resource and pollution intensive sectors, and regularly exchange risk assessment reports on factors like environment. Financial products and services dedicated for green economy could also be developed targeting product design, processes and business models. These efforts will help incubate and cultivate green market entities. We may also develop innovative financial products related to ecological compensation, emission rights and carbon trading, finance long-term green projects by addressing maturity mismatch, and foster BRICS green bond markets on the liability side.

CDB is a leader in China's green finance sector. While continuing to build its own capacity, CDB has worked closely with various stakeholders, engaged in the development of national standards of green finance, improved green credit policies and processes, and advanced its green finance business in a systematic way, contributing its share to China's battle against pollution and green and low-carbon development. On March 18, 2021, CDB launched the 3-year "Carbon Neutrality" green bonds with a total volume of RMB20 billion, the world's

largest valued bond for carbon peak and neutrality. The funds raised will be used for emission-cutting projects such as wind and solar power projects, helping to decarbonize the power system and transform the energy system.

CDB remains committed to scaling new heights for BICM and working more closely with fellow member banks to promote responsible financing. Together, we will make the green economy in BRICS stronger and contribute to the attainment of SDGs in each country.

As the Chinese President Xi Jinping said, all of us are indeed passengers in the same boat. When the wind is strong and the tides are high, we must be even more focused on our direction. We must keep pace and work as a team to break the waves and navigate steadily toward a brighter future. Let us act together in responsible financing for a sustainable and bright future of BRICS.

Assessment of Infrastructure Development Collaboration and Post-Lockdown Opportunities among BRICS Countries

Zeph Nhleko
Chief Economist, DBSA

Adel Bosch
Senior Economist, DBSA

1. Introduction

Initial discussions to formalise working relations for the Brazil, Russia, India, and China country grouping were initiated in 2006. South Africa joined the country grouping in 2010 to complete the formation known as BRICS. Official BRICS Summit declarations and media notes show that over and above security and environmental matters, the group emphasises activities in the following socio-economic areas (BRICS, 2021):

- Economic and financial policy coordination and dialogue;
- Pursuance of sustainable development goals;
- Resolve challenges on rapid urbanisation;
- SME support;
- Facilitate trade;
- Advance innovation; and
- Support infrastructure development, especially within the energy, transport and telecommunications sectors.

The BRICS group has therefore embraced the idea of supporting infrastructure development within the group and in Africa since its inception (BRICS, 2021). The group has advanced the creation of new infrastructure as an effort to accelerate the diversification and modernisation of their economies. Knowledge exchange and support for increased access to technology, enhanced capacity building as well investment in human capital have been

recognised as very important and have been modelled as part of this endeavour. It is recognised that infrastructure development should be accompanied by capacity development.

However, BRICS and other emerging and developing economies have faced many infrastructure development challenges and gaps, including insufficient long-term financing and inconsistent foreign direct investment, to support capital formation. For example, it has been widely accepted in recent times that investment flows into the African continent are fickle while the ratios of gross capital formation to GDP remain below global standards. These challenges and gaps were among the reasons that led to the discussion on the possibility of setting up a new BRICS multilateral bank, the New Development Bank (NDB), to mobilize resources for infrastructure and sustainable development projects in these and similar nations. In this process, the participation of the private sector and the mobilisation of sustainable and disaster resilient infrastructure, were key (National Treasury, 2018; BRICS, 2020). Using a selection of indicators to provide an economic perspective over time, it is evident that China dominates the group in terms of size as indicated in Table 11.1. South Africa is the smallest member.

Table 11.1: Selected Economic Indicators of the BRICS Countries

Country	Current GDP (US$ billion)		GDP growth (%)		Gross capital formation (% of GDP)		Population (million)	
	2011	2020	2011	2020	2011	2020	2011	2020
Brazil	2,614	1,364	4.0	-4.5	21	16	197	211
Russia	2,047	1,464	4.3	-3.6	18	20	143	147
India	1,823	2,593	5.2	-8.0	34	27	1,250	1,382
China	7,492	14,861	9.6	2.3	47	43	1,347	1,404
South Africa	417	283	3.3	-7.5	20	18	52	60

Source: Bloomberg, IMF (figures rounded)

Brazil and Russia are roughly of similar size, while India is second largest. This must be a key consideration in striking infrastructure collaborations and partnerships among the members because their needs will vary and range from lack of expertise to capital injection. Infrastructure-focused development finance institutions (DFIs) and similar platforms in the member countries are well positioned to lead these infrastructure development collaboration efforts of the members across the group.

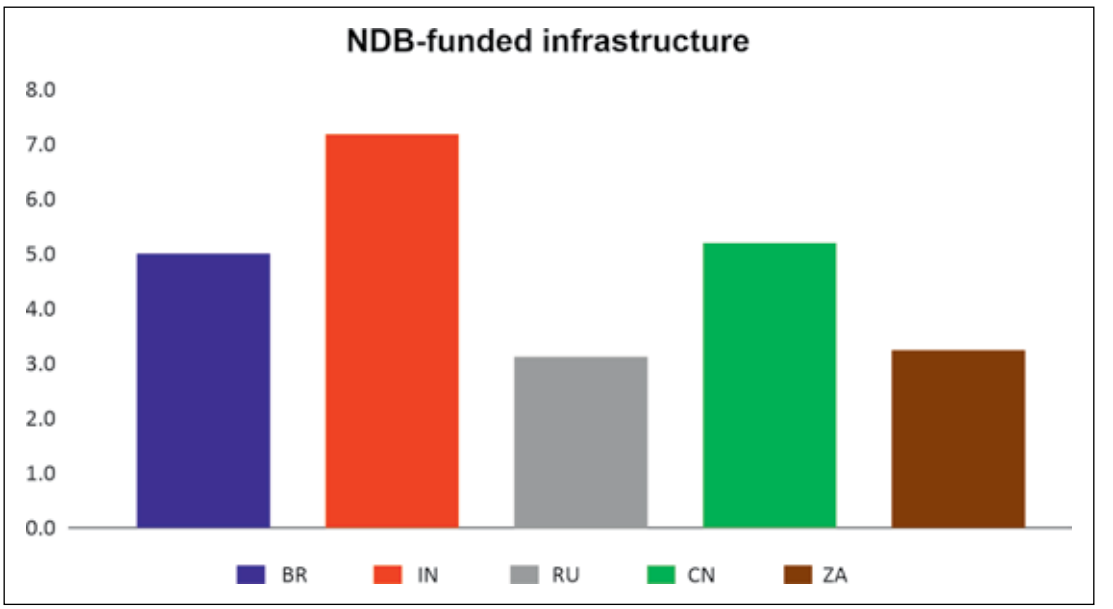
2. BRICS Infrastructure Development Collaboration 2011-2020

Between 2011 and 2014 – prior to the NDB – there does not seem to be overwhelming evidence of BRICS countries collaboration on significant infrastructure projects. However, there were several platforms, such as the BRICS Urbanisation Forum as well as the Friendship Cities and Local Government Cooperation Forum, where infrastructure deliberations occurred. This gap intensified the institutional development process to facilitate infrastructure investment in the form of the NDB.

The NDB, also known as the BRICS Bank, was brought into existence in 2014 to finance infrastructure and sustainable development projects in BRICS and other emerging economies and developing economies (BRICS, 2021a). As has been shown during the COVID-19 pandemic, the BRICS Bank also envisaged other financial support to members such as relief schemes as and when members encounter large scale disasters and challenges.

The NDB has approved and funded infrastructure projects worth more than US$ 23 billion since its inception. India has participated more frequently than other members as shown in Chart 11.1. The dominant infrastructure sectors funded in India and South Africa are transport (47%) and energy (43%), respectively, while other members have requested funding for a mixed basket of sectors. All members, except Russia, have taken a COVID-19 emergency relief loan from the NDB as domestic demand outpaced fiscal reach.

Chart 11.1: Quantum of NDB Funding to Members since Inception (US$ Billion)



Source: BRICS (2021b); BR-Brazil, IN-India, RU-Russia, CN-China; ZA-South Africa

The rest of the NDB funded projects are mostly located in the following key areas that remain a challenge for emerging and developing economies: clean energy, urban development, environmental efficiency, transport infrastructure, irrigation, water resource management and sanitation as well as social infrastructure (New Development Bank, 2019). The redirection of funds to deal with the pandemic means that closing the infrastructure gap moves at a slow pace.

3. Leveraging BRICS for Infrastructure Development in Africa

South Africa's key arguments for becoming a member of the BRICS group were anchored around:

- Advancing national interests;
- Promoting regional integration and related infrastructure programmes; and
- Partnering with key players on issues of global governance reforms.

However, in its early years, the BRICS platform has not been extremely successful in facilitating instances of infrastructure funding in the African continent. Prior to the NDB-funded projects, there does not seem to be a lot of infrastructure projects organised through the BRICS platform for the continent. There is however an ample evidence that BRICS countries have invested among themselves and in the African continent in bilateral infrastructure and other deals during this time. For example, as noted by Gusarova (2019), China remains the main exporter of FDI to the BRICS countries with Russia and South Africa as the main recipients. In 2016, China was responsible for over US$ 17 billion of FDI stock to Russia, South Africa, and India combined. Between 2003 and 2016, Chinese companies invested US$ 61 billion in Brazilian projects. Chinese FDI into BRICS countries is diversified and supports initiatives to create a framework for increasing economic cooperation among BRICS countries. Similarly, China and South Africa are among the highest FDI investors in the rest of Africa (UNCTAD, 2020).

In October 2019, the African Development Bank and the New Development Bank signed a Memorandum of Understanding formalizing a partnership and general cooperation between them to promote new impact projects in Africa. The entities aim to jointly identify, prepare and co-finance projects in countries of mutual interest (African Development Bank, 2019). According to the African Development Bank (2020a), the partnership between BRICS countries and Africa can be further leveraged. A host of opportunities for BRICS funding is available in the Programme for Infrastructure Development in Africa (PIDA), which in 2021 identified sixty-nine (69) regional infrastructure projects in the sectors of Energy, Transport, Trans-Boundary Water, and Information and Communication Technology (ICT), with an estimated budget of US$ 161 billion. The outcomes include modal switch from road to rail transport and the inclusion of fluvial navigation in more competitive and climate friendly multimodal transport systems, key contributions to establishment power pool interconnection as a first

step to the African Single Energy Market (AfSEM), development of high impact multipurpose dams to achieve sustainable rural livelihoods and climate resilient agriculture, and using ICT infrastructure to develop value added services, boost digitalization and create jobs for youth.

Two significant trade agreements have also come into effect in 2021, which should provide support for increasing infrastructure cooperation between BRICS and Africa. The first one of these, is the China-Mauritius Free Trade Agreement, and the second is the African Continental Free Trade Area (AfCFTA). Africa's first free trade agreement with one of the BRIC countries, came into effect in January 2021 (Tralac, 2021).

The free trade agreement between Mauritius and China paves the way for further agreements between Africa and China, including opportunities for agreements between Africa and the other BRICS countries. Amongst others, the agreement covers investment and economic cooperation. In terms of investment, the free trade agreement covers the investment protection agreement signed in 1996, with significant protection as well as dispute settlement mechanisms (Ministry of Commerce of the People's Republic of China (MOFCOM), 2021). The economic cooperation chapter of the agreement shows that the China and Mauritius have collaborated in ten areas including:

- Industrial development, including increasing competitiveness;
- The development of a manufacturing sector, based on innovation and research;
- To conduct exchange of specialists;
- To have an exchange of researchers for disseminating know how and for support in technology and innovation; and
- To cooperate in the financial sector.

The *AfCFTA which* kicked off at the start of the 2021 has had its agreement endorsed by 35 of the 55 African Union's (AU) member states. Fifty-four (54) AU member states have signed the AfCFTA, with the exception of Eritrea. The AfCFTA's targets increasing trade within the continent two-fold by next year, relative to 2015 (IISD, 2021). This agreement will not only connect 1.3 billion people across 55 countries with a combined gross domestic product (GDP) valued at US$ 3.4 trillion but is also expected to enhance intra-African trade over the coming decades (WEF, 2021). Similar to the Mauritius-China Trade Agreement, the AfCFTA goes beyond trade, addressing the movement of persons and labour, competition, investment and intellectual property. This agreement should provide efficient pathways for more trade collaboration, especially with China, and by extension, Brazil, Russia, and India.

Both these agreements highlight the infrastructure requirements that will flow from increased trade. As part of implementing the trade agreements, BRICS countries will have an opportunity to collaborate in developing the base infrastructure that will support the agreements such as ports, rails, roads, warehousing, etc. Similarly, DFIs could take the lead for these collaborations.

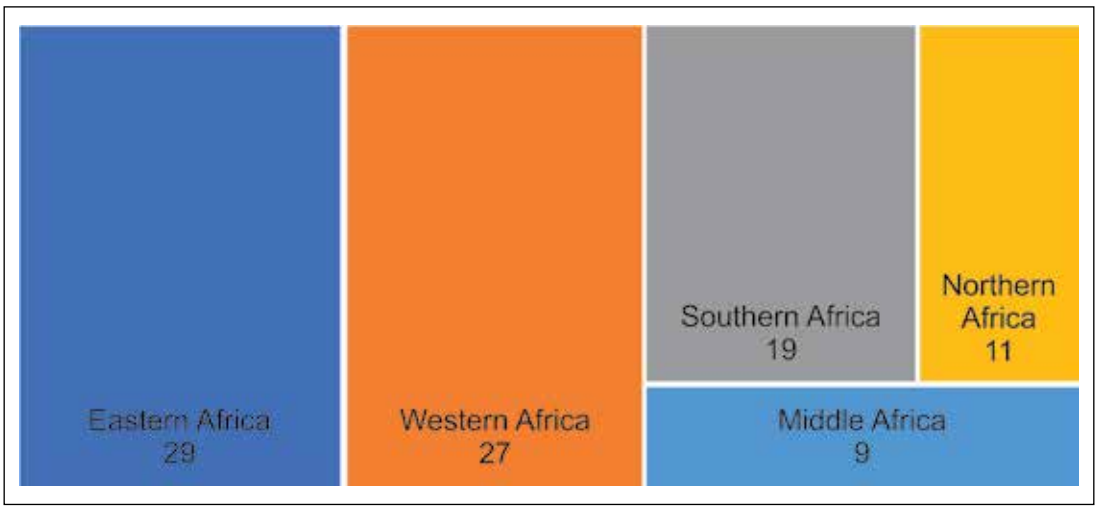
4. Infrastructure Development Opportunities Post-lockdown

At the end of 2020, Russia hosted BRICS leaders to discuss the challenges that arose from the COVID-19 pandemic (BRICS, 2021c). As indicated, the NDB has been instrumental in rolling out COVID-19 emergency response and economic recovery loans to member countries. South Africa received a US$ 1 billion loan to support efforts of combatting the outbreak of COVID-19, minimize the loss of human life, and reduce social and economic losses.

The observed impacts of COVID-19 included production disruptions, trade disruptions, investment reversals, financial markets dislocation, economic growth suppression, and massive unemployment. These impacts not only encouraged DFIs to look for new sources of funding but also to find ways of providing relief support, work collaboratively with stakeholders, emphasize setting up project pipelines, and pursue the careful preparation of projects in anticipation of the post-lockdown period. It has been argued that National DFIs are well placed to advance infrastructure development as they generally have a higher financing capacity compared to multilateral development banks (OECD, 2014). DFIs have the developmental edge because they venture in areas where commercial investors and banks would usually not invest.

In 2018, there were about 95 major DFIs in Africa, constituting US$ 131 billion in assets and US$ 26 billion in investments. This is reflective of the fact that there are sufficient entities across the continent to form a solid collaboration with the BRICS to deliver on the infrastructure needs. The spread is shown by region in Chart 11.2.

Chart 11.2: Number of Major DFIs in Africa



Source: Agence Française de Développement (AFD), 2021

In South Africa, the Development Bank of Southern Africa (DBSA) is mandated to promote economic development and growth, human resources development, institutional capacity

building and the support of development projects and programmes in the African continent (South Africa, 1997). In the BRICS group, key DFIs, government-owned banks and platforms that can collaborate with the DBSA to advance the development of infrastructure in Africa by virtue of their participation in this field include the *Brazilian Banco Nacional de Desenvolvimento Economico e Social* (BNDES), *China Development Bank*, Russia's *PJSC Sberbank* and India's newly proposed *National Bank for Financing Infrastructure and Development* (BNDES, 2021; CDB, 2021; Sberbank, 2021; Sitharaman, 2021).

A further advantage is that some of these institutions are also already part of the International Development Finance Club (IDFC). These include the Brazilian Banco Nacional de Desenvolvimento Economico e Social and China Development Bank. India and Russia do have representation through the Small Industries Development Bank of India and VEB.RF – State Development Corporation (IDFC, 2021).

In the post-lockdown period, there are two possible areas that present opportunities for infrastructure development collaboration, namely *supporting blended financing platforms* and *driving syndicated project finance*. The building of human capital and institutional capacity are assumed to be integral to making this collaboration work more sustainable and meaningful. The creation of self-sustaining communities require that they are assisted to participate in infrastructure projects. Similarly, functional institutions must be created to facilitate economic development. Evidence has shown that when used together capital formation and institutional set up contribute positively to economic growth.

4.1 Blended Finance Platforms

Blended concessional finance is one of the important tools that DFIs can use to collaborate (DFI Working Group, 2019). Concessional finance refers to a combination of donor funding, DFI finance, and private sector finance. For purposes of this paper, the donor segment can be disregarded, and an emphasis placed on acting coherently within the established blended finance frameworks by BRICS DFIs (OECD, 2020). In 2019, DFIs financed projects with a total volume of more than US$ 10.4 billion, supported by blended concessional finance, of which, according to the DFI working Group (2020), private sector finance was approximately US$ 3.1 billion, and DFI own-account investments were about US$ 5.1 billion. The balance came from other concessional contributions and contributions from other public sources.

Concessional funds committed by DFIs were used most in the Sub-Saharan Africa region. The largest shares of the blended finance deployed in the region was in infrastructure and the "other" sector, which includes agribusiness. Globally, the predominant sector for DFI concessional commitments is infrastructure, of which many are related to climate change projects. The DBSA has set up a blended financing platform called the Infrastructure Fund to combine public and private finance to co-finance programmes and mega infrastructure. This and similar platforms can facilitate and increase BRICS infrastructure financing collaborations

within BRICS countries in local currency and can serve as infrastructure finance syndication platforms, especially for utilisation in the broader African continent.

4.2 Driving Syndicated Project Finance

Thus far, the bulk of African syndicated loans in which the DBSA has participated are led by global or African commercial banks, with very few DFI leadership. According to the African Development Bank (2020b), loan syndication assisted it to leverage its balance sheet more efficiently for greater developmental impact and helped to increase its own lending activities. A secondary benefit from loan syndication is that it provides for additional risk mitigation which can support diversifying investor resources such as liquidity, promote more competitive pricing, and crowding in of private sector capital. This supports the need for BRICS DFIs to increase their prominence in this environment. It is important to collaborate on infrastructure projects financing in the African continent to deal with various inherent challenges such as inadequate capital markets and stressed borrowers, especially sovereigns, that have come under tremendous pressure under COVID-19. The current trend in sovereign debt-to-GDP ratios for African nations is on the rise. Over 50% of the seventy-three (73) Debt Service Suspension Initiative[1] candidates are African nations. This means a lot of support is required while the investment risk is also somewhat higher.

5. Conclusion

The post-lockdown recovery requires new strategies and instruments to fund the global economic growth agenda. This paper highlights the funding opportunities that is available to South Africa as a BRICS member, especially through collaborating with other BRICS members and the NDB. The NDB has already been instrumental in providing COVID-19 relief funding. However, evidence suggests that these opportunities have been limited, even to members, and must therefore be supplemented by other DFIs. The envisaged benefits for Africa that were to flow from South Africa being a member of BRICS have not flown in abundance.

Two significant free trade agreements were identified as possible levers for more cooperation between BRICS and Africa, and by extension pave the way for collaborative infrastructure support. It is suggested that the already existing International Development Finance Club, of which most of the BRICS countries are a member of, could serve as a springboard for development finance collaboration. There is not a dearth of projects in Africa that can be financed, as evidenced by the Programme for Infrastructure Development in Africa identifying 69 regional infrastructure projects in the sectors of Energy, Transport, Trans-Boundary Water, and Information and Communication Technology. The pipeline must be increased.

[1] G20 initiative to support poorest countries with debt suspension.

Lastly, we argued that blended finance platforms and syndicated project finance can be used as tools for cross institutional collaboration within BRICS. The Infrastructure Fund that is managed by the DBSA, is an example of such a financing platform, and can serve as a blueprint for DFI funding collaboration.

6. Recommendations

It is recommended that BRICS members should consider implementing the two collaborations proposed here, namely, supporting blended finance platforms and driving syndicated project loans to facilitate infrastructure development and complement the NDB in the African continent. Institutional building and human capacity building should be an integral part of these collaborations. The DBSA and relevant DFIs from BRICS member countries are well positioned to take the lead in this regard.

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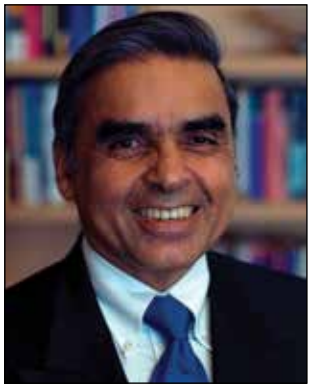
Contributors



Kishore Mahbubani
Distinguished Fellow at
Asian Research Institute

Kishore Mahbubani

Kishore Mahbubani, a Distinguished Fellow at Asian Research Institute, NUS, is a former Singapore diplomat, former President of the UNSC and founding Dean of the Lee Kuan Yew School of Public Policy, NUS and the author of eight books including Has the West Lost it? and Has China Won?.

Mahbubani has been listed several times in the list of top global thinkers by Foreign Policy and Prospect Magazines. The citation for the US Foreign Policy Association Medal he received in 2004 described him as: "a gifted diplomat, a student of history and philosophy, a provocative writer and an intuitive thinker." He was inducted into the American Academy of Arts and Sciences in 2019. More information can be found on www.mahbubani.net. (120 words – I hope it is fine)

Varigonda Kesava Chandra
Postdoctoral Research
Fellow

Varigonda Kesava Chandra

Varigonda Kesava Chandra is a Postdoctoral Research Fellow at Asian Research Institute (ARI), NUS. Within ARI, Kesava is also Administrative Director of the Asian Peace Programme (APP), headed by Kishore Mahbubani. His doctoral thesis has just been published as a monograph, Society, Resistance and Civil Nuclear Policy in India: Nuclearising the State (London, Routledge: 2020).

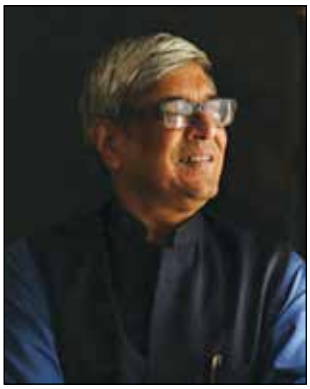
Keiko Honda
Adjunct Professor and Adjunct Senior Research Scholar of Columbia University's School of International and Public Affairs.

Keiko Honda

Keiko Honda is Adjunct Professor and Adjunct Senior Research Scholar of Columbia University's School of International and Public Affairs. Keiko also serves as a board member of Mitsubishi UFJ Financial Group and AGC, Adjunct Professor of Hitotsubashi University, a member of the United Nation's Investment Management Committee.

Keiko was the CEO of the Multilateral Investment Guarantee Agency (MIGA), the political risk insurance arm of the World Bank Group until 2019 and the Senior Partner at McKinsey & Company until 2013.

Keiko holds an MBA from the University of Pennsylvania's Wharton School, where she was selected as a Fulbright Scholar.



Bibek Debroy
Economist

Bibek Debroy

Bibek Debroy is an economist and was educated in Ramakrishna Mission School, Narendrapur; Presidency College, Kolkata; Delhi School of Economics and Trinity College, Cambridge. Presently, he is Chairman, Economic Advisory Council to the Prime Minister (EAC-PM) and President, Indian Statistical Institute (ISI). He has worked in Presidency College, Kolkata (1979-83), Gokhale Institute of Politics and Economics, Pune (1983-87); Indian Institute of Foreign Trade, Delhi (1987-93); as the Director of a Ministry of Finance/UNDP project on legal reforms (1993-98); Department of Economic Affairs (1994-95); National Council of Applied Economic Research (1995-96); Rajiv Gandhi Institute for Contemporary Studies (1997-2005); PHD Chamber of Commerce and Industry (2005-06); Centre for Policy Research (2007-15); and Member, NITI Aayog (2015-19). He has authored/edited several books, papers and popular articles and has also been a Consulting/Contributing Editor with several newspapers.

He was awarded the Shriram Sanlam Award for Financial Journalism (in 2013), Padma Shri, the fourth highest civilian award of India (in 2015), D.Litt. (Honoris Causa) by KIIT University (in 2015), D.Phil. (Honoris Causa) by Amity University (in 2016), D.Phil. (Honoris Causa) by Jagran Lakecity University (in 2017), D.Sc. (Honoris Causa) by University of Engineering and Management (in 2018), Lifetime Achievement Award by US-India Business Summit (in 2016), Skoch Challenger Golden Jubilee Award (in 2017), Lifetime Achievement Award by Prestige Institute of Management and Research (in 2018) and “Bharatiya Manavata Vikas Puraskar” by Power Brand (in 2018). He was conferred the title of “Vachaspati” by the Shri Lal Bahadur Shastri Rashtriya Sanskrit Vidyapeetha (in 2018).

Dr. Hindol Sengupta
Award-winning author

Hindol Sengupta

Dr. Hindol Sengupta is an award-winning author of nine books published around the world. He won the Wilbur Award in 2018 for Being Hindu: Understanding a Peaceful Path in a Violent World, the first book on Hinduism to win the prestigious prize given by The Religion Communicators Council of America. Earlier winners of the award include writers like Christopher Hitchens and Mitch Albom. He won the PSF Prize for public service in India in 2015. Past winners of the prize include the late Indian scientist and President A. P. J. Abdul Kalam. His book Recasting India: How Entrepreneurship is Revolutionizing the World's Largest Democracy was short-listed in 2015 for the Hayek Prize given by the Manhattan Institute in memory of the Nobel laureate economist F. A. Hayek. In 2020, his book The Man Who Saved India: Sardar Patel and his idea of India was awarded the Valley of Words prize for Best Non-Fiction Book of the Year.

Sengupta is a World Economic Forum Young Global leader. He has been Senior Fellow for India's best-known liberal think-tank, the Centre for Civil Society, and Senior Fellow at India's biggest think-tank, the Observer Research Foundation.

He was educated in South Asian history and politics as a Chevening Scholar at Worcester College, Oxford, and in business and finance as a Knight-Bagehot Fellow at Columbia University. He has a doctorate in international relations from the Geneva School of Diplomacy and International Relations.

Brahma Chellaney
Geostrategist

Brahma Chellaney

Brahma Chellaney is a geostrategist, scholar, author and commentator. He brings a rigorous and interdisciplinary lens to global strategic issues, including natural-resource geopolitics. He is presently Professor of Strategic Studies at the Center for Policy Research in New Delhi; a Richard von Weizsäcker Fellow of the Robert Bosch Academy in Berlin; and an affiliate with the International Centre for the Study of Radicalization at King's College London. He has served as a member of the Policy Advisory Group headed by the foreign minister of India. Before that, he was an adviser to India's National Security Council, serving as convener of the External Security Group of the National Security Advisory Board.

As a specialist on international strategic issues, he has held appointments at Harvard University, the Brookings Institution, the Paul H. Nitze School of Advanced International Studies at Johns Hopkins University, and the Australian National University. He has also been a fellow at the Nobel Institute in Oslo and at The Transatlantic Academy in Washington, DC. His numerous peer-reviewed papers have been published in major journals, including International Security, Orbis, Survival, Terrorism, Washington Quarterly, Nature, Security Studies, Asian Survey, Politique Etrangere, Disarmament, and Australian Journal of International Affairs. He received his Ph.D. in strategic studies.

Dr. Sajjid Z. Chinoy
Chief India Economist,
J.P. Morgan

Sajjid Chinoy

Dr. Sajjid Z. Chinoy is J.P. Morgan's Chief India Economist and a member of the Economic Advisory Council to the Prime Minister. He served as a member of the Advisory Council to India's 15th Finance Commission and has previously served on several RBI committees and task-forces (Offshore Rupee Markets, Secondary Market for Corporate Loans) including the RBI's "Expert Committee to Revise and Strengthen the Monetary Policy Framework" that proposed inflation targeting in 2014. He was a consultant to the FRBM Review Committee that proposed a new fiscal anchor in India in 2016. He has been ranked by Asset Magazine as one of the best individuals in fixed income research in India for every year since 2014. Sajjid has authored several publications on the Indian economy including co-editing a book on Indian economic reform with Dr. Anne O. Krueger, former First Deputy Managing Director of the IMF. He has previously worked at the International Monetary Fund (IMF) and McKinsey & Company, and holds a Ph.D. in Economics from Stanford University

Toshi Jain
Member -
India Economist Team,
J.P. Morgan

Toshi Jain

Toshi Jain is a member of J.P. Morgan's India Economics Team. He has been writing extensively on the economy over the last decade. His areas of interest and research include macroeconomics, monetary policy and open-economy issues. He holds a Masters in Economics from the University of York and is a Certified Chartered Accountant (U.K).

Anil Kishora
Vice President,
New Development Bank

Anil Kishora

Anil Kishora is Vice President of the New Development Bank, Shanghai, with oversight responsibility for the bank's risk management, strategy, policies, partnerships and ESG functions. Prior to joining the NDB, he worked for the State Bank of India (SBI) and held several senior roles, including the Deputy Managing Director & CRO, CGM of the bank's LHO in Chandigarh and CEO of SBI, Singapore. He has also been a Council Member of the ABS, Singapore, a board member of the IACPM, NY, and director on the boards of Macquarie SBI Infrastructure Management Pte. Ltd and Macquarie SBI Infrastructure Trustee Ltd.

Fernando José Ribeiro
Senior Researcher

Fernando José Ribeiro

Fernando José Ribeiro is a Senior Researcher at IPEA – Institute of Applied Economic Research, a governmental think tank linked to the Brazilian Ministry of Economy. He Coordinates the International Economy Studies Division at the International Studies Department of IPEA and has many published articles concerning foreign trade policy and trade agreements. He has coordinated the Macroecconomic Situation Analysis Group at IPEA between 2012 and 2016, worked as Chief Economist of FUNCEX – Centre of Foreign Trade Studies Foundation – between 1999 and 2011 and has been Assistant Professor at PUC-RJ. He has a Master Degree in Economics from PUC-RIO.

Mr Igor Ivanovich Shuvalov
Chairman of State
Development Corporation
VEB.RF.

Mr Igor Ivanovich Shuvalov

Mr Igor Ivanovich Shuvalov is a Russian politician and the Chairman of State Development Corporation VEB.RF. During May 2012 to May 2018, he served as the First Deputy Prime Minister in Dmitry Medvedev's Cabinet and Vladimir Putin's Second Cabinet. As First Deputy Prime Minister, he was the most senior member of the cabinet after the Prime Minister and was responsible for the federal budget and economic policies. Currently, Mr Shuvalov also serves as a member of the Council of the Eurasian Economic Commission.

Ms. Harsha Bangari
Deputy Managing Director
India Exim Bank

Ms. Harsha Bangari

Ms. Harsha Bangari is the Deputy Managing Director of the India Exim Bank. Prior to this, she was the Chief General Manager and Chief Financial Officer of India Exim Bank.

Having joined the India Exim Bank in 1995, Ms. Bangari is a seasoned finance professional with experience of more than 26 years in the financial sector and has thorough knowledge of the Bank's processes and business policies across functions, covering all products of the Bank including cross border project financing as well as Risk Management, Client Servicing and Liability side management, including Treasury Functions and Foreign Currency Resources. Her areas of interest include international debt capital markets and international project finance, where she has an operational experience of more than 14 years.

Ms. Bangari is a Bachelor of Commerce and a Chartered Accountant.

Mr Zeph Nhleko
Chief Economist
DBSA

Mr Zeph Nhleko

Currently, the DBSA Chief Economist. Before this served as a Deputy Director-General at the national Economic Development Department overseeing economic policy development and coordination as well as social dialogue; Deputy Director-General at a provincial Department of Economic Development Tourism and Environmental Affairs responsible for economic planning, sector development and business governance and as a senior economist interpreting macroeconomic policy outcomes at the S A Reserve Bank.

Dr Adél Bosch
Senior Economist
DBSA

Dr Adél Bosch

Holds a PhD in Economics at the University of Pretoria. Currently, Senior Economist at the DBSA, responsible for macroeconomic forecasting as well as economic updates and analysis. Before this, held the position of senior economist at the South African Reserve Bank, specialising in short-term economic indicator analysis, seasonal adjustment, business cycle analysis and dating of the South African business cycle. Also tasked with macro-economic reporting and providing inputs for policy making.

India Exim Bank

Centre One Building, 21st Floor, World Trade Centre Complex, Cuffe Parade, Mumbai - 400 005
Ph.: (91 22) 22172600 | Fax: (91 22) 22182572
E-mail: ccg@eximbankindia.in | Website: www.eximbankindia.in, www.eximmitra.in
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