

Resurgent India: A Global Scenario towards New Paradigm shift of Economic Practices in BRICS Nations

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Abstract: Resurgent India in the post pandemic Covid-19, towards new paradigm shift of the BRICS nations is the need of hour in 21st century on the globe. In this study we had discussed about research and development in new paradigm of economic growth of BRICS nations from 2011 to 2021. We also compared the index of innovation of the BRICS countries with their Complexity of Economics. In this article we had used both parameters to perform the research for the Index of Global Innovation and Economic Complexity of Atlas. We had taken the data in Indian context published by Reserve Bank of India in BRICS Economic Bulletin-2021.

According to Rubbo, P., Picinin, C.T. and Pilatti, L.A. (2021) 'Innovation and economic complexity in BRICS', Int. J. Knowledge Management Studies, defined that Russia and South Africa have suffered the most in terms of innovation. In terms of economic complexity, India and China saw the largest growth. India and China have moved up top spots in the EC rankings, and also in innovation ranking increased in top level. In the survey, South Africa had the most analogies, ranking in both categories. Brazil has better growth in EC ranking while decrease in Innovation ranking. Finally we found that the vision of Resurgent India with the innovation rankings and Economic Complexity are not comparable; there are differences in terms of economic growth in BRICS Nations rises and falls of research and development in Indian economy.

Keywords: Resurgent India; BRICS; Innovation; New paradigm shift ; Economic growth; Complexity economics; Covid-19

I. INTRODUCTION

BRICS Nations GDP growth had badly affected due to the global pandemic Covid-19 crisis, and entire world are facing another economic crisis on the planet *(RBI- BRICS Economic Bulletin-2021).

According to *Rubbo, P., Picinin, C.T. and Pilatti, L.A. (2021); 'Innovation and economic complexity in BRICS', Int. J. Knowledge Management Studies, defined regarding Economic complexity (EC), which tied to innovation, is another element that influences exports. The capabilities necessary to build a product have an impact on its complexity. (Felipe et al., 2012; and Hausmann et al., 2013) indicate that the more capabilities a product need, the more difficult it is to produce Simple rural products and Raw materials are the least complicated commodities, whereas sophisticated machinery and chemicals are the most complex (Atlas of Economic Complexity, 2016).

According to Damanpour, 1992; Amabile et al. 1996; ; and Gunday et al., 2011) define innovation as "a concept for a new product or process." As a result, the effective exploration of new ideas while achieving two criteria: novelty and utility, has become known as innovation (Amabile et al., 1996). The process of innovation is complex and necessitates the utilisation of specialised resources (Howells et al., 2003). R&D, technical equipment (Alegre and Pla-Barber , 2007), specialised human resources (Pla-Barber and Alegre, 2007; Huang and Chen , 2009), and marketing, management, and organisational competences (Mothe and Thi, 2010) are just a few of the factors that lead to new or improved products that outperform competitors.

Indian Banking industry is trying to perform on a good track to boost up the economic growth of India with the help of the COVID-19 vaccination drive and better medical faculties. Indian government has controlled the Indian Budget of the current scenario for employment generation and to meet the demand and supply of the large population of India. Indian Banking Industry is currently performing very low to recover the economic growth due to the NPA problems of the banks. Therefore to achieve V-shape economy model and adopt the positive growth rate against the global economic challenges in the COVID-19 crisis seems very tuff. Government should take initiatives to 100% COVID Vaccination drive and

good health infrastructure facilities which can strengthen the GDP growth of the Indian Economy to combat the global pandemic (Ravindra & Sahu, 2021).

High-income countries make export for more sophisticated products, which generate more income, and low-income countries sell simpler commodities, which generate less income (Felipe et al., 2012; Tacchella et al., 2013). Comparable capacity exist among countries selling similar goods (Felipe et al., 2012; Hausmann et al., 2013).

The EC index assesses a country's productivity by looking at both its export capability and the knowledge that goes into its products, recognising that knowledge underpins all of a company's or country's products (Hausmann et al., 2013). Every product necessitates a large number of non-marketable inputs, or skills. The capability of an object determines its ability to generate it (Hausmann and Hidalgo, 2010). For example, toothpaste was made utilising information and contains chemical substances for oral hygiene. As a result, mechanical engineering, metallurgy, design, and a range of other disciplines are combined into every product produced (Hausmann et al., 2013).

Export competitiveness determines the complexity of a product or a country's industrial systems (Tacchella et al., 2013). However, because not all of a country's products are exported, a product's failure to export suggests poor manufacturing or quality. As a result, there is a knowledge void in product development (Hausmann et al., 2013).

Many countries, especially developing countries like the BRICS, have established alliances in the hopes of attracting breakthrough technology that will aid their economies. Commercial representatives from these countries are entrusted with recommending measures to strengthen economic and commercial ties between the countries involved (Ministry of External Relations, 2016). According to Klafke et al. (2016), developing countries, such as those in the BRICS, understand how to manage their knowledge and use it as a strategy to improve outcomes and assure new commodities and processes as their economic and social indices stabilise.

Prima facie this analysis shows that there is a very logical and exponential relation between Public Expenditure and economic development. We find the positive result of shocks from total public expenditure and Gross domestic product and vice versa. This analysis is done only for economic growth of India through public expenditure by government schemes launched successfully in every district for becoming the developed country in the presence scenario. Total public expenditure (TPE) played very important role for human development to enhance the banking system, infrastructure development, defense, agriculture production, education, healthcare, MSME and research & development in entire country (Ravindra & Mishra, 2019).

The histories, socioeconomic realities, and cultures of the five BRICS countries are all extremely diverse (Klafke et al., 2016). China is a major worldwide producer, India is a major exporter of skilled technical labour, Brazil is South America's largest food exporter, and Russia is the world's largest energy exporter (Ardichvili et al., 2012; Yao and Liu, 2011). Driffield and Higón (2011) emphasise that innovation, not the other way around, is what leads to exports. According to Higón and Driffield (2011), export-friendly innovation can come in the form of both products and processes. Process innovation, according to Di Maria and Ganau (2013), has a greater impact on exports. Cassiman et al. (2010), on the other hand, claim that product innovation is what drives enterprises for exports. Businesses that are innovative improve production and choose which markets for export by (Cassiman et al., 2010). Even if new items are viable for export, this does not ensure increased exports (Ganotakis and Love, 2011). As a result, a company's ability to generate innovative products is critical for exports, allowing it to obtain a competitive advantage in the global market.

The systematic successful distributions of public funds to both urban and rural areas make variable impact on people life. Several schemes launched by successive governments have kindled a strong sense of sustainable developments. However, the low level of taxation is also a major problem due to unawareness about implementation of GST rules especially in MSME sectors in India. There are very huge problems for the low tax ratio have to be found in agriculture incomes due to multiple objectives loaded into tax policy, tax abuse with multinationals and poor tax administration in India. The extant research has shown that there are gaps and unfinished agenda that need further action and refinement (Ravindra & Mishra, 2019).

In its May Economic Outlook, the OECD revised up China's, Russia's, and South Africa's growth forecasts for 2021 while keeping Brazil's growth prediction unchanged. However, due to the constraints implemented to prevent the second wave of covid-19, India's growth prediction has been severely decreased to 9.9% from its previous forecast of 12.6 percent. The World Bank has raised upwardly the growth forecasts of all the BRICS countries within the June 2021 Global Economic Prospects from its earlier projection in January 2021. (Table 1).

Table 1: Gross Domestic Product Growth Estimate (percent)

	OECD		World Bank	
	Mar 2021	May 2021	Jan 2021	Jun 2021
Brazil	3.7	3.7	3.0	4.5
Russia	2.7	3.5	2.6	3.2

India	12.6	9.9	5.4	8.3
China	7.8	8.5	7.9	8.5
South Africa	3.0	3.8	3.3	3.5

**Sources: OECD and World Bank. ;(RBI- BRICS Economic Bulletin-2021)

**[<https://brics2021.gov.in/brics/public/uploads/docpdf/getdocu-72.pdf>]

In order to gauge the recovery's resilience, keep an eye on growth predictions for 2021 and 2022 from organizations much like IMF, World Bank, and OECD, as these forecasts include new possibilities. The IMF forecasted that all Nations will grow faster in the year 2021 than it had forecasted within the October 2020 and January 2021 predictions in its World Economic Outlook for April 2021. (Table 2).

This demonstrates that all of the BRICS nations are improving. However, due to the second wave of covid-19 in 2021, the IMF's July 2021 WEO Update reduced India's growth projection by 3% points from its April session forecast, while China's growth rate was somewhat lower. In the July 2021 WEO Update, the growth rates of Brazil, Russia, and South Africa were revised higher than the IMF's April 2021 forecast.

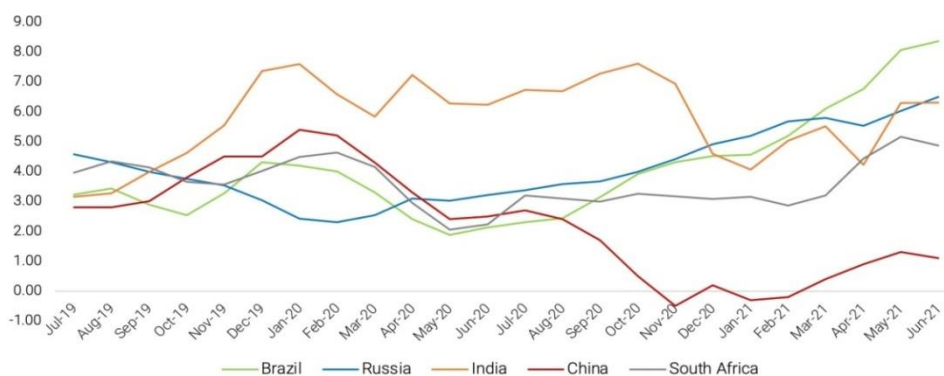
Table 2: Gross Domestic Product Growth Estimate (percent)

Country /Years	Oct-2020 WEO		Jan-2021 WEO		Apr-2021 WEO		July 2021 WEO	
	2021	2022	2021	2022	2021	2022	2021	2022
Brazil	2.8	2.3	3.6	2.6	3.7	2.6	5.3	1.9
Russia	2.8	2.3	3.0	3.9	3.8	3.8	4.4	3.1
India	8.8	8.0	11.5	6.8	12.5	6.9	9.5	8.5
China	8.2	5.8	8.1	5.6	8.4	5.6	8.1	5.7
South Africa	3.0	1.5	2.8	1.4	3.1	2.0	4.0	2.2

Source: International Monetary Fund, World Economic Outlook Database. ;(RBI- BRICS Economic Bulletin-2021)

Although it was a source of concern for several of them, headline inflation in the BRICS has been mostly managed since the pandemic's emergence (Table 3). Because of supply disruption and food-related inflation, India's inflation rate soared from June to November 2020, exceeding 6%, which is the limit set of the inflation objective. Inflation stayed under the 6% limits from December 2020 to April 2021, but it crossed it again in May-June 2021, before returning to 5.59 percent in July. In reaction to the increase in global commodity prices, India's wholesale price inflation had increased over the last few months. While Russia's inflation rate remained relatively low for most of 2020, it began to rise near the end of the year because it continued to grow in 2021, exceeding its preset limit (Figure 1).

(Figure- 1): Headline Inflation Trends of the BRICS countries



Source: CEIC and CRA Research Group.;(RBI- BRICS Economic Bulletin-2021)

Table 3: Average Inflation Rates in BRICS

Countries	July2019-March 2020 (Average)	April 2020-June 2020(Average)	July 2020-June 2021 (Average)
Brazil	3.5	2.1	5.0
Russia	3.4	3.1	4.9
India	5.3	6.6	5.9
China	4.0	2.7	0.9
South Africa	4.1	2.4	3.5

Source: CEIC and CRA Research Group. ;(RBI- BRICS Economic Bulletin-2021)

II. PROPOSED METHODOLOGY

The Atlas of Economic Complexity and the Global Innovation Index were used to create this study's corpus. The Atlas of Economic Complexity database was used since it is an interactive platform that allows users to view economic data from over 200 countries at the same time. At the Atlas of Economic Complexity, you may get a free online version of this tool. The Global Innovation Index reports display economic data from 128 countries related to innovation. The researchers used data from the Central Intelligence Agency (CIA) website and **(RBI- BRICS Economic Bulletin-2021)**, which releases a variety of intelligence on a variety of countries each year, to compare demographics with innovation rankings (Central Intelligence Agency, 2016 to 2020).

III. OBJECTIVE OF THE STUDY

It is the goal of the study to include all of the BRICS countries. The study lasted from 2011 to 2021, the most recent year for which the EC indices data had used. The following variables were gathered for the countries studied:

- **Position in innovation ranking in post pandemic crisis**
- **Position in the EC ranking in post pandemic era**
- **EC global growth projection through 2024.**

The ECI analyses the country's range, or its capacity to supply a whole lot of items, in addition to the ubiquity of those products, or the wide variety of countries able to production the equal products. The ECI assesses range and ubiquity entirely on the basis of this information, allowing one to catch up to the other. This index is available on the Atlas of Economic Complexity database website under the 'Rankings' category, with year-by-year choices. Every year, a list of countries is published along with their scores (Atlas of Economic Complexity, 2016 to 2020).

Economic complexity, product closeness, and GDP are all factors in the European Commission's global growth forecast for 2024 of (GDP). It is possible to forecast any country's economic situation over the next five to ten years based on these findings. The projection may be found on the Atlas of Economic Complexity database website, in the 'Country Growth Projections' option, under the tab 'Rankings' (Atlas of Economic Complexity, 2016 and 2020) and the data from (RBI- BRICS Economic Bulletin-2021). The variables in this study were derived from the Atlas of Economic Complexity database and the Global Innovation Index report, rather than being calculated. For visualization and treatment, the collected data was entered into Excel data sheets. In order to assess the variables in the study, descriptive statistics and panel data analysis were used.

IV. ANALYSIS OF DATA & RESULTS

All countries have been hit equally by the COVID-19 crisis. The Nations were not immune to the virus and are now struggling to recover. Its frequency and duration of the pandemic, on the other hand, differ significantly among the BRICS countries. While China was able to keep the disease from spreading too far, other Nations have seen numerous waves of infection.

By exacerbating unemployment, poverty, gender inequity, and migration risks, the COVID-19 issue has caused considerable economic losses and weakened the social fabric of the Nations. The Global Innovation Index was used to calculate each BRICS country's position in the innovation ranking.

Table 4: Latest Innovation ranking and population in year 2020

BRICS Country	Population 2020	Innovation ranking 2020
Brazil	215,097,329	62
Russia	146,039,751	47

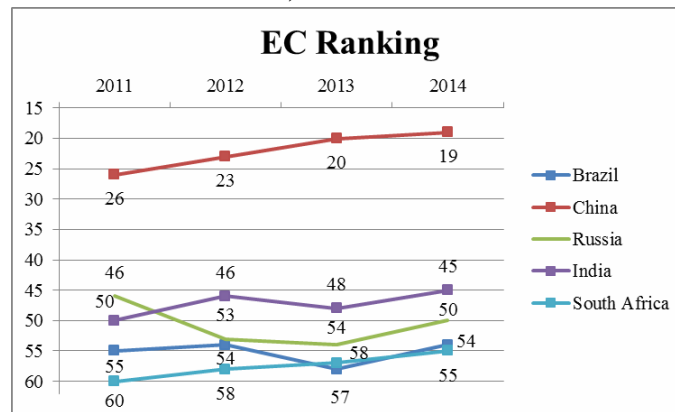
India	1,402,828,373	48
China	1,448,675,310	14
South Africa	60,756,135	60

Source: Authors, using data from the Central Intelligence Agency and the Global Innovation Index (2020); [Rubbo, P., Picinin, C.T. and Pilatti, L.A. (2021)]

If a country's rating drops, it becomes more competitive (closer to first). China performed the best, advancing to 14th place in 2020 and becoming the BRICS' top-ranking country. As we can see in (Table 4), the population of each country in 2020 has been calculated. In the year 2020,

China will have the largest population and do the best in terms of innovation. On the other side, India has the world's second-largest population and the lowest rate of innovation among the countries after Brazil and South Africa studied. The ECI is used to evaluate the European Union, and the scores reflect how diverse and complicated each country's exports are (Atlas of Economic Complexity, 2016). The Atlas of Economic Complexity utilised this criteria to rank 124 countries, as well as to determine each BRICS country's position in the EC. The following graph depicts the BRICS countries' standings. (Figure 2) depicts this.

Figure 2; EC ranking (see online version for colours)



Source: Authors, using data from the The Atlas of Economic Complexity (2016); [Rubbo, P., Picinin, C.T. and Pilatti, L.A. (2021)] <https://www.inderscienceonline.com/doi/pdf/10.1504/IJKMS.2021.112222>

V. DISCUSSION & SUGGESTIONS

We can confirm that the Economic Complexity and the innovative rankings are not comparable after studying the facts and conversations. They illustrate irregularities in the BRICS countries' ascent and fall. According to our data, both India and China have slipped top places in the innovation rankings. In contrast, India is anticipated to grow at the quickest pace in the Economic Complexity ranking until 2024. Russia has fallen the most in the EC rankings and has the EC's lowest growth estimate through 2024. Therefore, in terms of innovations in new paradigm shift of economic growth, it was the finest that China has risen twenty seventh places in the EC rankings, and its innovation ranking also has in exponentially growth. South Africa growth increase thirty sixth places in percentage growth in EC ranking and decrease in one point in innovation, The main data collected by this investigation is shown in the following (Table 5).

Table -5: Study of Principal data

BRICS Nations	Innovation Ranking		EC ranking % growth projection		
	2011	2020	2011	2020	through 2024
Brazil	47	62	55	49	49th
Russia	56	47	46	64	98th
India	62	48	50	42	1st

China	29	14	26	18	27th
South Africa	59	60	60	63	36th

Source: Authors using data from the Global Innovation Index and The Atlas of Economic Complexity (2020); [Rubbo, P., Picinin, C.T. and Pilatti, L.A. (2021)]

According to the ECI, India has scored fastest growing economy in the global world. China ranked the 27th score in percentage of ECI index. It was ranked 26th in 2011 but climbed seven places to 20th in 2020 ranking to advances in economic complexity over time. China is only behind India in terms of growth projections through 2024. China has fluctuated in terms of innovation over the years, but between 2011 and 2020, its GDP growth is increasing. In the time period studied, India's complexity index improved year after year, jumping five points to finish 2020 in 42nd place, second only to China among the BRICS countries. Furthermore, until 2024, India's GDP is predicted to develop the fastest in contrast to the ECI ranking, India has consistently performed in a lucid manner and also in the innovation ranking, reached 62 places to 48th place in 2020.

South Africa's complexity index decreasing year after year, decreased three places in the rankings over the research period to finish in 63rd place in 2020. Despite having the lowest position among the BRICS countries, South Africa's growth forecast is better than Russia's at 64th places in EC Ranking in year 2020. The country decreased in the innovation rankings, placing 60th ranking only and Russia reached in 47th places in innovation ranking among the BRICS countries. In 2020, Brazil ranked 62nd places behind China, India, South Africa and Russia in terms of innovation.

Finally, we have find that the EC ranking and innovations are critical to compare in corporate sectors companies of BRICS, by extension, a country's GDP growth and research & development. The BRICS Nations are linked to the level of complexity and technical breakthroughs utilized by organizations to optimize processes and develop new products towards international trade, regardless of whether they are more complex or less complex.

VI. CONCLUSION

Finally the goal of this article was to study about Resurgent India in new paradigm shift of BRICS countries' in innovation and economic growth to their respective Economic Complexity between 2011 and 2021. The goal was met by looking into each Nations of BRICS, EC and innovation ranking, as well as their projected economic growth through 2024. After reviewing the facts and talks, we can affirm that the EC and inventive rankings are not comparable. They show inconsistencies in the BRICS countries' rise and collapse. Both India and China have increased top places in the innovation rankings and EC ranking as well, according to our statistics. India, the other hand, is expected to develop at the fastest rate in the Economic Complexity ranking until 2024. Russia has declined the most in the EC rankings, and the EC's growth forecast for 2024 is the lowest. As a result, India it is the best in terms of new paradigm shifts in economic growth and innovations. China has ascended to the twenty-seventh position in the percentage of EC rankings, and its innovation has exploded. South Africa's growth has improved by thirty-six places in the percentage growth of EC ranking but fell by one point in the innovation ranking.

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