

IMPORTANCE OF THE BRICS FOR FOREIGN TRADE OF INDIA: AN EMPIRICAL ANALYSIS USING RCA INDEX

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INTRODUCTION:

The acronym BRIC was first introduced by Jim O. Neill in 2001 to describe a diplomatic political entity. However, in 2010, the group BRIC became BRICS with inclusion of the new country South Africa. These five major economies are projected to represent one-third of the global economy, contributing approximately 33 percentage to global GDP growth in 2015 and nearly 49 percentage in 2022. The BRICS nations possess substantial economic potential, supported by their vast productive labour force, which accounts for around 45 percentage of the global workforce. At present, BRICS Collaborating across various domains such as environmental issues, economic development, trade, and political coordination. BRICS countries convene annually to align their positions on critical matters like international trade, climate change, and global governance. The first BRICS summit took place in 2011 and the most recent one held in 22th Oct, 2024 in Kazan, Russia. Initially BRICS identified as nations with significant economic growth potential in the early 21st century and their alliance compared with European Union. But there was little expectation for close collaboration among them. However, scholars like Chittedi (2019), Gusarova (2019), Lowe (2016), and Radulescu (2014) have expressed interest in the potential of BRICS alliances. If these nations continue to strengthen their coordination, the BRICS alliance could become a formidable alternative to existing global alliances. Together, the BRICS nations account for over 30 percentage of the world's landmass, 40 percentage of global population, 27 percentage of global gross domestic product(GDP), and approximately 40 percentage of global foreign currency reserves in 2022-23.

Foreign trade dynamics within BRICS countries reveal that China plays an important role. All BRICS nations primarily import goods from China, making it their top supplier. Conversely, China's major import partner within the BRICS nations is Russia. Notably, India and China predominantly export to the United States of America (USA). Consequently, China holds the position of the leading exporter for BRICS, and importer for Brazil, Russia, and South Africa, placing it in a dominant trade position among BRICS countries in 2022.

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Singh (2016) highlighted China's dominance in intraBRICS trade, while Trivedi and Khatun (2023) ranked BRICS nations based on a composite index, and identified China as the most developed member among BRICS nations, then followed by the Brazil, Russia, India, and South Africa. Furthermore, export share of BRICS countries in India's merchandise trade rose from 5.2 percent to 6.3 percent between 2001 and 2016. Maryam et al. (2018) noted that bilateral trade flows within BRICS are significantly high. In this line of study, Gusarova (2019) revealed that China is the most export-import country among BRICS countries and their cooperation has a positive effect on their economic growth & development. This study highlighted that the expansion of intra-BRICS trade and investment cooperation has significant positive impact on their economic growth & development of BRICS countries. Similarly, Chitted (2019) reported that export-import activities positively influence the economic growth of BRICS nations while also enhancing employment opportunities in their trade markets. Rani and Kaur (2018) demonstrated that trade openness serves as a key driver of economic growth for BRICS member states. According to Radulescu (2014), although BRICS countries currently lack the financial capacity to rival developed economies, their collective cooperation poses a potential challenge to global economic dominance and alliances led by developed nations. The BRICS Information Portal (2018) mentioned that BRICS countries are poised to become economically more powerful than the European Union. A notable milestone in their integration is the establishment of the New Development Bank (NDB) in 2015, aimed at financing inclusive, resilient, and sustainable development initiatives. However, Peter Lowe (2016) remarked that, while the long-term significance of BRICS remains uncertain, these nations are expected to emerge as much stronger players on the global geopolitical stage. Thus, BRICS integration holds substantial potential to drive robust economic outcomes not only for India but also for other member countries.

REVIEW OF LITERATURE

The international trade of BRICS countries has gained significance since 2011. There are few studies on foreign trade advantage of BRICS bloc. However, following studies reveals the foreign trade advantages of BRICS countries. Kaur (2018), Maryam and Mittal (2019), and Lohani (2020) have focused on India's trade relations within the BRICS bloc. Kaur (2018) employed factor analysis to evaluate the trade competitiveness of BRICS nations and reported that India holds a competitive edge in exporting chemical and manufactured products to other BRICS nations. Maryam and Mittal (2019) conducted an empirical study on foreign trade advantage which revealed that India has relative advantage in producing agricultural products, allied products, and then followed by the manufacturing products and handmade product sectors. Lohani (2020) validated the gravity model for foreign trade of India with the other BRICS nations, and emphasizing that China and Russia hold greater

trade advantages compared to Brazil, India, and South Africa. Despite these disparities, India's export share to the world and within the BRICS bloc has been steadily increasing since 2015. Raghuramapatruni (2015) observed that the foreign trade of BRICS countries is more complementary than competitive across various sectors, offering significant potential for strengthening multilateral trade regimes within the BRICS bloc. This complementarity has the potential to accelerate foreign trade of South-South countries. Similarly, Singh (2016) conducted a comparative study and emphasized that robust cooperation among BRICS countries could effectively harness their comparative advantages, enabling them to derive substantial welfare benefits from trade.

This literature review on foreign trade of BRICS countries reveals that only a limited number of studies highlight the advantage of foreign trade of India and BRICS nations. Moreover, existing research largely fails to identify key Indian products with strong potential for trade within the BRICS bloc. Hence, this study estimated the comparative advantage index values of India's HS two-digit products and compare the India's trades with the world trade and other BRICS countries.

METHODOLOGY

The revealed comparative advantage (RCA) index methodology is grounded in the Ricardian method of foreign trade which is known as comparative advantage. It is a core principle of the theory of international trade. This theory posits that countries export products in which they hold a comparative advantage and import those products in which they are comparatively disadvantaged. This RCA index is developed by Bela Balassa, it serves as a trade indicator that measures the relative (comparative) advantage or disadvantage of a product for a specific country. In this study, Balassa's (1965) RCA index is used to calculate the relative export advantage of two-digit commodities for BRICS countries. The RCA index is actually ratio of the two ratios. It can be defined as the ratio of a country's share of exports of a particular commodity to the partner country to its total trade and the share of global exports of the same commodity in global trade. Mathematically, it is expressed as:

$$RCA_{ij} = \frac{X_{IND\ j} / X_{IND}}{X_{WLD\ j} / X_{WLD}}$$

Where, $X_{IND\ j}$ represent the export value of product-j from India to BRICS countries. X_{IND} represent the total export value of India. $X_{WLD\ j}$ represent the total export value of product j from the world to BRICS countries and X_{WLD} represent the total export value of all product in the world. The value of RCA index ranges from zero to infinity. When the RCA value is one for product j then it indicates that the country has a relative advantage in that

product. On the other hand, when an RCA value below one indicates a comparative disadvantage. This study calculates the RCA index to identify India's HS two-digit products with comparative advantages when India trades with other BRICS countries, as shown in Table 2.

While the RCA index provides valuable insights, but it has an inherent limitation due to its asymmetric range. Values greater than one indicate a relative advantage, but values between zero and one represent a disadvantage, creating an imbalance in interpretation. To address this problem, Grupp (1994) and Dalum et al. (1998) gave the "Symmetric Revealed Comparative Advantage index (RSCA index)", which resolves the asymmetry of the Balassa RCA index. Nevertheless, the RCA index remains widely used in empirical studies, yielding significant results (Deb, 2017; Maryam et al., 2018; Kaur, 2018; Islam & Nath, 2023). Using RCA index Maryam et al. (2018) found that Brazil and Russia have relative (comparative) advantages in those products where natural resources are used as main inputs (These types products are called natural based products). While another two BRICS countries China and India are excellent in the production of manufacturing products. Then, using RCA index Kaur (2018), reported that India is highly competitive in exporting chemical and manufactured goods to BRICS countries.

However, this study extends their work by analyzing the current trade scenario using 2022 World Bank data. Further, based on the RCA methodology, it is identified that what are the India's HS two-digit export products are comparatively advantage or disadvantage. The calculated RCA index value is presented in Table 1. Table 1 highlight the all HS two-digit products where India holds a comparative advantage and disadvantage in trade with BRICS countries and global trade.

RESULT

Table 1 outlines the comparative advantage of HS two-digit products exported by India to other BRICS nations and to rest of the world. The average RCA index of the India's HS two-digit products underscores its trade strengths across various BRICS countries and rest of the world. In 2022, the RCA index values of India's exported products to individual BRICS nations were recorded as 0.62 with Brazil, 1.07 with Russia, 1.76 with China, and 0.8 with South Africa. For the entire BRICS bloc, India's RCA index stood at 1.1, and 1.1 for the rest of the world. These figures suggest that India enjoys a particularly strong comparative advantage in trade with China and Russia among BRICS members. Further, the RCA index value of the Indian trade with the BRICS bloc and the rest of the world are identical. However, India enjoys comparative advantage in eight products with BRICS countries whereas India enjoys comparative advantage in seven products with rest of the world. Hence, India gets more comparative advantage with BRICS than world trade. Notably, India enjoys a

comparative advantage in certain products when India trades with BRICS countries, but suffer from disadvantage when trades with the rest of the world, like mineral, footwear, food etc.

However, Indian comparative advantage is heterogenous among BRICS countries. For instance, when India trade with Brazil, India gains a comparative advantage in fuels (3.25), chemicals (1.29), and textiles (1.10). With Russia, India enjoys comparative advantages in animal products (3.77), vegetables (2.22), food products (1.48), chemicals (2.12), stone and glass (2.31), and metals (1.18). Similarly, India's trade with China reveals comparative advantages in animal products (3.14), vegetables (2.32), food products (1.19), fuels (2.12), chemicals (1.98), and metals (1.66). These findings indicate that India's comparative advantage in traded products with China and Russia is almost identical. In contrast, India's comparative advantage with South Africa is limited to few specific products, such as fuels (3.11) and transport equipment (1.5). For global trade, India's gains comparative advantage in animal products (1.3), vegetables (1.8), fuels (1.6), chemicals (1.3), hides and skins (1.3), textiles (3), stone and glass (2.1), and metals (1.3). Interestingly, India does not hold a comparative advantage in food products for global trade, but it does for Russia and China. Similarly, while India lacks a comparative advantage in minerals and footwear globally, but it enjoys advantage in trade with China.

These findings highlight the strategic importance of BRICS for India's foreign trade. By focusing on specific products that yield a comparative advantage specifically within the BRICS bloc but not in global markets. Hence, India can achieve greater gain from trade and strengthen its economic ties with BRICS countries.

Table 1: RCA of Indian HS two-digit products in 2022

Products	BRA	RUS	CHN	SA	BRICS	WLD
Animals	0.00	3.77	3.14	0.2	1.8	1.3
Veg.	0.28	2.22	2.32	0.6	1.4	1.8
Food	0.18	1.48	1.19	0.3	0.8	0.9
Mineral	0.33	0.13	1.42	2.3	1.0	0.6
Fuels	3.25	0.29	2.12	3.2	2.2	1.6
Chem.	1.29	2.12	1.98	1.1	1.6	1.3

Products	BRA	RUS	CHN	SA	BRI CS	WLD
Plastics	0.50	0.67	0.58	0.5	0.5	0.7
Hdsk	0.14	0.72	0.97	0.3	0.5	1.3
Wood	0.17	0.24	0.17	0.3	0.2	0.5
Tex.	1.10	0.50	1.94	0.7	1.1	3
Ftwr.	0.20	0.35	9.89	0.1	2.6	0.6
Stgl.	0.63	2.31	0.15	0.6	0.9	2.1
Metals	0.64	1.18	1.66	0.5	1.0	1.3
Elec.	0.30	0.52	0.30	0.4	0.4	0.5
Trans.	0.58	0.22	0.24	1.5	0.6	0.7
Miscel.	0.25	0.42	0.30	0.1	0.3	0.3
Average RCA	0.62	1.07	1.76	0.8	1.1	1.1

Source: Authors' own calculation from World Bank Data.

Dated: 1st Jan, 2024. *Meaning of the short forms used in

Table 1 is given in Appendix A.

DISCUSSION

The findings of this study reveal important insights into comparative advantage of Indian foreign trade, particularly with the BRICS nations. The calculated RCA values of India in 2022 underscore its diverse trade relationships, highlighting its distinct comparative advantage with key partners such as China and Russia. Notably, India's average RCA index for trade with the entire BRICS bloc (1.1) is same with global trade (1.1). However, India's comparative advantage appears strongest with China and Russia, as evidenced by the significant RCA index values across multiple product categories. For instance, India exhibits notable trade strengths in animal products, vegetables, fuels, and chemicals with these two nations. Interestingly, similarities of RCA index values of Indian exported products to China and Russia suggest a degree of consistency in the competitive positioning of Indian exports within these markets. Further, one consistent finding in this study is that India is comparative advantage in chemical products, across all BRICS member countries as well as in rest of the world. However, India's comparative advantage with Brazil and South Africa is more concentrated in fewer product categories, such as fuels, chemicals, and transport equipment only. Thus, this study highlights a recurring theme of the India's comparative advantage in chemical products, not only with BRICS nations but also in global markets. This aligns with prior research by Kaur (2018), which identified India's

competitiveness in exporting chemicals and other manufactured goods. The consistent performance of chemical exports underscores their strategic role in India's trade portfolio and their contribution to strengthening India's economic engagement within the BRICS framework. Additionally, the findings reveal discrepancies in India's comparative advantage when trading with BRICS nations versus the rest of the world. For example, India enjoys a relative advantage in food products with China and Russia but lacks such an advantage in global trade. Similarly, while India is competitive in minerals and footwear with China, it does not hold this advantage on a global scale. These variations underscore the importance of market-specific strategies that capitalize on India's relative strengths within the BRICS bloc.

Strategically, the results emphasize the need for India to focus on specific products that offer strong comparative advantages within the BRICS framework. By prioritizing sectors such as chemicals, fuels, and agricultural products in its trade policies, India can enhance its economic ties with BRICS nations and achieve greater trade gains. Furthermore, targeted efforts to strengthen competitiveness in underperforming sectors could help India diversify and expand its export portfolio, both within the BRICS bloc and globally. Thus, the findings of this study highlight the strategic importance of BRICS countries in shaping India's foreign trade dynamics. By leveraging its comparative advantages in select product categories, India can not only maximize trade benefits but also reinforce its economic position within this influential bloc.

CONCLUSION

This study highlights the varying patterns of relative advantage of foreign trade of India with BRICS nations and rest of the world. The findings reveal that India enjoys a significant comparative advantage in specific products when India trades with China and Russia, particularly in agricultural and manufacturing goods such as animal products, vegetables, and chemicals. These sectors are less pronounced in its trade with other BRICS members, such as Brazil and South Africa. Furthermore, India holds a competitive advantage in certain products, like fuels and textiles, only in its trade with select BRICS nations.

This study also points out that the comparative advantage of Indian chemical products is universally recognized, both within the BRICS bloc and in world trade. This result aligns with the previous study of Kaur (2018). However, Kaur (2018) identified China as the leading BRICS country in manufacturing exports, with India ranking second. India demonstrated significant competitiveness in export of chemical product. This study's findings corroborate Kaur's observations, showing that India's RCA index for chemical products (HS codes 28-24) is the highest not only among BRICS nations but also in its global trade.

These findings of the study underscore the strategic importance of BRICS for India's

trade, as the bloc offers greater opportunities for Indian products that may not be as competitive in the global market. By leveraging its comparative advantage within BRICS, India can enhance its trade performance and gain more from its trade relationships with these emerging economies. The study suggests that India can optimize its trade strategy by focusing on those products where it enjoys a comparative advantage in specific regional markets, particularly the BRICS bloc. However, this study only considers the HS 2-digit product which is a broad product category. If more details product categories were considered such as HS 4-digit products and HS 6-digit products then this study could identify revealed comparative advantage of Indian product from grass rote level. Hence, this limitation will be covered in future studies.

APPENDIX. A

Abbreviation Table

Veg. =Vegetables	Stgl. = Stone Glass
Chem. =Chemicals	Elec. = Electronics
Hdsk =Hide Skin	Trans.=Transportations
Tex. =Textiles	Miscel. =Miscellaneous
Ftwr. =Footwear	BEC = Broad Economic Categorization

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