

THE NOT-SO-IMPOSSIBLE TRINITY: ESTIMATING INDIA, RUSSIA AND CHINA'S LONG-RUN TRADE RELATIONS

Sarthak Dasgupta

Assistant Professor, Eastern Institute for Integrated Learning in Management - Kolkata

Aratrika Roy Chowdhury

Assistant Professor, Eastern Institute for Integrated Learning in Management - Kolkata

Somrita Chakraborty

Assistant Professor, Eastern Institute for Integrated Learning in Management - Kolkata

Correspondence: sarthakd16@iimcal.ac.in

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ABSTRACT

India, Russia, and China are major powerhouses in the global economy. This trio might look like an impossible trinity, but if it can be made possible, then the global economy might see a surge in its economic growth trajectory. There is a candidate set of factors that might make this impossible trinity possible, but the most impactful endogenous factor would be the *international trade relations* between these three countries. An improvement in trade relations among these countries could be a consequence of the tariff war initiated by the USA. With this backdrop, a pertinent question arises: What happens to certain indicators of trade in the long run for India, Russia and China? While China is a hostile neighbour to India, experts have shown optimism in improved bilateral relations, mainly through trade. Apart from the common agenda of the US, India and China are part of the BRICS bloc, which provides an official platform for better bilateral ties between them. Since its Independence, India has been more inclined towards Russia in terms of economic planning and foreign policy. Russia has been an unwavering friend of Pakistan, starting from its heroics during the 1971 war to date, where the two countries have successfully conducted international trade in their respective currencies without depending on US dollars. In this study, we estimate the *long-run equilibrium relationship of the trade-to-GDP ratio* of India, Russia, and China. The econometric specifications employed in this study are an auto-regressive distributed lag (ARDL) model in a Time Series model framework. The ARDL Error Correction Method (ECM) would be used as the analytical tool to confirm (or not confirm) the long-run relationship of the Trade to GDP ratio of the three countries. The main variables of interest are collected from the IMF and World Bank. Tracing the long-run relationship of Trade to GDP of these three powerhouse economies would have ample policy implications in the global forum.

1. Introduction

This paper focuses on the recent increase in camaraderie between India, Russia, and China in an effort to counter the hegemony of the United States. In this context, the Russia, India, China (RIC) axis of the BRICS countries assumes significant importance in challenging US dominance in global geopolitics. Erstwhile allies during the Second World War, the US and Russia developed unfavourable relations soon after the conclusion of the war, and a new world order was established. Since then, the eastern and western superpowers have shared hostile relations, with the US imposing an array of sanctions on Russia in a staggered manner throughout the past. Russia has responded strategically, trying to garner support from other anti-US partners, such as China and Brazil. India's position in such a global scenario is precarious, to say the least. While India was officially part of the Non-Aligned Bloc, in reality, India has always considered Russia a bigger ally than the US. This was evident from the fact that after independence, India followed the Russian model of development through planning and relied on the famous "trickle down" effect to stimulate economic growth. Russia's unwavering support for India became evident during the Indo-Pak 1971 war when Russia sent its own naval fleet to counter the US fleet, which had come to the aid of Pakistan against India. However, historically, India has not been able to shun the US completely despite sharing dubious ties with it. The US leads the global bloc against world terrorism, with Israel being an important entity. Terrorism is a recent menace that has plagued nearly every significant country on the world map, especially India and the US, as evident from the 9/11 attacks in the US and the recent Pahalgam massacre in India. Thus, India is dependent on the US and Israel to combat terrorism in terms of technology, strategy, and arms and ammunition. Hence, India must maintain a cautious balance in this tightrope walk.

Sino-Indian bilateral ties have been far from amicable. The two nations witnessed a full-fledged war in 1962, and the conflicts of 1967 and 2020 further worsened their ties. While China backs Pakistan in its stance against India, with the CPEC (China-Pakistan Economic Corridor (CPEC) being the foundation of the Sino-Pak alliance, India counters it by being a significant member of the QUAD alliance against China and openly recognising free Tibet, much to the chagrin of China. However, there is hope for improved relations between the two Asian giants, mainly through bilateral trade. India and China are involved in a significant volume of

bilateral trade, with gains from trade accruing to both sides. This, coupled with the steep tariffs imposed by the US on both nations, has provided fertile ground for them to ally with Russia to counter a common adversary. The US role in the recently concluded Indo-Pak conflict, followed by hosting the chief of the army staff of Pakistan for lunch, has not been seen favourably by India. This is the primary reason why experts believe that the Indian external affairs minister visited his Russian counterpart soon after the conclusion of the conflict with Pakistan to reach out to Beijing via Moscow. The RIC alliance in this context is thus named the "not so impossible trinity".

To empirically establish our claims, we estimate an Autoregressive Distributed Lag (ARDL) model to examine the long-run relationships between the economic variables of the three countries. We test the hypothesis that the building block of the RIC alliance is international trade between nations. The ARDL model examines long-run relationships between variables and is a superior technique to other cointegration methods. Section 2 discusses literary evidence. Section 3 presents the variables and empirical specifications. Section 4 presents the results, and Section 5 conducts the robustness check. Robustness checks are performed by augmenting the ARDL model with an error correction mechanism. We obtain results that are expected a priori to show a significant long-run relationship between the trade-to-GDP ratio between India and China, and Russia and China. However, we failed to establish a significant relationship between India and Russia. Possible explanations for our results and other details regarding the ARDL procedure are provided in the empirical section. Section 6 concludes.

2. India-China-Russia Trade Nexus and Related Literature

The India-China-Russia nexus in the context of international trade has plausible dynamics, and this has been explored by many researchers. This trio nexus has attracted considerable attention due to its significance in geopolitics, economic interdependence, and forward and backward linkage effects in a developmental context. As mentioned in the introduction, studying the long-run equilibrium of trade relations among these three countries will garner a lot of interest and have a plethora of policy implications.

Trade relations among India, China, and Russia have intensified significantly over the past two decades,

as these three major Eurasian economies collectively influence regional supply chains, energy markets and broader economic dynamics. Most research to date has examined India–China, China–Russia, and India–Russia relations as separate dyadic interactions, reflecting their distinct historical paths, institutional arrangements, and sectoral trade compositions (Wu & Zhou, 2006). Foundational empirical studies on India–China trade highlight the rapid expansion of bilateral exchanges since the 1990s, alongside persistent structural imbalances, particularly India’s growing trade deficit and China’s increasing specialisation in manufacturing exports, contrasted with India’s dependence on services and primary commodities.

Studies by Ghosh, Agarwal, & Banerjee (2019) provide a detailed account of the asymmetric nature of India–China trade, emphasising that structural imbalances remain despite the surge in trade volume. Their analysis, based on empirical trade data, shows that China has strengthened its position through a diversified and technologically advanced manufacturing export base, whereas India continues to rely heavily on low-value-added products and primary commodities exports. This divergence has contributed to India’s widening trade deficit. The study also notes that India’s limited export diversification and the existence of market access barriers in China constrain the potential benefits of bilateral trade. Dongxiao (2016) examined the strategic significance of the Russia–India–China (RIC) trilateral arrangement in the context of global system transformations. The author argues that the RIC initiative emerged as a counterweight to U.S. unipolar dominance in the post-Cold War era, aiming to promote multipolarity and enhance the collective influence of major emerging economies. Dongxiao highlights areas of complementarity among the three countries, including geopolitical positioning, energy collaboration, and economic engagement, while acknowledging tensions arising from conflicting national interests, unresolved border disputes, and different levels of integration into the global economy. The analysis positions the RIC not as a formal alliance but as a consultative platform intended to influence regional dynamics and contribute to the evolution of global governance theory.

Munir and Keshari (2018) focused on Russia’s strategic and economic role in shaping India–China relations, suggesting that Russia functions as both a balancing and mediating force. Historically aligned with India through defence and energy cooperation,

Russia simultaneously maintains and expands its economic and strategic links with China, which influences the dynamics of India–China interactions.

Studies (see Hanson, 2019; Korhonen & Simola, 2021) have identified robust long-run equilibrium linkages embedded in China’s energy security and in Russia’s dependence on commodity exports. Institutional factors, such as long-term energy contracts and Belt and Road Initiative (BRI) cooperation, strengthen this equilibrium. Historically and politically, India and Russia have always had less heterogeneous trading between them, unlike India and China (Kavalski, 2019). The literature shows that political integration is a crucial determinant of the long-run equilibrium of trade variables. Regional blocs, associations, and unions amplify this long-run association among India, China, and Russia (see Yoder 2023; Qobo & Soko, 2015). Our argument resonates with the work of researchers like Pandey and Kumar (2024), Toda et al. (2023), Singh and Sharma (2022), Batra (2020), and Kaplinsky (2013), where the trade relations among these three superpowers are driven and fostered by the *nature of the trade basket, institutional arrangements, and structural complementarity* which can be traced using models employing cointegration and error correction techniques. These studies have found a long-run equilibrium relationship in trade variables among these three countries; however, there are short-run episodic dynamisms that need to be considered (Khan & Gupta 2024; Murray 2023). Our study addresses the issue of estimating the long-run equilibrium of the *trade-to-GDP ratio*, which is used as a proxy for trade relations within the RIC. The studies on the India-China-Russia Trade Nexus have been explored a lot, but a time series modelling using econometric modelling like ARDL, ARDL (ECM) (see Jones & Patel 2022; Singh 2021) is never out of context. This paper might be in its nascent stage, but it provides a robust empirical finding that paves the way for future research. At a time when RIC is *the* news of the world, our paper is extremely relevant in reaffirming our hope of seeing a strong political and economic relationship between India, China, and Russia.

3. Variables used and Empirical Analysis

In this paper, we use the Trade to GDP Ratio (denoted as Trade/GDP) as a proxy for measuring International Trade volumes and trade openness of a country. Trade to GDP is measured as the sum of exports and imports of a country divided by the Gross Domestic Product (GDP) of that country.

Here we take the Trade to GDP Ratio in Percentage for India, China and Russia, respectively. This is treated as the main variable of interest. Foreign Direct Investment (FDI) and Government Expenditure for India, China and Russia are considered as exogenous variables.

Using time series data from the World Bank Development Indicators database from 1988 to 2024, this study uses the Autoregressive Distributed Lag Model (ARDL) to find out the relationship between variables of interest. In distributed lag models, time series data is used in regression equations to predict current values of an explained variable based on both the current and past values of one or more explanatory variables. ARDL is an example of a distributed lag model where, apart from other explanatory variables, lagged values of the dependent variables are also used as explanatory variables. Cointegration of non-stationary variables is equivalent to an error correction process, and the model has representation in error correction form (Engle and Granger, 1987; Hassler and Wolters, 2006). Long-run relationships between variables of interest can be established/ruled out based on the error correction form. The major advantages of using the ARDL model are as follows:

- i) Results are robust and work well for small samples
- ii) Variables are allowed to be purely I(0), I(1) or a combination of I(0) and I(1) variables.
- iii) A simple transformation allows us to represent the ARDL model in error correction form to capture long-run relationships between variables.
- iv) The problem of multicollinearity is tackled by including lags of dependent variables as independent variables with other independent variables and their lags.

4. Baseline Results

In this section, we present the empirical results. Table 1 shows the results of the ARDL model when the Trade to GDP ratio of India is considered the dependent variable. The period-lagged value of India's trade-to-GDP is positive and statistically significant. This implies that there are traces of autoregressive behaviour in India's trade-to-GDP ratio. Current period trade openness and trade activities are accelerated by the previous year's Trade to GDP Ratio. China's Trade to GDP has a positive and significant impact on India's Trade to GDP Ratio; however, a one-period lagged value of the same has a negative yet significant impact on the dependent variable. This empirically suggests that there are spillover advantages of China's trade openness on India's trade volumes, but this also

demonstrates that intense competition from this major exporter can reduce the impact. Russia's trade-to-GDP ratio has a positive but statistically insignificant impact. This may be due to the lower trade diversity between India and Russia.

Table 1: ARDL Model using Trade to GDP Ratio of India as Dependent Variable

| VARIABLES | India-Trade/GDP |
|-----------------------|----------------------|
| India -Trade/GDP(t-1) | 0.886*** (0.0790) |
| China-Trade/GDP | 0.543*** (0.162) |
| China-Trade/GDP(t-1) | -0.363** (0.170) |
| Russia-Trade/GDP | -0.0702 (0.109) |
| Constant | 1.078 (6.912) |
| Observations | 32 |
| R-squared | 0.934 |

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 2 shows the ARDL model where China's Trade to GDP Ratio is the dependent variable. The results have significant empirical relevance. The one-period lag of China's trade-to-GDP ratio is positive and highly significant, indicating strong dynamic autoregressive. Trade performance in the current period has a reinforcing effect on the next, exhibiting China's persistent superpower status in global markets. However, the two-period lag is negative but significant, which exhibits a cycle of adjustments. Trade openness in China expands strongly in the short run, but the effect erodes after two years. This probably ushers in a strong point made by Bhagwati (1958) related to *immiserizing growth*. India's current trade performance positively and significantly affects China's trade openness. India and China have strong International Trade ties, which are somewhat reflected in the contemporaneous coefficient in Table 2. Interestingly, the lagged values of India's trade-to-

GDP alternate in sign, suggesting that India’s trade affects China in a cyclical pattern, reinforcing trade openness in some periods but exerting negative pressure in others, often implying competition in export markets, border security tensions, and demand fluctuations. The current year’s Trade to GDP Ratio of Russia is positive and significant, but the magnitude of significance is lower, meaning that Russia’s trade performance marginally impacts China’s trade openness. The most recent lags are insignificant, but the four-period lag is positive and significant. This delayed but significant effect resonates with the fact that China’s trade openness and trade activities can procure the benefits of Russia’s trade openness in the long run. A probable cause is that Russia and China are integrating through large-scale energy and infrastructure projects, the outcomes of which are manifested only in the long run.

Table 2: ARDL Model using Trade to GDP Ratio of China as Dependent Variable

| VARIABLES | China-Trade/GDP |
|-----------------------|----------------------|
| China-Trade/GDP(t-1) | 1.145*** (0.180) |
| China-Trade/GDP(t-2) | -0.473** (0.177) |
| India-Trade/GDP | 0.574*** (0.145) |
| India-Trade/GDP(t-1) | -0.734*** (0.199) |
| India-Trade/GDP(t-2) | 0.755*** (0.224) |
| India-Trade/GDP(t-3) | -0.324** (0.140) |
| Russia-Trade/GDP | 0.235* (0.116) |
| Russia-Trade/GDP(t-1) | 0.0758 (0.0676) |

| | |
|-----------------------|---------------------|
| Russia-Trade/GDP(t-2) | 0.0477 (0.0514) |
| Russia-Trade/GDP(t-3) | 0.0426 (0.0459) |
| Russia-Trade/GDP(t-4) | 0.120** (0.0449) |
| Constant | -24.39** (11.42) |
| Observations | 32 |
| R-squared | 0.949 |

Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

Table 3 presents the results of the ARDL model when the Russian trade-to-GDP ratio is the dependent variable. The lagged values of the Trade to GDP Ratio have a mixed impact on the dependent variable. The one-period lagged value of Russia’s Trade to GDP Ratio has a positive and significant impact; however, a two-period lag is negative and statistically insignificant in explaining Russia’s trade openness. China’s trade openness positively impacts Russia’s trade openness. This implies that if trade openness increased in the previous period, it is likely to have a positive impact on the current period. This may be due to the nature of trade integration.

Table 3: ARDL Model using Trade to GDP Ratio of Russia as Dependent Variable

| VARIABLES | Russia-Trade/GDP |
|-----------------------|---------------------|
| Russia-Trade/GDP(t-1) | 0.225** (0.0901) |
| Russia-Trade/GDP(t-2) | -0.1 (0.0747) |
| China-Trade/GDP | 0.261* (0.128) |
| India-Trade/GDP | -0.0442 (0.278) |

| | |
|----------------------|----------|
| India-Trade/GDP(t-1) | -0.343 |
| | (0.239) |
| Constant | 48.83*** |
| | (9.152) |
| Observations | 32 |
| R-squared | 0.664 |

Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

5. Robustness Check

In this section, we conduct a robustness check using the ARDL model with the Error Correction Method (ECM). In Table 4, we examine the dynamics of India’s Trade to GDP Ratio. It is evident from the table that China’s trade has a long-run positive and statistically significant impact on India’s trade-to-GDP ratio. Russia’s trade-to-GDP ratio has a negative and insignificant effect on India’s trade openness. The first difference value of China’s Trade to GDP Ratio indicates a statistically significant positive short-run impact. The adjustment factor shows that there is a tendency for India’s trade-to-GDP ratio to converge, but it is not significant.

Table 4: ARDL (ECM) Model using Trade to GDP Ratio of India as Dependent Variable

| | (1) | (2) | (3) |
|--------------------|----------|---------|---------|
| VARIABLES | ADJ | LR | SR |
| China-Trade/GDP | | 1.574* | |
| | | (0.876) | |
| Russia-Trade/GDP | | -0.616 | |
| | | (0.762) | |
| L. India-Trade/GDP | -0.114 | | |
| | (0.0790) | | |
| D. China-Trade/GDP | | | 0.363** |

| | | | |
|--------------|-------|-------|---------|
| | | | (0.170) |
| Constant | | | 1.078 |
| | | | (6.912) |
| Observations | 32 | 32 | 32 |
| R-squared | 0.426 | 0.426 | 0.426 |

Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

Table 5 explores China’s trade dynamics. The regression results reveal significant long-run relationships between the trade-to-GDP ratio and China’s trade-to-GDP ratio. Specifically, both India’s and Russia’s trade-to-GDP ratios have positive and highly significant impacts. This suggests that greater trading activity with India and Russia is associated with a long-term increase in China’s trade activity. In contrast, the lagged value of China’s trade-to-GDP ratio has a negative and statistically significant coefficient, implying that higher trading activities in the past with China may reduce its trade in the long run. Two probable reasons are competitive pressures or trade imbalances. The short-run effects demonstrate complex and lag-dependent dynamic relationships. The first lag of China’s trade-to-GDP growth has a positive and significant effect, indicating short-term gains from trade. The short-run effects are mixed for India. The contemporaneous change has a positive and significant effect, the first lag is negative and significant, and the second lag is positive and statistically significant, indicating short-term fluctuations before coming to a stable position. Russia's trade negatively affects China’s trade constantly in the short run, with all four lags of the change in Russia’s trade-to-GDP ratio being significant. This suggests possible adjustments and trade volatility related to the superpower tensions between Russia and China.

Table 5: ARDL (ECM) Model using Trade to GDP Ratio of China as Dependent Variable

| | (1) | (2) | (3) |
|--------------------|-----|-----|---------|
| VARIABLES | ADJ | LR | SR |
| LD.China-Trade/GDP | | | 0.473** |
| | | | (0.177) |

| | | | |
|----------------------|-----------|----------|----------|
| D.India-Trade/GDP | | | 0.303* |
| | | | (0.165) |
| LD.India-Trade-GDP | | | -0.432** |
| | | | (0.171) |
| L2D.India-Trade/GDP | | | 0.324** |
| | | | (0.140) |
| D.Russia-Trade/GDP | | | -0.286* |
| | | | (0.147) |
| LD.Russia-Trade/GDP | | | -0.210* |
| | | | (0.105) |
| L2D.Russia-Trade/GDP | | | -0.162** |
| | | | (0.0707) |
| L3D.Russia-Trade/GDP | | | -0.120** |
| | | | (0.0449) |
| India-Trade/GDP | | 0.827*** | |
| | | (0.212) | |
| Russia-Trade/GDP | | 1.588*** | |
| | | (0.437) | |
| L.China-Trade-GDP | -0.328*** | | |
| | (0.100) | | |
| Constant | | | -24.39** |
| | | | (11.42) |
| Observations | 32 | 32 | 32 |

| | | | |
|-----------|-------|-------|-------|
| R-squared | 0.724 | 0.724 | 0.724 |
|-----------|-------|-------|-------|

Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

Table 6 presents the estimated results when Russia’s trade-to-GDP ratio is the outcome variable. It is evident from the table that the one-period lag of the Trade to GDP ratio has a positive and statistically significant coefficient. Empirically, this result shows that the Russian Government’s trade policies and agreements in the previous period increase trade openness in the current period. However, the two-period lag shows a negative but statistically insignificant coefficient. This indicates that trade openness from two years prior does not have meaningful explanatory power in the current period, as it is difficult to capture the dynamism in the trade pattern for such a long period. The results show that China’s trade openness positively and statistically significantly affects Russia’s trade openness. This empirical finding may reflect the growing economic and geopolitical interdependence between Russia and China in the context of positive spillover effects, linkage effects, and a strong strategic alliance in the BRICS paradigm.

Table 6: ARDL (ECM) Model using Trade to GDP Ratio of Russia as Dependent Variable

| | (1) | (2) | (3) |
|---------------------|-----------|-----------|----------|
| VARIABLES | ADJ | LR | SR |
| China-Trade/GDP | | 0.298** | |
| | | (0.131) | |
| India-Trade/GDP | | -0.442*** | |
| | | (0.106) | |
| L.Russia-Trade/GDP | -0.875*** | | |
| | (0.133) | | |
| LD.Russia-Trade/GDP | | | 0.1 |
| | | | (0.0747) |
| D.India-Trade/GDP | | | 0.343 |
| | | | (0.239) |

| | | | |
|--------------|-------|-------|----------|
| Constant | | | 48.83*** |
| | | | (9.152) |
| Observations | 32 | 32 | 32 |
| R-squared | 0.767 | 0.767 | 0.767 |

Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

6. Conclusion

The study we conducted, considering the dynamicity among the economies of India, China, and Russia, provides an insightful conclusion into their long-run trade relations. By employing advanced econometric techniques, such as the ARDL and ECM frameworks, the analysis demonstrates that while China shares robust and statistically significant long-run trade linkages with both India and Russia, the India–Russia trade relationship remains weak and moderately insignificant. This outcome is not surprising, as it mirrors the historical trajectory of trade among these nations, which is shaped by structural asymmetries in their economies, sectoral dependencies, and broader geopolitical frictions. This asymmetry highlights and reaffirms the structural imbalances, sectoral dependencies, and geopolitical constraints that continue to shape the RIC trade nexus. China stands out as the central actor in this triad, reinforcing its dominance not only through sheer trade volume but also through its ability to influence regional trade dynamics. China's trade openness creates positive spillover effects for both India and Russia, positioning China as the mainstay of Eurasian economic integration. The findings further indicate that RIC trade relations are marked by cyclical short-run fluctuations, often triggered by competition in global export markets, shifts in domestic trade policies, or external disruptions such as tariff wars, security-related conflicts, and tensions. However, despite these oscillations, robustness checks reaffirm that long-run equilibrium linkages persist, especially in trade dynamics centred around China, which eventually points to the resilience of China's role in the global and regional economic order.

From a policy perspective, the results highlight several important implications. First, India and Russia need to reevaluate the narrow scope of their trading relations, which have revolved around

defence, energy, and a limited set of products. Broadening this engagement to manufacturing, services, technology, and infrastructure might help eradicate imbalances and create a more durable foundation for cooperation. Second, institutional enhancement is crucial. Abolishing tariff and non-tariff barriers, establishing stronger dispute resolution mechanisms, and investing in joint trade facilitation infrastructure could enhance bilateral and trilateral trade efficiency. Third, in the current global scenario marked by protectionism, supply chain disruptions, and intensifying geopolitical rivalries, the RIC countries have an opportunity to leverage their combined strength as an economic counterweight to Western dominance, thereby promoting a more multipolar world economy.

In conclusion, the RIC trade nexus should not be regarded as an “impossible trinity”, but rather as a strategically intricate and continually evolving partnership. China currently serves as the central integrator within this framework; however, India and Russia possess significant scope to enhance their roles by diversifying and recalibrating their trade strategies. The long-term stability of this alliance rests on the three economies' capacity to harness their complementarities and move beyond mere historical alignments or politically driven cooperation. This study also opens pathways for further research exploring sector-specific trade flows, which could provide deeper insights into areas of complementarity and competition.

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