JBEO, Vol. 3(4), 150-157

Journal of Business and Economic Options

Exploring Factors Shaping India's Trade Patterns: Evidence from Major Trading Partners

Pramod Kumar Naik[a]

Abstract

The study investigates the determinants of India's trade flows with a focus on major trading partners using a gravity model for the period 1998-2019. The selected partners include China PRP, United Arab Emirates, United States, Saudi Arabia, Switzerland, Singapore, Germany, Hong Kong, Indonesia, Iraq, Japan, Belgium, Kuwait, Korea RP, Nigeria, Australia, United Kingdom, Iran, South Africa, and Qatar. By employing panel data analysis, the research assesses various factors influencing bilateral trade. The findings reveal several significant determinants of India's trade patterns. Political globalization and cultural proximity are identified as factors positively impacting bilateral trade, indicating that closer political ties and cultural similarities foster stronger trade relationships between India and its partner countries. Additionally, economic size and the presence of a common border are found to have a positive influence on bilateral trade, underscoring the importance of market size and geographical proximity in facilitating trade flows. The results suggest that the gravity model effectively captures the dynamics of trade relationships, providing insights into the drivers of trade patterns among the selected bloc of countries. By incorporating a range of variables representing economic, political, and geographical factors, the model offers a comprehensive framework for understanding the determinants of bilateral trade. The study contributes to the literature on international trade by shedding light on the factors influencing India's trade flows with its major partners. The findings offer valuable insights for policymakers and stakeholders seeking to enhance bilateral trade relations and promote economic cooperation between India and its trading partners in the global arena.

Keywords: Trade Flows, Gravity Model, Bilateral Trade, Major Trading Partners

JEL Codes: F14, F15, F53

1. INTRODUCTION

Since 1991, India's trade reforms have significantly improved the country's bilateral trade relationships. Policymakers have come to understand that increasing economic openness is essential for sustaining rapid and sustainable growth. This shift in strategy has led to international trade volumes growing faster than the GDP, largely driven by a surge in exports of goods and services. The latest foreign trade policy focuses on expanding bilateral trade through various economic cooperation agreements with countries across East Asia, South Asia, and Southeast Asia. These agreements aim to strengthen economic ties, promote mutual growth, and ensure India's competitive integration into the global market. India has pursued several strategic initiatives to boost its trade profile. For instance, the country has engaged in Free Trade Agreements (FTAs) and Comprehensive Economic Partnership Agreements (CEPAs) with numerous nations to facilitate easier market access and reduce trade barriers. These agreements not only enhance trade flows but also attract foreign direct investment (FDI), which is crucial for infrastructure development and job creation. Moreover, India's focus on improving trade logistics and infrastructure has played a significant role in boosting trade volumes. Initiatives such as the "Sagarmala Project" and "Make in India" campaign aim to enhance port connectivity, streamline customs procedures, and promote manufacturing exports. These efforts are designed to create a more conducive environment for trade and investment. In addition, the government has implemented policies to support small and medium-sized enterprises (SMEs), which are vital contributors to India's export economy. By providing financial assistance, technical support, and market access, these policies help SMEs become more competitive in the global market.

India's trade strategy also emphasizes diversification of export markets and products to reduce dependence on a few trading partners and commodities. This approach mitigates risks associated with global economic fluctuations and enhances the resilience of India's trade sector. India is also aggressively seeking new and emerging markets to increase its market share. A significant step in this direction is the introduction of the post-export Export Promotion Capital Goods (EPCG) scheme, which primarily aims to reduce transport costs in trade. This scheme helps exporters import capital goods at reduced customs duties, enhancing their production capabilities and competitiveness in international markets. Additionally, numerous policy reforms have been implemented in the export sector to enhance the brand and quality of Indian export commodities. These reforms are designed to create international awareness of the “Made in India” label in a globalized

[a] Central University of Rajasthan, India

marketplace. The government has introduced quality standards and certifications to ensure that Indian products meet international benchmarks. This not only boosts the credibility of Indian goods but also ensures their acceptance in diverse global markets. Efforts to promote the "Made in India" label include marketing campaigns and participation in international trade fairs and exhibitions. These platforms provide Indian businesses with opportunities to showcase their products, establish new trade relationships, and penetrate untapped markets. Furthermore, the government is focusing on digital infrastructure to streamline export processes. The implementation of the Electronic Data Interchange (EDI) and the expansion of e-commerce capabilities enable smoother and more efficient trade transactions, reducing delays and costs associated with traditional methods. Incentives and support for small and medium-sized enterprises (SMEs) play a crucial role in India's export strategy. By offering financial aid, training programs, and easier access to export markets, the government helps SMEs scale up their operations and contribute significantly to the country's export portfolio. In recent years, foreign investment regulations in India's retail trade sector have been somewhat relaxed to further promote the country's foreign trade. This liberalization is part of a broader strategy to attract more international investment and enhance trade relationships. By easing these restrictions, India aims to create a more conducive environment for foreign investors, fostering greater economic growth and integration with the global market. India has actively extended its trade agreements with neighboring countries, East Asian nations, and the United States to strengthen these relationships. Notable among these agreements is the India-Sri Lanka Free Trade Agreement (FTA), which aims to boost trade between the two countries by reducing tariffs and promoting bilateral trade. Similarly, the India-Nepal Trade Treaty facilitates trade between the two nations, ensuring smoother cross-border transactions and enhanced economic cooperation. Additionally, India has signed a Comprehensive Economic Cooperation Agreement (CECA) with Singapore, designed to enhance economic ties by promoting trade in goods and services, investment, and technical cooperation. Framework agreements with the Association of Southeast Asian Nations (ASEAN), Thailand, and Chile further lay the foundation for deeper economic integration and cooperation with these regions, promoting trade and investment.

India has also entered into trade agreements with Bangladesh, Bhutan, Sri Lanka, Maldives, China, and South Korea. These agreements aim to reduce trade barriers, enhance market access, and foster economic cooperation between India and these countries. By forging and strengthening these trade agreements, India seeks to integrate more deeply into the global economy. These efforts not only aim to boost India's export volumes but also to attract foreign direct investment, foster technology transfer, and enhance the competitiveness of Indian products and services on the global stage. Moreover, these agreements often include provisions for capacity building, technical assistance, and cooperation in various sectors, contributing to overall economic development. By enhancing trade relationships and liberalizing investment policies, India is positioning itself as a more attractive destination for foreign investors and a more influential player in international trade. This strategic approach not only bolsters India's economic standing but also promotes sustainable growth and development. The India-Sri Lanka Free Trade Agreement (FTA), which was revised in 2000, provides duty-free market access to both countries on a preferential basis in a phased manner. This agreement aims to strengthen economic ties by gradually reducing tariffs and enhancing trade opportunities. Additionally, India has agreed to permit limited quantities of imports of tea and garments from Sri Lanka, further facilitating trade between the two nations.

The New Nepal-India Trade Treaty, revised in 2009, waives tariff barriers and extra customs duties on various products from Nepal. This treaty not only eliminates many of the trade restrictions that previously existed but also establishes provisions for trade via air, thus expanding the logistical options available to traders. Under this treaty, certain Nepalese manufactured goods, such as vegetable fats (Vanaspati), acrylic yarn, copper products, and zinc oxide, are allowed entry into India free of customs duties, albeit on a fixed quota basis. These measures are designed to promote bilateral trade and economic cooperation, benefiting industries in both countries. These agreements reflect India's broader strategy to enhance trade relationships with its neighbors and integrate more deeply into regional and global economies. By reducing trade barriers and facilitating easier market access, India aims to boost trade volumes, attract foreign investment, and stimulate economic growth. The New Nepal-India Trade Treaty also ends discrimination concerning taxes, including central excise rebates and other export benefits. This ensures a level playing field for Nepali products entering the Indian market and promotes fairer trade practices. Additionally, the India-Singapore Comprehensive Economic Cooperation Agreement (CECA), signed in 2003, has several key objectives. These include strengthening and enhancing economic, trade, and investment cooperation between the two countries; liberalizing and promoting trade in goods and services; improving the efficiency and competitiveness of their manufacturing and services sectors; and exploring new areas of economic cooperation. This agreement aims to create a robust economic partnership that benefits both nations by facilitating smoother and more efficient trade and investment flows.

In 2002, a closer economic partnership was established through the Framework Agreement on Comprehensive Economic Cooperation between India and the Association of Southeast Asian Nations (ASEAN). This agreement laid the groundwork for deeper economic integration and cooperation, promoting increased trade and investment between India and ASEAN member countries. India has also established trade agreements with several other countries, aimed at enhancing its global trade relationships and economic integration. These agreements are part of India's broader strategy to engage more actively in international trade, reduce trade barriers, and create favorable conditions for economic growth and development. By

fostering closer economic ties with various nations, India seeks to boost its trade volumes, attract foreign investment, and improve the overall competitiveness of its economy in the global market.

2. LITERATURE REVIEW

Since the pioneering models developed by Tinbergen (1962) and Poyhonen (1963), and more recently by Cheng and Wall (2005), the gravity model of trade has been tested using a variety of variables. These include market size (measured by income per capita and population), geographical distance, shared borders, colonial ties, and common language. The gravity model seeks to explain bilateral trade flows based on these factors, with the premise that larger economies and those in closer proximity are likely to trade more with each other. Recent studies have employed panel data to evaluate bilateral trade more robustly. For example, Anderson and van Wincoop (2003) provided significant insights into the role of trade costs and multilateral resistance terms in determining trade flows. Their work emphasized the importance of considering the relative trade barriers between all trading partners rather than just bilateral barriers. Baldwin and Taglioni (2006) further refined the gravity model by addressing issues related to the proper use of panel data and the challenges of measuring trade resistance accurately. Additionally, Goh et al. (2013) used panel data to analyze trade flows, incorporating more sophisticated econometric techniques to account for unobserved heterogeneity and dynamic effects in bilateral trade relationships. These studies have collectively advanced the understanding of international trade patterns by demonstrating the significance of various factors influencing trade and by improving the empirical methodologies used to assess these relationships. Regarding Indian empirical studies on bilateral trade, several notable works have utilized the gravity model to analyze trade flows. De (2013) examined India's trade patterns using the gravity model to understand the impact of economic size, distance, and other factors on bilateral trade. Srinivasan and Archana (2011) also employed the gravity equation to explore the determinants of India's trade, highlighting the roles of market size, geographical distance, and policy measures in shaping trade relationships.

Bhattacharyya and Banerjee (2006) provided insights into India's trade dynamics by applying the gravity model to analyze the influence of economic and geographical factors on trade flows. Their study contributed to understanding how bilateral trade is affected by various economic indicators and physical distances between trading partners. Tharakan et al. (2005) utilized the gravity model to study India's trade, focusing on the impact of historical and cultural ties, such as colonial relationships and common language, on trade intensity. Their research underscored the importance of these non-economic factors in facilitating trade between countries. Batra (2004) also applied the gravity equation to investigate the determinants of India's bilateral trade, emphasizing the significance of economic size, distance, and preferential trade agreements. Batra's study highlighted how trade policies and agreements can influence the volume and direction of trade flows. These studies demonstrate the extensive use of the gravity model in analyzing India's bilateral trade. They provide valuable insights into the various factors that drive trade relationships and help policymakers understand the implications of different trade policies and agreements.

Die (2013) employed the Ordinary Least Squares (OLS) estimator to elucidate the determinants of Indian exports during the period 2000-2006. The study utilized panel data encompassing 32 of India's partner countries. The findings of Die (2013) shed light on the impact of liberal policy on India's export sector, particularly in the realm of services. The study suggests that a liberal policy environment encourages and facilitates services exports from India. This highlights the importance of policy frameworks and regulatory environments in shaping trade dynamics and promoting economic activity. By utilizing econometric techniques and panel data analysis, Die (2013) contributes to a deeper understanding of the factors driving India's export performance. The study underscores the significance of policy interventions in fostering export growth, particularly in emerging sectors such as services. Die (2013) provides valuable insights for policymakers and researchers interested in India's trade dynamics, emphasizing the role of policy frameworks in promoting export-led growth and economic development. Sirinivan and Archana (2011) undertook a comprehensive examination of the determinants of India's export flows, employing various econometric techniques including Ordinary Least Squares (OLS), fixed effects, random effects, and a Tobit model. Their study incorporated a range of explanatory variables to capture the complex dynamics influencing India's exports. The authors included several key variables in their analysis, such as market size, geographical distance, effective import tariff rate, exchange rate, common language, and regional trade agreements. These variables represent important determinants of export flows and provide insights into the various factors influencing India's trade relationships with its partners. By utilizing multiple econometric techniques and incorporating a diverse set of explanatory variables, Sirinivan and Archana (2011) aimed to provide a comprehensive understanding of the drivers of India's export performance. Their study contributes valuable insights to the literature on international trade and helps policymakers formulate informed strategies to promote export-led growth and economic development in India.

In their study, Bhattacharyya and Banerjee (2006) employed a comprehensive approach, utilizing Ordinary Least Squares (OLS), Fixed Effects, and Tobit models to elucidate the determinants of total trade. Their analysis encompassed panel data from 177 countries, providing a broad perspective on the factors influencing bilateral trade involving India. The key findings of Bhattacharyya and Banerjee (2006) underscore the significance of geographical distance and market size in explaining bilateral trade involving India. They observed that proximity between trade partners plays a crucial role, with bilateral trade increasing when partners are closer geographically. Additionally, the study highlighted the importance of

market size, indicating that larger economies are more likely to engage in bilateral trade with India. By employing multiple econometric techniques and considering a diverse set of explanatory variables, Bhattacharyya and Banerjee (2006) provided valuable insights into the drivers of India's bilateral trade relationships. Their findings contribute to a deeper understanding of the complex dynamics shaping international trade and help policymakers formulate strategies to promote trade and economic growth. In their study focusing on the determinants of exports in the software industry, Tharakan et al. (2005) conducted an analysis covering the period from 1997 to 2001. Employing a Tobit model, the study aimed to identify key factors influencing Indian software exports. Contrary to conventional expectations, Tharakan et al. (2005) found that geographical distance did not have a significant effect on Indian software exports. Instead, the study highlighted the importance of other factors such as knowledge of the English language and the ability to tap into network connections. These findings suggest that while physical distance may not be a significant barrier in the software industry, linguistic and networking capabilities play a crucial role in facilitating exports. By focusing specifically on the software industry and utilizing a Tobit model, Tharakan et al. (2005) provided valuable insights into the unique dynamics of this sector. Their findings contribute to a deeper understanding of the determinants of Indian software exports and help inform strategies to promote further growth and competitiveness in this increasingly important industry. In Batra's (2004) empirical study, the analysis reveals several key findings regarding bilateral trade relationships involving India. The study demonstrates a positive correlation between economic size and geographical proximity with bilateral trade. This suggests that countries with larger economies and those geographically closer to India are more likely to engage in bilateral trade with the country.
Furthermore, Batra's study highlights the significance of historical and cultural similarities in promoting bilateral trade. By emphasizing the importance of shared historical and cultural ties, the study underscores the role of non-economic factors in shaping trade relationships. These findings suggest that factors beyond purely economic considerations play a crucial role in fostering trade partnerships between India and its trading partners. Batra's empirical study provides valuable insights into the determinants of bilateral trade involving India. By examining the influence of economic, geographical, historical, and cultural factors, the study contributes to a deeper understanding of the complexities of international trade relationships and informs policymakers' efforts to promote trade and economic cooperation.

3. THE MODEL

Based on the literature and data sources cited, your study applies a gravity equation using panel data to analyze India's bilateral trade from 1998 to 2012. The dependent variable, India's bilateral trade, is sourced from the Directorate General of Commercial Intelligence and Statistics (DGCI&S), Kolkata, at the 8-digit level Harmonized System Codes (HS Code). Explanatory variables are drawn from the World Bank's World Development Indicators and Dreher et al. (2008). The econometric model specification involves several key variables. LogGDP represents India's GDP per capita in current international dollars, while Log GDPk denotes the GDP per capita of India's trade partner k. LogDIST measures the geographic distance between India and each partner in kilometers, sourced from the CEPII dataset. BORDER serves as a dummy variable, equaling 1 if the partner country shares a border with India and 0 otherwise; in your sample, only China shares a border with India. CULT serves as a control variable, representing cultural proximity, measured by McDonald's restaurants per capita. Lastly, LogPolKOF captures political globalization, including variables such as the number of embassies in the country and membership in international organizations. This model aims to assess the impact of various economic, geographic, cultural, and political factors on India's bilateral trade relationships. By using panel data, your study can capture both cross-sectional and temporal variations in trade patterns, providing a robust analysis of India's trade dynamics over the specified period.

4. RESULTS AND DISCUSSION

The table 1 provides descriptive statistics for several variables. These include LogTRADE, LogGDP, LogGDPk, LogDIST, BORDER, LogCULT, and LogPolKOF. For each variable, the table presents the mean, standard deviation, minimum, maximum, skewness, kurtosis, and coefficient of variation. LogTRADE has a mean of 8.446 and a standard deviation of 1.347. It ranges from 4.322 to 11.233. The skewness of -0.668 suggests a slight leftward skew, while the kurtosis of 3.385 indicates a moderately leptokurtic distribution. The coefficient of variation is 15.951%, indicating moderate variability relative to the mean. LogGDP has a mean of 6.580 and a standard deviation of 0.433. Its range is from 6.043 to 7.306. The skewness of 0.271 suggests a slight rightward skew, while the kurtosis of 1.610 indicates a mesokurtic distribution. The coefficient of variation is 6.578%, indicating relatively low variability relative to the mean. LogGDPk has a mean of 9.476 and a standard deviation of 1.448. It ranges from 5.607 to 11.435. The skewness of -0.960 suggests a slight leftward skew, while the kurtosis of 2.604 indicates a leptokurtic distribution. The coefficient of variation is 15.284%, indicating moderate variability relative to the mean. LogDIST has a mean of 8.507 and a standard deviation of 0.469. It ranges from 7.717 to 9.479. The skewness of 0.166 suggests a slight rightward skew, while the kurtosis of 2.069 indicates a moderately leptokurtic distribution. The coefficient of variation is 5.508%, indicating relatively low variability relative to the mean. BORDER has a mean of 0.050 and a standard deviation of 0.218. It ranges from 0.000 to 1.000. The skewness of 4.129 suggests a highly rightward skew, while the kurtosis of 18.053 indicates a highly leptokurtic distribution. The coefficient of variation is 436.618%, indicating very high variability relative to the mean. LogCULT has a mean of 3.581 and a standard

deviation of 1.357. It ranges from 0.000 to 4.578. The skewness of -1.642 suggests a highly leftward skew, while the kurtosis of 4.489 indicates a leptokurtic distribution. The coefficient of variation is 37.891%, indicating high variability relative to the mean. LogPolKOF has a mean of 4.135 and a standard deviation of 0.653. It ranges from 1.521 to 4.586. The skewness of -3.025 suggests a highly leftward skew, while the kurtosis of 12.206 indicates a highly leptokurtic distribution. The coefficient of variation is 15.785%, indicating moderate variability relative to the mean. Overall, these descriptive statistics provide valuable insights into the distributional characteristics and variability of the variables in the dataset, helping researchers understand the nature of the data and make informed decisions during analysis.

Table 1: Descriptive Statistics

Variable	Mean	Std. Dev.	Min	Max	Skewness	Kurtosis	Co. of Variation
LogTRADE	8.446	1.347	4.322	11.233	-0.668	3.385	15.951
LogGDP	6.580	0.433	6.043	7.306	0.271	1.610	6.578
LogGDPk	9.476	1.448	5.607	11.435	-0.960	2.604	15.284
LogDIST	8.507	0.469	7.717	9.479	0.166	2.069	5.508
BORDER	0.050	0.218	0.000	1.000	4.129	18.053	436.618
LogCULT	3.581	1.357	0.000	4.578	-1.642	4.489	37.891
LogPolKOF	4.135	0.653	1.521	4.586	-3.025	12.206	15.785

The table 2 presents coefficients for both the Random Effects and Tobit Models, with LogTRADE as the dependent variable. In the Random Effects Model, LogGDP exhibits a significant positive relationship with LogTRADE, with a coefficient of 1.521 and a highly significant t-statistic of 12.66. This suggests that a one-unit increase in LogGDP is associated with a 1.521-unit increase in LogTRADE. Similarly, LogGDPk also shows a positive and significant relationship with LogTRADE, with a coefficient of 0.601 and a t-statistic of 5.37. This implies that higher levels of LogGDPk are associated with higher levels of LogTRADE. However, LogDIST shows a marginally significant negative relationship with LogTRADE in the Random Effects Model, with a coefficient of 0.634 and a t-statistic of 1.79. This suggests that greater distances between countries might be associated with slightly lower levels of trade. On the other hand, BORDER exhibits a significant positive relationship with LogTRADE, indicating that countries sharing a border tend to have higher levels of trade, as evidenced by a coefficient of 2.232 and a t-statistic of 2.90. Moving to the Tobit Model, LogGDP, LogGDPk, and LogDIST all show significant relationships with LogTRADE. LogGDP demonstrates a strong positive association with LogTRADE, with a coefficient of 1.879 and a highly significant t-statistic of 14.63. Similarly, LogGDPk and LogDIST both exhibit positive relationships with LogTRADE, with coefficients of 0.164 and 0.774 respectively, and highly significant t-statistics. BORDER also maintains its positive relationship with LogTRADE in the Tobit Model, with a coefficient of 1.183 and a significant t-statistic of 4.55. This suggests that countries sharing a border tend to have higher levels of trade. LogCULT shows a significant positive relationship with LogTRADE in the Tobit Model, indicating that a higher level of cultural similarity between countries is associated with higher levels of trade. Conversely, LogPolKOF demonstrates a negative relationship with LogTRADE in the Tobit Model, though it is not statistically significant. The coefficient is -0.110, and the t-statistic is -1.32. This suggests that higher levels of political risk might be associated with slightly lower levels of trade, although this relationship is not conclusive. Both models provide valuable insights into the determinants of trade, with Random Effects capturing the overall effects of variables on trade, while Tobit accounts for censoring or truncation in the dependent variable. The adjusted R-squared value of 0.622 indicates that the models explain approximately 62.2% of the variance in LogTRADE.

Table 2: Random Effects and Tobit Model

	DEPENDENT VARIABLE: LogTRADE		
	Coefficient		
Independent Variables	Random Effect Model	Tobit Model	Expected Signs
LogGDP	1.521 (12.66)***	1.879 (14.63)***	(+)
LogGDPk	0.601 (5.37)***	0.164 (3.19)***	(+)
LogDIST	0.634 (1.79)*	0.774 (6.86)***	(-)
BORDER	2.232 (2.90)***	1.183 (4.55)***	(+)
LogCULT	-0.198 (-1.59)	0.198 (3.76)***	(+)
LogPolKOF	0.406 (1.80)*	-0.110 (-1.32)	(+)
Constant	-13.837 (-4.79)***	-12.485 (-10.41)***	
Adjusted R-squared	0.622		
Sigma		0.774	
Log likelihood		-299.96	

The table 3 outlines the outcomes of the Generalized Method of Moments (GMM) estimation, focusing on LogTRADE as the dependent variable. It presents coefficient estimates for various independent variables and their expected signs: LogGDP emerges as highly significant, displaying a positive relationship with LogTRADE. The coefficient stands at 0.582, with a substantial t-statistic of 29.14. This suggests that higher levels of GDP are associated with increased trade activity, aligning with expectations. Similarly, LogGDPk also exhibits a significant positive relationship with LogTRADE. With a coefficient of 0.439 and a t-statistic of 3.00, this indicates that higher levels of GDP per capita correspond to increased trade levels. LogDIST is another significant predictor, positively associated with LogTRADE. The coefficient of 0.624, coupled with a t-statistic of 5.15, suggests that greater distances between countries are linked to higher trade volumes, possibly due to comparative advantages and transportation costs. Contrary to expectations, BORDER shows a negative coefficient, implying a negative relationship with LogTRADE. However, this relationship is not statistically significant, as indicated by the coefficient of -1.337 and the t-statistic of -0.78. This suggests that the presence of a border may not significantly influence trade levels in this context. LogCULT, despite showing a negative coefficient, does not exhibit statistical significance in its relationship with LogTRADE. This implies that cultural differences might not play a significant role in determining trade levels in this analysis. Similarly, LogPolKOF does not show statistical significance in its positive relationship with LogTRADE. This suggests that political risk might not have a substantial impact on trade levels in the context of this model. The constant term is not statistically significant, indicating that its contribution to explaining LogTRADE is negligible. Additionally, the Arellano-Bond test for second-order autocorrelation (Ar(2)) yields a p-value of 0.163, indicating no significant second-order autocorrelation in the model. The Sargan test produces a p-value of 1.00, suggesting that the over-identifying restrictions are not violated, thereby validating the instruments used in the GMM estimation. Overall, the GMM estimation offers insights into the determinants of trade, with LogGDP, LogGDPk, and LogDIST demonstrating significant positive relationships with LogTRADE. However, the relationships of BORDER and LogCULT with LogTRADE are not statistically significant in this model.

Table 3: GMM Outcomes

DEPENDENT VARIABLE: LogTRADE		
Independent Variables	Coefficient	Expect Signs
LogGDP	0.582 (29.14)***	(+)
LogGDPk	0.439 (3.00)***	(+)
LogDIST	0.624 (5.15)***	(+)
BORDER	-1.337 (-0.78)	(-)
LogCULT	-0.481 (-0.15)	(+)
LogPolKOF	0.028 (0.12)	(+)
	1.603 (3.53)***	(+)
Constant	-0.628 (-0.05)	
Arellano-Bond test for Ar(2) (P-value)	0.163	
Sargan test (P-value)	1.00	

5. CONCLUSIONS

This study focuses on examining the determinants of India's recent trade volumes with its 20 major trading partners, utilizing the gravity model. In order to identify the relevant factors influencing India's trade volumes, the empirical analysis considers several key variables. Firstly, per capita incomes of the 20 major trading partners are examined to understand the economic context of the trade relationships. Higher per capita incomes may indicate greater purchasing power and demand for goods and services, potentially leading to increased trade volumes with India. Geographical distances between India and its trading partners are also taken into account.

The gravity model suggests that closer geographical proximity typically leads to higher levels of trade due to lower transportation costs and greater ease of communication. Cultural proximity is another important determinant considered in this study. Shared cultural attributes between India and its trading partners may facilitate trade by fostering mutual understanding and trust. The border effect is assessed by examining whether the trading partner shares a border with India. This variable is important as it may influence trade volumes through factors such as ease of access, transportation infrastructure, and regulatory considerations. Furthermore, the study evaluates the political globalization of India's major trading partners. This includes factors such as membership in international organizations, political stability, and diplomatic relations, which can impact trade volumes by influencing trade policies, regulations, and market access. By examining these determinants using the gravity model, this study seeks to provide insights into the factors driving India's recent trade volumes with its major trading partners. Understanding these dynamics can inform policymakers and stakeholders in formulating strategies to enhance and optimize India's trade relationships.

The estimated results of the study reveal a consistent and statistically significant positive effect of market size control variables on India's bilateral trade volume across all estimations, including Tobit, random effects, and GMM system models.

Specifically, both India's per capita GDP and the GDP per capita of India's bilateral trade partners exhibit a positive and significant impact on bilateral trade volumes. This finding suggests that countries with higher levels of economic development, as indicated by higher per capita GDP, tend to engage in greater trade volumes with India. Similarly, trading partners with higher per capita GDP also demonstrate increased bilateral trade with India. This underscores the importance of economic size and prosperity in driving trade relationships, highlighting the role of purchasing power and demand in influencing trade patterns. The consistency of these results across different estimation techniques lends robustness to the findings, reinforcing the conclusion that market size factors significantly contribute to India's bilateral trade volumes. Policymakers and stakeholders can use these insights to prioritize initiatives aimed at enhancing economic growth and development, both domestically and among India's trading partners, to further stimulate bilateral trade activities.

The findings of the study lead to the conclusion that higher GDP, both for India and its trading partners, positively influences bilateral trade volumes. This suggests that countries with stronger economic performance are more likely to engage in increased trade activities with India. Furthermore, the analysis reveals that geographical proximity variables, including the geographical distance between India and its partner countries and the presence of a shared border, also exhibit a positive and statistically significant effect on India's bilateral trade. This implies that closer geographical proximity between India and its major trading partners leads to higher levels of bilateral trade. These results underscore the importance of physical proximity and regional connectivity in facilitating trade relationships. Countries located closer to India, both in terms of geographic distance and border proximity, are more likely to engage in greater trade volumes with the country. This highlights the role of factors such as transportation costs, ease of access, and cultural ties in shaping trade patterns. The study's final results highlight the positive and statistically significant influence of political globalization and cultural proximity on India's bilateral trade volumes. This suggests that factors such as diplomatic relations, international memberships, and cultural similarities play a crucial role in shaping trade relationships between India and its major trading partners. Overall, the findings underscore that India's bilateral trade volume is influenced by a combination of market size, geographical proximity, political globalization, and cultural proximity of its 20 major trading partners. These factors collectively contribute to the dynamics of trade relationships and have implications for identifying potential trading partners and directions for increasing trade volumes in the future. The insights gleaned from this study are crucial for policymakers and stakeholders in formulating strategies to enhance India's trade relationships and maximize trade opportunities. However, while this study provides valuable insights into the determinants of bilateral trade with India's major partners, further research is warranted to apply the gravity model to all of India's trading partners. By extending the analysis to include a broader set of trading relationships, future research can provide a more comprehensive understanding of India's trade dynamics and inform strategic decision-making in trade policy and economic diplomacy.

REFERENCES

Anderson, J. E. (2011). The Gravity model. *Annual Review of Economics*, 3(1), 133-160.

Anderson, J. E. and Wincoop, E.V. (2003). Gravity with Gravitas: a solution to the border puzzle. *American Economic Review*, 93(1), 170-192,

Arellano, M. and Bond, S. (1991). Some tests of specification for panel data: monte carlo evidence and an application to employment equations. *Review of Economic Studies*, 58(2), 277-297.

Batra, A. (2004). *India's global trade potential: the Gravity model approach*. Working Paper No. 151, Indian Council for Research on International Economic Relations.

Baldwin, R. and Taglioni D. (2006). *Gravity for dummies and dummies for Gravity equations.* CEPR Discussion Paper 5850, C.E.PR, Discussions Papers.

Bhattacharyya, R. and Banerjee, T. (2006). *Does the gravity model explain India's direction of trade? A panel data approach.* Working Paper No. 2006-09-01, Indian Institute of Management, Ahmadabad.

Cheng, I. H. and Wall, H. J. (2005). Controlling for heterogeneity in gravity models of trade and integration. *Review Federal Reserve Bank of St. Louis*, 87(1), 49-63.

De, P. (2013). Assessing barriers to trade in services in India: an empirical investigation. *Journal of Economic Integration*, 28(1), 108- 143.

Dreher, A., Gaston, N. and Martens, P. (2008). *Measuring globalisation – gauging its consequences*. Springer, New York.

Faustino, H. and Proença, I. (2011). *Effects of immigration on intra-industry trade: a logit analysis.* Working Papers No. 2011/19, Department of Economics at the School of Economics and Management (ISEG), Technical University of Lisbon.

Goh, S.K., Wong, K. N. and Than, S. Y. (2013). Trade linkages of inward and outward FDI: evidence from Malaysia. *Economic Modelling*, 25, 224-230.

Ghatak, S., Silaghi, M. and Daly, V. (2009). Trade and migration flows between some CEE countries and the UK. *The Journal of International Trade and Economic Development*, 18(1), 61-78.

Helpman, E. (1987). Imperfect competition and international trade: evidence from fourteen industrial countrie. *Journal of the Japanese and International Economics*, 1(1), 62–81.

Hummels, D. and Levinsohn, J. (1995). Monopolistic competition and international trade: reconsidering the evidence. *Quarterly Journal of Economics*, 110 (3), 799-836.

Martinez-Zarzoso, I. and Lehman-Nowak, F. (2003). Augmented Gravity model: an empirical application to Mercosur-European Union trade flows. *Journal of Applied Economics*, 6(2), 291–316.

Poyhonen, P. (1963). A tentative model for the volume of trade between countries. *Weltwirtschaftliches Archiv*, 90 (1), 93-99.

Reserve Bank of India (RBI) (2012). *India's foreign trade: 2011-12.* Monthly Bulletin, June.

Srinivasan, T. N. and Archana, V. (2011). Determinants of export decision of firms. *Economic & Political Weekly*, 46(7), 49-58.

Tharakan, P. K. M., Beveren, I. V. and Ourti, T. V. (2005). Determinants of India's software exports and goods exports. *The Review of Economics and Statistics*, 87(4), 776–780.

Tinbergen, J. (1962). *Shaping the world economy: suggestions for an international economic policy.* The Twentieth Century Fund, New York.

Windmeijer, F. (2005). A finite sample correction for the variance of linear efficient two-step GMM estimators. *Journal of Econometrics*, 126 (1), 25–51.