EMPIRICAL ANALYSIS OF TRADE RELATIONS BETWEEN CHINA AND INDIA: ITS IMPACT ON ECONOMIC GROWTH

Naveed Ahmed Shaikh

Professor Doctor, Department of Economics Shah Abdul Latif University Khairpur, Sindh, Pakistan.

Idrees Afzal

MPhil Scholar, Department of Economics Shah Abdul Latif University Khairpur, Sindh, Pakistan.

Muhammad Hasnain Khalid

Lecturer, Department of Economics, University of Haripur, Haripur, Pakistan.

Abdul Rahman

Lecturer, Institute of Management Science (IMS), University of Haripur, Haripur.

Corresponding author: **Hasnain.khalid@uoh.edu.pk**

Article Info

Abstract

This paper's core objective is to examine China's and India's economic development considering their inclusion into the world economy specifically in terms of trade. We start out by going over some basic facts about their recent economic growth, the biggest institutional changes that have been made, especially regarding trade relations and how those changes have affected their economic development. We analyzed the comparison & characteristics with the patterns for said both nations to provide a brief analysis of the growth of economies, economic startups, and value of trade. We have additionally computed several econometric associations between trade openness and economic growth, incorporating as the variables under consideration such gross fixed capital formation. To analyze the causal relationships, we focused upon the fixed effects model by 2SLS. Even when we treat Openness and FDI as endogenous variables, our results are nevertheless supported since their effects on economic growth are positive and statistically significant across all parameters. The results indicate that how opening and integrating into the global market has benefited both countries' economies. Observe how the recent global crisis was initially mitigated by the strong growth of these two "giants," which is currently supporting the revival of the global economy.

Keywords: *Trade Openness, Economic Growth, China & India, Global Economy and Economic Integration.*

Introduction

In global scenario the economies of China and India are considered to be the most competitive economies, and they are frequently rising openly for the potential standings at national and international standard (Venkatesh & Velkennedy, 2024). Despite having many similarities, the two nations' recent economic boom differs in terms of timing, intensity, and important growth process elements. Long-term, opening has been beneficial for both countries (Wang et al. 2022). National trade and international relations, even if they didn't start liberalization initiatives until their home economy were robust enough to withstand competition from outside.

They are undoubtedly impacted by global economic trends, including the most recent economic crisis, given their integration into the global economy (Valli & Saccone, 2020). However, as Srinivasan (2019) has extensively demonstrated, China's and India's economic performance have the important impact on global policy making both during good and poor economic times. Despite ongoing imbalances in certain economic relations (such as those between China and the US), the two Asian nations are contributing to the global recovery through their imports. Additionally, very encouraging are the short-term projections (Wagener, 2021). This paper's primary goal is to measure and describe the influence of trade on both country's growth, with particular attention to trade dynamics, openness levels, foreign direct investment (FDI) flows, and patterns of specialization (Srinivasan, 2023). The econometric estimation of the relationships between openness and growth over the last three decades for the two countries is the second goal. China and India have several important things in common: they are "giants" in terms of population. In terms of economic development, they have also developed similarly, albeit there are also some significant distinctions. The primary distinction between the two nations is presumably their political structures, with India having a strong foundation in democracy. Considerably various time periods and comparative viewpoints have been used to study economic development of Indian and Chinese economies.

Examining the current drivers of economic growth in China and India is a complicated process that encompasses supply and demand as well as institutional aspects. Here, we focus on the key institutional adjustments and reforms that have led to the two economies' opening. Firstly, "gradualism" is a common characteristic of the transitions in China and India (Srinivasan, 2023) and is one of the main distinctions from the "great transformation" (i.e., rapid changes) that occurred in Eastern Europe in the initial 1990s.

China started its lengthy journey of economic reforms in 1978, transitioning from an ineffective planned economy. These changes can be categorized into five distinct stages (Chiarlone & Amighini, 2017). A new type of collective enterprise was introduced into the agricultural sector between 1978 and 1984, when a reform allowed for the sharing of earnings from production over set levels to households. The primary sector's output and productivity were encouraged by this reform. During the second stage of reforms (1985–88), the industrial sector was the focus. Prices and salaries were liberalized, and businesses were allowed to retain their earnings for self-financing. The underemployed labor force in the agriculture industry was drawn to this sector due to its increased productivity and earnings (Dasgupta & Singh, 2016).

It should be highlighted that the recent economic "miracle" in China has been largely due to trade openness, particularly regarding exports, which has been steadily expanding while import liberalization has been more sluggish. Furthermore, massive FDI inflows that were primarily drawn by significantly lower labor costs most likely created knock-on effects and changed the production specialization model (Franco & Sasidharan, 2018).

Like other "gradual" transitions, the Indian one has been fairly distinct. First, compared to China, India's integration into the global economy has been significantly delayed due to institutional change and reform initiatives that started later. The 1980s saw the introduction of certain reforms, such as the partial liberalization of imports, which were followed by progressive privatizations. However, it wasn't until 1992 that institutional change and reform policies—such as the creation of "special economic zones" and changes to the fiscal system—began to pick up steam. Furthermore, apart from enduring inflexibilities and vulnerabilities, India's integration into the global economy is significantly weaker than China's (Frankel & Rose, 2022).

The previous three decades have seen "gradual" and rather distinct modification of institutions and change strategies of Indian and Chinese economy, which have resulted in a marked increase for two countries having access to international interactions (trade and FDI). Not only has the opening been gradual, but there are also certain restrictions, such as those pertaining to foreign direct investment (FDI) due to the need to meet local content standards or to support to collective growth sides in order to strengthen local basic parameters (Furong & Yee-Kyoung, 2018).

It should be mentioned that over the past three decades, there has been a notable parallel growth in imports and exports. In any event, net export values have generally been favorable, particularly for China, notwithstanding their volatility. Additionally, this performance has clear macroeconomic ramifications. These worldwide macroeconomic imbalances can be partially blamed for the recent financial and economic catastrophe. (Herd & Dougherty, 2017).

China is already trying to maintain individual consumption. On the other hand, the global interdependencies also work the other way. The world's economic downturn has been lessened in terms of both extent and duration due to China's and India's consistent growth. Of course, combating exchange rate wars and the resurgence of protectionism is crucial for the global economy. After the crisis began, "incremental buildups" of limitations, including state aid, other subsidies, and "buy/lend/invest/hire local" criteria, were more or less overtly protectionist in nature. The main aim of the study is to analyze the terms of trade in between China and India and to assess the impact of trade of China and India on world economy.

Literature Review

Over the past ten years, the demand for significant regional trade agreements has arisen due to the World Trade Organization discussions' slow pace. Nonetheless, the recent surge in nationalism has resulted in a rise in trade barriers, trade conflicts, and the dissolution of mega-regionals comprising major global economic powers (Franco & Sasidharan, 2018). The results of the evaluation imply that India might not gain anything by re-joining the RCAP. as opposed to the viewpoint of Sharma et al. (2020).

The results of the evaluation imply that India might not gain anything by re-joining the RCAP. As opposed to Sharma et al. (2020), Gaur (2020) conducted a comprehensive analysis of India's withdrawal from the Regional Comprehensive Economic Partnership (RCEP) and concluded that India would lose out on export opportunities and the chance to integrate into the region's value chain if it were to join the RCEP, even though it would be better for the country's future development. In addition, Chakraborty and Chaisse (2021) looked at how regional value chains and global production networks were involved in India's withdrawal from the Regional Comprehensive Economic Partnership (RCEP).

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pg. 3

has extensively demonstrated, China's and India's economic performance have the important impact on global policy making both during good and poor economic times. Despite ongoing imbalances in certain economic relations (such as those between China and the US), the two Asian nations are contributing to the global recovery through their imports.

According to (Frankel & Rose, 2022), reciprocity has become a major source of human motivation. As a result, most economic actors increasingly consider it while making choices and acting (Srinivasan, 2023). But since reciprocity isn't always advantageous to both parties, it might be the exception rather than the rule in many social interactions. (Wagener, 2021) point out that reciprocity is a key factor in determining tariff levels and a motivating factor in efforts to unilaterally extend current free trade agreements or pursue new ones. It also has a big impact on how willing people are to cooperate and engage in international exchanges (Chiarlone & Amighini, 2017).

Research Methodology

The current empirical study is based on annual secondary data from 1990 to 2023. Data on India's imports and exports, including exports, have been gathered from the website of the Ministry of Commerce and Industry's Directorate General of Foreign Trade. The Reserve Bank of India website is where the GDP (Gross Domestic Product in crore rupees) of India is gathered. The validity of the data gathered has also been cross-checked by looking at earlier Economic Survey reports. For China data is taken from China statistical bases. Data analysis has been conducted using E-Views 9. First, the stationarity of the data has been tested using the Augmented Dickey Fuller (ADF) unit root test. Second, the number of maximal lags has been ascertained using the VAR (Vector Auto Regression) model, and the relationship has been ascertained using the Johansen co-integration test. To determine the causal linkages between the variables, the Granger causality test has finally been performed.

Before we analyze the trade specialization of the two countries, let us first look at the sectoral composition of output. China's industrial sector has steadily increased GDP over the last thirty years, whereas India's remains more centered on agriculture and is more specialized in service-related industries.

Table 1. Trade Specialization

		1990s	2000s	2010s	2020s
Agriculture	China	28	16	18	19
	India	37	34	29	17
Industry	China	49	43	47	34
	India	23	28	28	26
Services	China	22	32	40	41
	India	38	45	49	58

In any event, their trade specialization has been closely linked to structural change and production shifts, particularly the two countries' remarkable industrialization. It was customary in the past to imagine an asymmetric trade model when talking about the trade integration of "Third World" nations, in which emerging nations import manufactured commodities and export primarily agricultural items and raw materials.

Moreover, in the early phases of industrialization, developing nations typically export labor-intensive items, whereas more developed nations specialize in capital (human or physical) intensive goods. For many years, these "inter-industry trade" ties have been representative of global North-South trade

connections.

Trade between industrialized countries is thought to follow an "intra-industry" pattern, as opposed to North-North trade patterns, according to new trade theories (based on economies of scale, imperfect competition, product diversification, etc.)

Therefore, it's interesting to evaluate whether China and India have advanced to a point where their trade patterns more closely resemble those of the majority of developed nations.

Rodrik (2006) discussed China's and India's export shares of complex goods exceed what can be explained by comparative advantage. He claims that this is the result of the government's industrial policies that followed its "it is not how much you export, but what you export that matters" theory of economic growth. In the initial stages, "promotion and protection" have been used as tools to boost high value-added productions rather than total liberalization (as was the case with the earlier "Asian Tigers" experience).

Calculating an index of specialization, such as the so-called "Balassa index," is another method of assessing trade specialization:

$$Bsi = (Xsi/Xsw) / (Xi /Xw)$$

Whereas, Xsw represents the related global exports, Xi represents the total exports from nation i, and Xw represents the total exports worldwide. Stated differently, the Balassa index is calculated by dividing a country's sector share by the corresponding global share. The Balassa index derived from WTO data is shown in the following Table. In addition to the final (2007) number, five-year averages covering the 1990–2023 period are also included for simplicity's sake. The index is intriguing since it makes it possible to compare the two countries as well as across time. First, it's important to note that both China and India had a decline in agricultural product specialization; however, whilst China has since become less specialized, India remains specialized (B>1) in this area as of the last year. In terms of manufacturing, China transitioned from de-specialization to specialization, whereas India's specialization has always been near to the global structure (B≈1).

Table 2: Balaasa Index

	China							India						
	1990-95	1995-00	2000-05	2005-10	2010-15	2015-20	2020-23	1990-95	1995-00	2000-05	2005-10	2010-15	2015-20	2020-23
1. Agriculture	1.19	0.88	.77	.72	.44	.42	.22	.60	.22	1.4	1.8	1.15	1.6	1.8
1.1 Food	.68	.56	.66	.55	.20	.18	.10	1.9	1.11	1.38	1.31	1.11	1.2	1.2
2. Fuel & Mining	1.01	1.00	0.70	0.80	0.90	0.18	0.11	0.10	0.20	0.40	1.11	1.40	1.50	1.70
2.1 Fuels	0.10	0.70	0.50	0.60	0.6	0.01	0.01	0.10	0.16	0.28	0.10	1.30	1.40	1.60
3. Manufactures	0.94	0.96	0.15	1.28	1.27	1.48	1.47	0.89	0.98	1.28	1.27	1.09	1.10	2.30
3.1 Iron and steel	0.26	0.35	0.11	0.89	1.10	1.37	1.20	0.42	0.71	1.10	1.07	1.01	0.91	1.10
3.2 Chemicals	0.99	1.10	0.98	0.21	0.31	1.21	1.00	1.6	1.50	0.99	1.02	1.00	0.61	0.98

pg. 5

3.2.1 Pharmaceutical	0.01	0.03	0.06	0.31	0.51	0.61	0.91	0.71	0.91	2.00	1.9	1.6	1.2	1.3
3.3 Machinery, Trans	0.20	0.30	0.10	0.69	1.20	1.17	1.30	0.52	0.91	1.10	1.07	1.01	0.91	1.20
3.3.1 Tele: Equip	0.27	0.35	0.31	0.79	1.40	1.27	1.30	0.32	0.41	1.30	1.37	1.21	0.71	1.30
3.3.2) Elec data	0.36	0.25	0.41	0.79	1.30	1.47	1.20	0.42	0.71	1.10	1.07	1.01	0.91	1.10
3.3.3 Tele equ:	0.24	0.38	0.41	0.69	1.10	1.47	1.30	0.82	0.91	1.50	1.77	1.71	0.91	1.70
3.3.4 Integ Circuits	0.46	0.95	0.91	0.79	1.60	1.77	1.50	0.62	0.51	1.30	1.77	1.91	0.81	1.70
3.3.5 Auto: Prod:	0.36	0.45	0.11	0.99	1.70	1.47	1.30	0.72	0.91	1.70	1.67	1.51	0.81	1.60
3.4 Textiles	0.35	0.47	0.81	0.49	1.30	1.57	1.60	0.72	2.81	3.30	1.47	2.21	2.61	2.50
3.5 Clothing	0.76	0.55	0.61	0.79	1.20	1.47	1.50	0.62	0.61	1.90	1.57	1.51	2.91	2.10

Regarding manufacturing industries, both nations lessened their intense specialization in apparel and textiles, notwithstanding their values. The goods (especially Chinese clothes and Indian textiles). The two nations i.e. China in the latter part of the 1990s and India more recently exhibited comparable behavior in the iron and steel industry as well, transitioning from de-specialization to a definite specialization. Chemicals behave in an opposite way: India got increasingly specialized, especially in the pharmaceutical's subsector, whereas China emphasized its de-specialization. There is an asymmetry in machinery and transport apparatus as well, but in this instance, China has specialized while India has remained notably de-specialized (this is true across all subsectors).

The investigation validates the two nations' specialization in cutting-edge and inventive industries, including chemicals, office and telecom equipment, motor vehicles, machinery, and transportation equipment. It should be noted that this area of expertise is only focused on foreign direct investment (FDI) inflows, which might impact growth directly or through trade connections. The lower specialization in sophisticated industries in India may be explained by the country's lower foreign direct investment (FDI) than in China; nonetheless, notwithstanding their lesser significance, technological product exports from India are made by local companies rather than by multinational corporations as in China. Furthermore, we emphasize that India has far more developed service trade than China does. There have been several different methodologies used in empirical research on the effects of trade on growth. The distinction between trade growth and trade policy must be kept in mind despite the many variables and measurements 52.53.

Most recent research e.g. Edwards (1998), Frankel and Romer (1999), Sarkar (2008) and Makki and Somwaru (2004) used panel or cross-section methodologies, typically with sizable country samples. Cross-sections are sometimes based on sub-national data, such as the provinces of China (Sun & Parikh, 2001; Jin et al., 2008); or they are based on a variety of sectoral data, as noted by (Milner et al., 2007).

This study gathered data for China and India because it is the subject of our paper. In order to estimate the data using either an instrumental variable approach or fixed effects, we therefore chose to compile the data for the two countries into panel data and covering time period from 1980 to 2007. This study used

GDP per capita as proxy for economic growth, in accordance with the major literature (Frankel and Rose, 2002). The two variables of interest, the degree of openness and FDI flows or stocks, as well as a few control variables, should be included in the explanatory variables. among models of growth.

Empirical Results

The result of the study is as follows:

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Table 3. Impact of Global Integration on China and India

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Variables	Model I	Model II	Model III
	Fixed Effects	Random Effects	Fixed Effects
Dependent Variable		GDP per capita growth	
Open	3.99	3.88	3.49
	(0.511)	(0.811)	(1.611)
FDI	0.199	0.099	0.089
	(0.022)	(0.032)	(0.056)
Capital Formation	-0.003	-0.005	-0.021
	(0.019)	(0.016)	(0.009)
Time trend	--	0.029	--
		(0.009)	
Time trend-China	--	--	0.031
			(0.361)
Time trend-India	--	--	0.021
			(0.0006)
Constant	4.091	5.071	4.091
	(0.570)	(0.370)	(0.570)
Hausman Test	14.91	0.91	14.91
Prob.>Chi²	0.000	0.800	0.000
N	55	53	55
R-Square	0.91	0.88	0.91

shows the significance level at 1%.

Most notably, even when we treat Open and FDI as endogenous factors, the values of the coefficients of these variables of interest stays positive and statistically significant, supporting our conclusions once again. Making estimates for each country using a time-series technique is one feasible strategy to highlight the unique characteristics of each, but the results are not entirely satisfactory due to the small number of observations. A different approach would be to consider the disparities in time trends, or the rates of

technological advancement, between the two nations. In addition, it would be intriguing to determine whether capital stock investments yield returns after a year rather than instantly.

Only the coefficient for India proves to be relevant in terms of the time trends. One possible explanation is that, in contrast to China, India has seen a greater contribution to technological advancement from domestic companies, particularly in the service sector. This could account for the country's positive time trend   coefficient   and   the   decreased   significance   of   FDI. It should be noticed that, despite the previously mentioned disparities between the two nations, Open and FDI continue to show the predicted indications in all three of the models shown in above table and are generally statistically significant.

Conclusion and Policy Recommendations

This study examines the "recent miracle" of economic growth in China and India, with a particular emphasis on the institutional reforms that have been implemented over the last three decades that have contributed to the two nations' increasing "openness." As demonstrated in the empirical part, both countries' recent remarkable economic success has been accompanied by a rise in trade and openness to the outside world, encompassing both merchandise trade and foreign direct investment.

In terms of trade specialization, China and India not only export primarily manufactured goods, but they have also advanced past the early stages of industrialization and reduced their specialization in manufacturing, such as textiles and apparel, because they adopted well-thought-out industrial policies. Particularly, China is currently a leader in cutting-edge industries such as electronic data processing, office equipment, telecommunications equipment, and, to a lesser degree, integrated circuits and electronic components. India has shifted towards software manufacturing and service activities, but it is less specialized in these fields.

By adjusting for other significant variables, we were able to achieve somewhat strong results (despite the short number of observations) in the econometric investigations about the favorable impact of openness and   FDI   on   economic   growth. We emphasize again that the impact of the two countries' "real" opening and integration into the global economy is what our results speak to, not the trade liberalization policies, which in any case were only implemented when the two nations were "ready" to compete in the global markets or to take advantage of foreign capitals' advantages.

It demonstrated that although "global integration" has been the driving force behind economic growth in China, in India this same variable, while still significant, is somehow hidden by the prevalence of national factors. We can wrap up by highlighting how opening up and integrating into the global market has benefited both countries' economies. Of However, from a short-term standpoint, both countries' high levels of openness suggest that they are susceptible to significant economic shocks, such as the one that followed the global crisis of 2008–2009 that raised the economies during 2017-2018, even though their growth rates were only somewhat slowed down.

However, the strong expansion of these two "giants" is precisely what has mitigated the initial global effects   of   the   crisis   and   is   currently   supporting   the   global   economy's   recovery. As the recent G-20 summit in Seoul correctly noted, in terms of the implications for policy, it is now critical for the major global economic powers to resolve the exchange-rate misalignments and to counter

the growing protectionist tendencies that sporadically emerge in various parts of the world for the growth of economies comparatively.

WTO members' desire to maintain their liberalization policies would also be demonstrated by a decision to end the Doha Round negotiations. However, such a decision would only be feasible if the legitimate requests of emerging nations, such as China and India, are given due consideration. The best strategy to support emerging countries' catch-up efforts and return the world economy to satisfactory growth rates is to combine free trade with meaningful reforms of the international financial system, as recommended by the G-20 summits in previously.

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pg. 10

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