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India's Trade Relations With China Market An Empirical Analysis

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Abstract
The China India's Relations Also Called Sino-Indian Relations Or Indo-Chinese Relations. India And China Had Historically Maintained Peaceful Relations For Thousands Of Years Of Recorded History, But The Harmony Of The Relationship Has Varied In Modern Time. Especially After The Rule Of Communist Party In China. The Year 1944 Marked The Beginning Of New Era In The India-China Economic Relations. In This Year A Double Taxation Agreement Was Signed Between India And China. In 2003 Bangkok Agreement Was Signed The Two Countries, Under This Agreement Both India And China Offered Some Trade Preferences To Each Other. The Two Countries Have Also Shown Interest To Take Part In A Multilateral Trade System As Per The Wto Commitments. India's Total Exports Which Stood At Us $ 83535.94 Million In 2004-05 Increased To Us $ 291808.5 Million By 2020-21 And Registered An Annual Growth Rate Of 5.90 Percent. At The Same Time, Total Imports Of The Country Increased From Us $111517.4 Million To Us $ 394435.9 Million And Recorded An Annual Growth Rate Of 5.62 Percent. India's Exports To China Increased From Us $ 8321.86 Million To Us $ 21187.15 Million During The Period 2006-07 To 2020-21, While Imports From China Increased From Us $ 17475.03 Million To Us $ 65212.25 Million. Total Export-Import Gap Has Been Increasing At The Rate Of 3.35 Percent Points. Thus India Being A Dependent Country On China Is Not In A Position To Properly Tap The China Market.

Key Words: *Export, Import, China, Gdp, Reer, India*

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I. Introduction

China India's relations also called Sino-Indian relations or Indo-Chinese relations. Refers to the bilateral relationship between the Peoples Republic of China and the Republic of India. India and China had historically maintained peaceful relations for thousands of years of recorded history, but the harmony of the relationship has varied in modern time. Especially after the rule of communist party in China.

China and India today represent Asia's two largest and most dynamic societies which are emerging as new trend setters in international relations. Especially with their GDP growth rates standing respectively at 9.1 percent and 8.5 percent for 2003 and at 9.5 percent and 6.9 percent for 2004, China and India come to be recognised as the fastest growing economies. According to the World Bank estimates and assessed on the basis of purchasing power parity.

From the global perspective, China and India today represent two unique new players presenting an extraordinary combination of a very large GDP and still with significant poverty and pockets of unrest and a very low per capita income and living standards. This unique combination raises several politico strategic sphere.

The year 1944 marked the beginning of new era in the India-China economic relations. In this year a double taxation agreement was signed between India and China. In 2003 Bangkok agreement was signed the two countries, under this agreement both India and China offered some trade preferences to each other. The two countries have also shown interest to take part in a multilateral trade system as per the WTO commitments. China has already been top trading partner of India in recent time. Today China is India's largest trading partner, while India is with in the top ten of China's trading partner.

The bilateral trade between India and China has grown four fold in the past decade. But the trade was more in favour of China. India's top ten export items to China comprise 73 percent to total exports. India's import pattern from China witnessed a dramatic shift. The share of capital goods grew from 22.4 percent in 2001 to 56.4 percent in 2016.

The trade dependence index or trade GDP ratio or the openness index is a measure of the importance of international trade in the overall economy. India's dependence on trade has fallen from 43 percent in 2013 to 27 percent in 2016. Indicating higher inclusiveness in GDPs and relatively lower susceptibility to external shocks and volatility, ceteris paribus. Conversely China's dependence on trade has drastically declined from 61 percent in 2007 to 33 percent in 2016. India's import penetration rate in China fell from 0.44 percent in 2007 to 0.11 percent in 2016.

Objectives, Data Sources and Techniques

The specific objectives of the paper are

1. To examine the trade performance of India with China.
2. To analyse the trends and share of India's trade position with China.
3. To study about the price competitiveness of Indian exports to China.

II. DATA SOURCES AND TECHNIQUES

In order to pursue the objectives, secondary data relating to exports, imports and commodity wise trade are drawn from official site of Ministry of Trade, Department of Commerce, Export Import Data Bank, while data relating to the GDP of China is tapped from World Bank, World development indicators. Data relating to real effective exchange economy, published by reserve bank of India. The study is confined to 2006-2021. In order to analyse the trends in exports and imports growth rates are estimated by considering the semi log linear form given by $\log Y = \beta_0+\beta_1 t$, where Y is the dependent variable, t is the trend variable, , β_0 is the intercept term and β_1 is the slope. Thus β_1 indicates the growth rate. Further, in order to study the price competitiveness of Indian exports to China, multiple log linear regression model given by $\log X_i = \beta_0+\beta_1 \log$ GDP China + $\beta_2 \log$ REER +u is considered. In the model X_i is the export of i_{th} commodity (i=1,2, ….11) to China (in US$ million) and the list is given separately. The variable GDP China is the gross domestic product of China other than India, REER is the India's real effective exchange rate, β_0 is the intercept term, while β_1 and β_2 are the parameters indicating the elasticity of Indian exports with respect to gross domestic product of China other than India and India's real effective exchange rate. Further, **u** is the stochastic term. The rationale for considering the variables is, because the demand for exports of a country depends on not only on income of the importer but also on the export price of the supplier country. Hence, the REER is considered to reflect the export price. On a priori grounds, the sign of β_1 expected to be positive since, higher the income, the greater will be the imports of a country. Further, if exports price is competitive, and then greater will be the imports and vice versa, hence positive sign is expected for β_2 when price is competitive, while negative sign is expected for β_2 when the price is not competitive, the regression equation is estimated by applying OLS Method under given assumptions. Using SPSS -25 Verson.

Commodities considered

Top eleven principal commodities of India's exports to China are observed from the list of 2-digit HS code and is obtained from the official site of Ministry of trade, Department of Commerce, Export-Import data bank and the following is the list.

X_1= Ores, Slag and Ash (HS Code 26)
X_2 = Mineral Fuels and related Products (HS Code 27)
X_3 = Organic Chemicals (HS Code 29)
X_4 = Pharmaceutical Products (HS Code 30)
X_5 = Plastic and Rubber related Products (HS Code 39 and 40)
X_6= Cotton (HS Code 52)
X_7 = Iron and Steel and related articles (HS Code 72 and 73)
X_8 = Copper and Articles (HS Code 74)
X_9 = Nuclear Reactors, Boilers, Machinery and Mechanical Appliances (HS Code 84)
X_{10}= Electrical Machinery and related Equipment (HS Code 85)

X_{11} = Motor Vehicles and Accessories (HS Code 87)
X_{TE} = Total Exports to China

III. Analysis Of Trends And Share Of India's Trade Position In Brics

Table 1 presents information about trends in India's total exports, imports, total exports to China and total imports from China. From the table, India's total exports which stood at US $ 126414.1 million in 2006-07 increased to US $ 291808 million by 2020-21 and registered an annual growth rate of 4.49 percent. At the same time, total imports of the country increased from US $ 185735.2 million to US $ 394435.9 million and recorded an annual growth rate of 3.95 percent. Thus total export-import gap has been decreasing at the rate of 0.54 percent points indicating an average gap of US $ 132016.8 million over the study period.

Further, India's exports to China increased from US $ 8321.86 million to US $ 21187.15 million during the period 2006-07 to 2020-21, while imports from China increased from US $ 17475.03 million to US $ 65212.25 million. Further, annual growth rates of India's exports to China and imports from China are found to be 3.66 and 7.01 percent respectively. Thus total export-import gap has been increasing at the rate of 3.35 percent points. However, in absolute terms on the average exportable deficit of India over the study period stood at US $ 38055 million and thus accounted for 25.92 percent. Further, the share of exports to China in total Indian exports varied between 3.44 to 7.24 per cent. While the share of imports from China in total Indian imports varied from 9.41 per cent to 16.53 percent. Thus India being a dependent country on China is not in a position to properly tap the China market.

Table 1
India's Total Exports and Imports and China
US $ Million

Year	Total Exports	Total Imports	Exports to China	Imports from China
2006-07	126414.1	185735.2	8321.86 (6.58)	17475.03 (9.41)
2007-08	163132.2	251654	10871.34 (6.66)	27146.41 (10.79)
2008-09	185295.4	303696.3	9353.5 (5.05)	32497.02 (10.70)
2009-10	178751.4	288372.9	11617.88 (6.50)	30824.02 (10.69)
2010-11	249815.6	369769.1	14168.86 (5.67)	43479.76 (11.76)
2011-12	305963.9	489319.5	18076.55 (5.91)	55313.58 (11.30)
2012-13	300400.6	490736.6	13534.88 (4.51)	52248.33 (10.65)
2013-14	314405.3	450199.8	14824.36 (4.72)	51034.62 (11.34)
2014-15	310338.5	448033.4	11934.25 (3.85)	60413.17 (13.48)
2015-16	262291.1	381007.7	9011.36 (3.44)	61707.95 (16.20)
2016-17	275852.4	384357	10171.89 (3.69)	61283.03 (15.94)
2017-18	303526.2	465581	13333.53 (4.39)	76380.7 (16.41)
2018-19	330078.1	514078.4	16752.2 (5.08)	70319.64 (13.68)
2019-20	313361	474709.3	16612.75 (5.30)	65260.75 (13.75)
2020-21	291808.5	394435.9	21187.15 (7.26)	65212.25 (16.53)
Growth rate	4.49*	3.95*	3.664*	7.01*
Average	260762.3	392779.1	13318.16	51373.08
CV	25.04	24.94	27.67356	33.91

Note: * indicates the growth rates are statistically significant at 1 percent. Figures in the parenthesis indicate share of BRICS in total exports and imports of India.
Source: Ministry of Commerce and Trade, Department of Commerce, Export Import Data Bank

Table 2 furnishes the details about India's export of top eleven commodities to China market in terms of percentage. During the study period, among the different commodities that are exported by India to China market, Ores, Slag and Ash (X_1) topped the list with an average share of 22.77 percent followed by, Cotton (X_6) with an average share of 13.52 percent, Organic Chemicals (X_3) with an average share of 9.49 percent, Copper and Articles (X_8) with an average share of 7.76 percent, Mineral Fuels and related Products (X_2) with an average share of 7.10 percent, Iron and Steel and related articles (X_7) with an average share of 4.25 percent, Plastic and Rubber related Products (X_5) with an average share of 4.23 percent, Nuclear Reactors, Boilers, Machinery and Mechanical Appliances (X_9) with an average share of 3.60 percent , Electrical Machinery and related Equipment (X_{10}) with an average share of 2.62 percent, Motor Vehicles and Accessories (X_{11}) with an average share of 0.55 percent, Pharmaceutical Products (X_4) with an average share of 0.28 percent respectively. The average share of the top eleven commodities considered for the study is noticed to be about 76.17 percent in the total commodity exports of India to China market.

TABLE 2
SHARE OF PRINCIPAL COMMODITIES IN INDIA'S EXPORTS TO CHINA (%)

Year	X_1	X_2	X_3	X_4	X_5	X_6	X_7	X_8	X_9	X_{10}	X_{11}
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
2009-10	47.94	0.88	4.39	0.21	2.85	10.89	2.84	4.69	2.63	2.00	0.25
2010-11	33.64	5.82	4.95	0.21	3.25	13.35	5.63	9.64	2.25	1.60	0.36
2011-12	25.53	6.49	4.99	0.24	3.61	22.24	3.70	11.17	2.11	1.68	0.59
2012-13	14.02	2.41	7.53	0.53	4.99	25.20	2.66	14.86	3.21	1.81	0.68
2013-14	10.59	6.90	6.20	0.31	3.95	25.86	2.72	12.42	3.26	2.04	0.80
2014-15	4.29	10.81	8.76	0.25	3.25	19.09	1.65	15.84	4.19	2.35	0.88
2015-16	5.78	7.12	9.35	0.25	3.75	18.74	2.31	12.36	5.13	3.16	0.84
2016-17	16.20	7.76	8.67	0.27	3.26	13.20	4.07	6.90	5.23	3.89	0.75
2017-18	9.45	11.30	15.80	0.31	4.53	7.52	2.88	11.61	5.37	3.60	0.67
2018-19	7.28	17.05	19.40	0.27	6.99	10.67	2.35	1.46	4.96	3.46	0.59
2019-20	14.19	12.81	16.27	0.28	5.46	4.68	3.59	1.60	4.84	5.19	0.53
2020-21	20.68	4.94	11.40	0.24	4.87	6.03	12.15	3.68	3.54	3.39	0.54
Average	**22.77**	**7.10**	**9.49**	**0.28**	**4.23**	**13.52**	**4.25**	**7.76**	**3.60**	**2.62**	**0.55**

Source: Ministry of Commerce and Trade, Department of Commerce, Export -Import Data Bank.

TABLE – 3
Estimated Indian Export Demand Functions (to CHINA)

S. NO	Regression equation	R^2	F-Statistic	D. W. Statistic
	(1)	(2)	(3)	(4)
1.	Log X_1 = 55.173*+ (-.737 log GDP CHINA)+ (-5.481***log REE)	.401	5.685	1.218
2.	Log X_2 = -80.402*+ .2.446* log GDP CHINA + 3.060 log REE	.722	19.219	1.642
3.	Log X_3 = - 41.943* + 1.629* log GDP CHINA + .123 log REE	.731	20.070	.998
4.	Log X_4 =- 8.285 + .758** log GDP CHINA + (-2.280*** log REE)	.329	4.436	1.066
5.	Log X_5 = - 19.878***+ 1.167* log GDP CHINA+ (-1.825 log REE)	.372	5.148	1.210
6.	Log X_6 = - 3.514 + .387 log GDP CHINA+ (-.142 log REE)	-.120	.249	.917
7.	Log X_7 = - 1.438 + 1.019*** log GDP CHINA + (-4.861***log REE)	.203	2.787	1.609
8.	Log X_8 = - 6.621 + .207 log GDP CHINA + 1.528log REE	-.128	.203	.945
9.	Log X_9 = - 35.975* + 1.429* log GDP CHINA + (-.069 log REE)	.960	168.16	1.746
10.	Log X_{10} = - 49.438* + 2.152* log GDP CHINA + (-1.868**log REE)	.936	102.795	1.770
11.	Log X_{11} = - 54.833* + 2.196* log GDP CHINA + (-.1332log REE)	.673	15.397	.599
12.	Log X_{TE} = - 3.796 + 693 log GDP CHINA* + (-1.447 log REE)	.463	7.045	1.438

*denotes that the Coefficients are significant at 1% level of significance.

** denotes that the Coefficients are significant at 5% level of significance.
*** denotes that the Coefficients are significant at 10% level of significance.

IV. Analysis of Price Competitiveness of Indian Exports to China

Table 3 presents the estimated Indian export demand functions by considering the top 11 principle commodities exported to China along with the total commodity export demand function. GDP China is positive in eleven equations out of twelve equations including total exports to China from India. The eleven equations are X_2 -Mineral Fuels and related Products, X_3- Organic Chemicals, X_4 -Pharmaceutical Products, X_5-Plastic and Rubber related Products, X_6 – Cotton, X_7 -Iron and Steel and related articles, X_8 - Copper and Articles, X_9 - Nuclear Reactors, Boilers, Machinery and Mechanical Appliances, X_{10} -Electrical Machinery and related Equipment, X_{11} - Motor Vehicles and Accessories, X_{TE} - Total Exports to China. Based on these values one percent increase in GDP China 2.446 percent in X_2, 1.629 percent in X_3, .758 percent in X_4, 1.167 percent in X_5, .387 percent in X_6, 1.019 percent in X_7, .207 percent in X_8, 1.429 percent in X_9, 2.152 percent in X_{10}, 2.196 percent in X_{11}, .693percent in total exports to China i.e., $X_{T.E}$.

GDP China of X_2, X_3, X_5, X_9, X_{10}, X_{11} are noticed to be positive and statistically significant at 1 percent level, X_4 is noticed to be significant at 5 percent level. X_2, X_3, X_8 are observed to be price competitive and elasticity is more than one in case of X_2 and X_8, in case of X_3 it is observed that less than unity. The coefficient of determination R^2 in the case of X_2, X_3, X_9, X_{10} it is observed that more than 72 percent. More Variance is observed in case of X_9 and X_{10}.

V. SUMMARY

India's total exports which stood at US $ 83535.94 million in 2004-05 increased to US $ 291808.5 million by 2020-21 and registered an annual growth rate of 5.90 percent. At the same time, total imports of the country increased from US $111517.4 million to US $ 394435.9 million and recorded an annual growth rate of 5.62 percent. India's exports to China increased from US $ 8321.86 million to US $ 21187.15 million during the period 2006-07 to 2020-21, while imports from China increased from US $ 17475.03 million to US $ 65212.25 million. Total export-import gap has been increasing at the rate of 3.35 percent points. Thus India being a dependent country on China is not in a position to properly tap the China market. The average share of the top eleven commodities considered for the study is noticed to be about 76.17 percent in the total commodity exports of India to China market. During the study period, among the different commodities that are exported by India to China market, Ores, Slag and Ash (X_1) topped the list with an average share of 22.77 percent.

GDP China of X_2, X_3, X_5, X_9, X_{10}, X_{11} are noticed to be positive and statistically significant at 1 percent level, X_4 is noticed to be significant at 5 percent level. X_2, X_3, X_8 are observed to be price competitive and elasticity is more than one in case of X_2 and X_8 in case of X_3 it is observed that less than unity. The coefficient of determination R^2 in the case of X_2, X_3, X_9, X_{10} it is observed that more than 72 percent. More Variance is observed in case of X_9 and X_{10}.

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