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TRADE AND BALANCE OF PAYMENTS IN INDIA AND CHINA: A COMPARATIVE ANALYSIS

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Abstract

India and China are two large Asian countries experiencing rapid growth during the recent decades. For twenty years, India's economic growth rate ranked second among the world's large economies, after China, which it has consistently trailed by at least one percentage point. The present study aims to examine the impact of exports and imports expansion on the economic growth of India and China. As India and China are fastest growing countries of Asia, it is interesting to compare these economies. Selecting a period from 1981 to 2014, the comparative study has used Time series econometric techniques (Johansen Cointegration and Granger causality model) have been applied) to test the hypothesis. The comparison of economic parameters between India and China reveals that early and more efficient reforms are the reason for better economic performance of China. The study concludes that China performed better as compared to India. The difference in performance between India & China is not simply because of timings of changes in policies but the speed of reforms, implementation of policies and nature of political governance which also mattered.

***Keywords**: Trade pattern, Growth, Cointegration, Granger Causality*

Introduction

There is no nation today that exists in a state of economic isolation. All the various aspects of a nation's economy, such as its level of industrial development, development of its income and employment, the living standard of its people and the like are closely linked to the economies of the various other nations, which have involved in trade relations with that country. This linkage could be understood from the movements of goods and services, labour, business enterprises, investments in the form of funds and technology between that country and the other countries. In fact, the national economic policies for a country could be formulated only after evaluating the probable impact on an economy by the rest of the world.

Balance of payments has a significant role in the economic growth of a country. Huge payment balances put upward pressure on the foreign currency and downward pressure on the local currency. As a result, there is depreciation in the value of local currency and appreciation in the foreign exchange rate. This devaluation of the local currency has a positive impact on exports and a negative impact on imports. It is positive in the sense that it increases exports as the local products are available at a lower price in foreign currency. But, on the other hand, negative in the sense that it makes imports of goods and assets more expensive because the local currency is weak. If a country does not have enough production capacity to satisfy the increased foreign demand of local products, its imports and exports balances will be affected. As a result, there is deficit in trade. It also puts upward pressure on the local market prices and causes high inflation.

India and China are the world's major economic powers and in a global economy they are affected by the financial crisis, where most advanced countries havebeen slumped into recession. However, India and China have grown at a reasonable rate over a period of time. Both the countries have an important role to play in the world economy, with China embracing private entrepreneurship and India facilitating globalization within its economy. Both India and China have registered strong economic growth since 1980 and opened up to international trade and capital. Indian and Chinese economies have benefited from FDIs that have provided new goods and services, hence a spurt in industrial growth. Indian and Chinese economies are ranked amongst the fastest growing economies in the world. But, the growth of the Chinese economy has been more spectacular than India. China today has surpassed India on the more important economic and welfare indices. China's per capita GDP growth has averaged eight per cent since 1980, which is double that of India's per capita GDP growth rate of nearly four per cent. The Chinese economy is much larger than the Indian economy and its labour-intensive manufacture exports contribute almost 40 per cent to the Chinese GDP compared to only 16 per cent in India.

As compared to India, China also scores higher on welfare indicators such as living standards, poverty ratio, female adult literacy and life expectancy by a wide margin. Since 1990, China has tripled per capita income and has bailed out 300 millions from poverty. While India still presents a picture of extreme poverty, Indians are playing invaluable roles in the research and development centers of global tech giants, sprouting all over India. Indian companies in line with China are also excelling in producing high-quality goods and services at very low prices, competing for a global market share.

Technical and Managerial skills in both India and China are becoming more important than cheap assembly labour. China will continue to dominate mass manufacturing and is still investing in building multibillion-dollar electronics and heavy industrial plants. While India is a leading force in software, design, services and the precision industry, a huge and demanding consumer class is also pushing through innovation in India and China. Chinese and Indian consumers want the latest technology and features. China and India are set to transform the global economy of the 21st century, through its young, dynamic and driven workforce, powering worldwide growth and change in a range of industries.

This paper aims to compare the Indian and Chinese economies and analyze the trade and balance of payments in both the economies. The study also includes the comparison of various economic parameters such as Balance of Payments, GDP, Export/Import Volume of the two countries.

Research Problem

During 1980s, the balance of payments problem assumed alarming proportions and the world is now left with a horrendous problem that seems to defy any amicable solution.

Most of the developing countries are having huge trade deficits which result in huge current account deficits. To bridge the gap in the current account, the governments have no other alternative but to go for loans from IMF, the World Bank and other international agencies. As a result, debt overhang has become a serious problem. The governments are paying large amounts towards interest on the past debts. For this, again, they are going for fresh loans and falling prey to debt trap. Subsequently, their foreign exchange reserves are depleting significantly which is a matter of great concern. In most of the developing countries monetary growth and inflation have accelerated sharply and fiscal deficits have remained high. As a result of all these problems, achieving equilibrium in balance of payments has become vital and magnificent task.

The two regional powers of India and China have been actively participating in international trade and international financing recently. Although they have large populations, huge territories and abundant natural resources which would enable them to be independent and autarkic. After globalization, every economy has attached more external endeavours with other countries. Though there are a number of researches in the field of International Economics, comparative researches relating to India and China are very limited in number. Moreover, balance of payments is an important variable which influences the international trade. A survey of existing research works reveals the fact that attempts to examine the comparative behaviour of the balance of payments of India and China are very limited. This work compares the position of trade and balance of payments of India and China and makes the readers understand the real magnitude of the problem faced by these countries.

Objectives of the Study

In the light of the foregoing discussion, the study is set to meet the following objectives:

1. To analyse the trend and growth of balance of payments of India and China.
2. To find out the relationship between balance of payments, exports, imports and GDP of India and China.

Review of Literature

A number of studies including Bhat (1995), Ghatak and Price (1997), Dhawan and Biswal (1999), Nataraj, Sahoo and Kamaiah (2001), Chandra (2003), Sharma and Panagiotidis (2004), Padhan (2004), Pandey (2006), Pradhan (2010), Mishra (2011), Ray (2011), Kaur and Sidhu (2012) and Devi (2013) adopted time series analysis for exploring the causal relationship between exports growth and output growth for India. Yao (2006) investigated the relationship between exports, FDI and economic growth for the period 1978-2000. Adopting Pedroni's panel unit root test and Arellano & Bond's dynamic panel data estimating technique, the study found that both exports and FDI have a strong and positive effect on economic growth. Similarly Liu, Burridge and Sinclair (2010) investigated the causal links between trade, economic growth and inward FDI in China at the aggregate level. Long run relationship among these variables has been identified in a cointegration framework. However, multivariate causality test identified bi-directional causality between economic growth, FDI & exports.

Trends for Trade

The trends of India's and China's exports have been shown in Figure 1. It shows that the total value of exports has increased during 1981-2014 in both the countries. In India, the value of total exports has also shown a rise from 8437.35 US million dollars in 1980 to 294993 US million dollars in 2014. The value of China's total exports has increased from 21125 US million dollars in 1980 to 2170185 US million dollars in 2014. China's exports growth has been tremendous as compared to India. The productivity, lower wages and exploitation of economies of scale were the reasons for higher exports in China

The trends of India's and China's imports have been exhibited in Figure 2. During 1981-2014, total value of imports has increased in both the countries. China's imports of goods & services have grown from 16876 US million dollars in 1980 to 1,428,434 US million dollars in 2014 while India's imports of goods & services have surged from 14148 US million dollars in 1981 to 440,470 million dollars in 2012 at constant prices 2005.China's imports growth of goods & services has also been found greater as compared to India. Both India and China were allowed more imports flexible and liberal access to import requirements for actual users, consistent with the aim of strengthening and diversifying the production base of the economy.

The trends of India's and China's balance of payments current account have been exhibited in Figure 3. During 1981-2014 balance of payments current account for India showed a negative trend all over the period. But, for China, the balance of payments current account showed a favourable trend throughout the period. The reason for current account deficit in India was due to several unfavourable factors such as deceleration in the growth of domestic oil production, bunching of repayment obligations to the IMF and other sources, limited availability of concessional assistance and a rise in debt service payments on external debt. The reason for higher favourable current account for China was from its invisible receipts.

Causality Analysis Methodology

All the data used in the study are in logarithmic form. This term formation can reduce the problem of heteroscedasticity as log transformation compresses the scale in which the variables are measured (Gujarati 1995)[1]use LY, LX, LM, and LB for GDP, exports, imports and Balance of payments respectively. The first step, in our methodology is to determine whether the variables used are stationary or not. If they are non-stationary, then

[1]*Gujarati, D., 'Basic Econometrics', 3rd Edition 1995, McGraw-Hill.*

the issue is- to what degree they are integrated. This can be addressed by the Augmented Dickey–Fuller (ADF) tests.

If the calculated ADF statistic is less than its critical value, then X (GDP, exports, imports and balance of payments) is said to be stationary or integrated of order zero, i.e. I(0). If this is not the case, then the ADF test is performed on the first difference of X(i.e. LnX). If Ln Xis found to be stationary, then X is integrated of order 1, or I(1). The governments of India and China took a series of reforms in the external sector in the mid 80s and early 90s. In addition, the Structural Adjustment Program (SAP) advocated by the World Bank and IMF is likely to have an impact on the overall macro economy of India and China. Thus, the use of ADF test for checking the stationary property of the data set given the presence of structural break arising from these reforms might lead to misleading results. If all the variables in a multivariate model are integrated of order one, that is I(1), then the next step is to find out whether they are co-integrated or not using Johansen's framework. The details of this approach can be found in Johansen (1988) and Johansen and Juselius (1990) maximum likelihood test for **Co-integration** test to capture the long run relationship between the given variables. Consider an unrestricted VAR model up to k lags in which the process Xt, for given values of $X_{-k+1},\ldots,X_0$, is defined by,

$$X_t=\mu+\Pi_1 X_{t-1}+\ldots\ldots\ldots+\Pi_k X_{t-k},\ t=1,2\ldots\ldots T \qquad (1)$$

Where,

X_t = Vector of I (1) variables

μ = Vector of constants

Since X_t is non-stationary, the above equation can be expressed in first differenced error-correction form,

$$\Delta X_t=\mu+\Gamma_1 X_{t-1}+\ldots\ldots\ldots+\Gamma_{k-1}\Delta X_{t-k+1}+\Pi_k X_{t-k} \qquad (2)$$

Where,

$\Gamma = -(1-\Pi_1-\ldots\ldots\Pi_i)$, i=1,2…..k-1$\Pi = -(1-\Pi_1-\ldots\ldots\Pi_k)$

Note that Eq. (2) is expressed as a traditional first difference VAR model except the term $\Pi\ Xt-k$. The coefficient matrix Π contains information about long-run relationships between the variables in the data vector. There are three possible cases. If the rank of Π equals p, i.e. the matrix Π has full rank; the vector process Xt is stationary. If the rank of Π equals 0, the matrix Π is a null matrix and the above equation corresponds to a traditional differenced vector time-series model.

Finally, if $0 < r < p$ there exist r cointegrating vectors; in that case $\Pi = aB'$, where a and B are $p \times r$ matrices. The cointegrating vectors B have the property that $B'Xt$ have is stationary eventhough Xt itself is non-stationary. In this case Eq. (2) can be interpreted as an error-correction model.

Johansen (1988) and Johansen and Juselius (1990) derived the likelihood ratio test for the hypothesis of r cointegrating vectors or $\Pi = aB'$. The cointegrating rank, r, can be tested with two statistics, namely *Trace* and *Maximal Eigen value*. The likelihood ratio test statistics for the null hypothesis that there are at most *r* cointegrating vectors against the alternative of more than *r* cointegrating vectors is the trace test and is computed as

$$\text{Trace} = -T \sum_{i=r+1}^{p} Ln(1-\lambda i) \qquad (3)$$

Where λ_{r+1} ,........ λˆ+1 are $p - r$ smallest estimated Eigen values. The likelihood ratio test statistic for the null hypothesis of *r* cointegrating vectors against the alternative of *r* + 1cointegrating vectors is the Maximal Eigen Value Test and is given by

$$\lambda_{max} = -T\ [\text{Ln}(1-\lambda_1)] \qquad (4)$$

Next step is to test the granger causality among the variables under consideration. The **Granger Causality** test used in time series analysis to examine the direction of Causality between four economic series has been one of the main subjects of many econometrics studies for the past three decades. Reports the Granger causality statistics for the variables, balance of payments (lnb), export (lnx), import (lnm), and GDP (lny).

The test involves estimating the following regressions equations,

$$\Delta y = \sum_{t=1}^{m} a_{11\,t}\,\Delta y_{t-1} + \sum_{t=1}^{m} a_{12\,t}\,\Delta x_{t-1} + \sum_{t=1}^{m} a_{13\,t}\,\Delta m_{t-1} + \sum_{t=1}^{m} a_{14\,t}\,\Delta b_{t-1} + \mu_1 \qquad (5)$$

$$\Delta x = \sum_{t=1}^{m} a_{21\,t}\,\Delta y_{t-1} + \sum_{t=1}^{m} a_{22\,t}\,\Delta x_{t-1} + \sum_{t=1}^{m} a_{23\,t}\,\Delta m_{t-1} + \sum_{t=1}^{m} a_{24\,t}\,\Delta b_{t-1} + \mu_2 \qquad (6)$$

$$\Delta m = \sum_{t=1}^{m} a_{31\,t}\,\Delta y_{t-1} + \sum_{t=1}^{m} a_{32\,t}\,\Delta x_{t-1} + \sum_{t=1}^{m} a_{33\,t}\,\Delta m_{t-1} + \sum_{t=1}^{m} a_{34\,t}\,\Delta b_{t-1} + \mu_3 \qquad (7)$$

$$\Delta b = \sum_{t=1}^{m} a_{41\,t}\,\Delta y_{t-1} + \sum_{t=1}^{m} a_{42\,t}\,\Delta x_{t-1} + \sum_{t=1}^{m} a_{43\,t}\,\Delta m_{t-1} + \sum_{t=1}^{m} a_{44\,t}\,\Delta b_{t-1} + \mu_4 \qquad (8)$$

Empirical Results for India and China

The time series data of India and China are used to examine the causal relationship between Balance of Payments, Exports, Imports and GDP. All data have been expressed in logarithms in order to include the proliferative effect of time series and been symbolized with the letter preceding (LB, LX, LM, LY) each variable name. If these variables share a common stochastic trend and their first differences are stationary, then they can be co-integrated. The use of 1^{st} differences in econometric studies facilitates the result interpretation, since the first differences of logarithms of initial variables represent the rate of change of these variables. Causality test might be interpreted as assessing whether another variable's lag either does or does not make a significant incremental contribution to the movement of a dependent variable, once the own correlation of the dependent variable is taken into account. In this sense, it is a more convenient tool than the conventional correlation and regression analysis.

Unit Root Test

The Augmented Dicky Fuller (ADF) unit root test is used for the estimated of individual time series with the intention to provide evidence about when the variables are integrated. This is followed by multivariate co integration analysis[2].

The result of unit root test for time series data are presented in table 1 to 4, Lag lengths for the ADF tests was determined by the Schwartz information criterion (SIC). This test result suggested that all series contained a single unit root, which would require first differencing to achieve stationary.

The ADF test was first conducted on the levels of balance of payments, exports, imports and GDP. The results for the levels and differences are given in Table 1 for India and China. The level results showed the level of balance of payments (natural log of balance of payments) of India and China. The ADF statistic value for India was -2.57 and the associated one-sided p-value was 0.10 and for China statistic value was -1.27 and the associated one-sided p-value was 0.62.Since the statistic t value was greater than the critical value, the researcher, did not reject the null hypothesis at conventional test sizes.

The results for the levels and differences are given in Table 2 for India and China. The level results showed the level of exports (natural log of exports) of both India and China. For India the ADF statistic value was 1.65 and the associated one-sided p-value was 0.99 and for China, statistic value was 0.84 and the associated one-sided p-value was 0.99.Since the statistic t value was greater than the critical value, the null hypothesis was not rejected at conventional test sizes.

The results for the levels and difference are given in Table 3 for India and China. The level results showed the level of imports (natural log of imports) of both India and China. For India the ADF statistic value was -2.06 and the associated one-sided p-value was 0.99 and for China, statistic value was 2.94 and the associated one-sided p-value was 1.00, since the statistic t value was greater than the critical value, the null hypothesis was not rejected at conventional test sizes.

The results for the levels and differences are given in Table 4 for India and China. The level results showed the level of GDP (natural log of GDP) of both India and China. For India the ADF statistic value was -1.22 and the associated one-sided p-value was 0.65 and for China, statistic value was 2.26 and the associated one-sided p-value was 0.99. Since the statistic t value was greater than the critical value, the null hypothesis was accepted at conventional test sizes.

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[2] *Melina Dritsaki, Chaido Dritsaki and Antonias Adamopoulous,(2004), "A Causal Relationship Between Trade, FDI and Economic Growth for Greece. pp.230- 235*

Co-integration Test

Having found that all the four variables in examination had unit roots as they were integrated of order one, the next step was to determine whether or not there existed at least one linear combination of the non-stationary, a variable that was integrated of order zero (I (o)). Co integration an econometric property of time series variable is a precondition for the existence of a long run or equilibrium economic relationship between two or more variables having unit roots (is integrated of order one) two or more random variables are said to be co-integrated if each of the series are themselves non stationary.

The results from the co integration analysis showed that when lags interval (in first differences) 1 to 1 were used the null hypothesis of no co integration (r=0) between Lnbop, Lnex, Inim and LnGDP was rejected at 5 per cent level. This test might be regarded as a long run equilibrium relationship among the variables. The purpose of the co integration tests I was to determine whether a group of non – stationary series was co-integrated or not.

Co integration test based on the Maximum Likelihood Method of Johnsen(1979) suggests two tests (the Trace Test and the Maximum Eigen Values Test) statistics to determine the co integration rank.

Table 5 offers results of both Trace and Maximum Eigen value tests which suggest the existence of only one co-integrating relationship among the variables in the series at 5per cent level of significance. This implies that the series under consideration were driven by one common trend.

Granger Causality Test

The long run relationship between Balance of Payments, Exports, Imports and GDP conducted on these variables is reported in Table 6. with the Granger causality statistic for the variables GDP (LY), export (LX), import (LM), and balance of payments (LB). Results indicate that export, import and balance of payments Granger caused GDP in the short-run as well as in the long run and the causality was unidirectional. The direction of causality and its mechanism could intend governments to develop effective export and import (EXIM) policy to promote economy growth in India and China.

Suggestions and Policy Implications

The government of India should take initiative measures for correcting the unfavourable balance of payments position by amending proper trade and EXIM policies. Export promotion and import restrictions measures should be undertaken. Further, the government should encourage people to avoid demonstration effect and make the people to purchase the domestically produced commodities in large scale.

The Government should try to get high volume of SDRs to avoid balance of payments problem. The Government can encourage the investors or entrepreneurs for business ventures to increase investment and production. The increased production will increase export.

There is no denying of the fact that foreign capital is essential for the development of an economy. In view of the experience of many East Asian countries, the country has to be cautious in its approach in opening up its economy to foreign capital flows.

The government should try to avoid volatility in exchange rate as it may encourage outflow of capital producing havoc for the home country.

Steps including improvement of infrastructural facilities, publicity of potential markets, marketing efforts and development of manpower resources should be enhanced to promote tourism in the country.

In order to attain surplus in the trade, account of balance of payments exports should be encouraged. Inward remittances should be further encouraged.

The government should encourage the production of high quality products at low cost to capture a sizable share of the world market.

The openness in trade should be further encouraged. The government should encourage starting industries locally for those goods which are importing in order to avoid foreign exchange erosion.

Conclusion

Balance of trade is the major component infusing the balance of payments. The balance of payments position became deficit for India. This was an unhealthy sign. This unfavourable balance of payments position retarded the growth rate of Indian economy. But, on the other hand, China registered a favourable balance of trade that helped to promote the rate of economy growth at a higher level. This helped China to boost the country's image in the international arena.

India and China have almost no commonalities in terms of history, culture, religion, language and political institutions. Although their conspicuous diversities make a comparison difficult, attempt to relate the political economy and ensuring performance of these countries is un avoidable and necessary for global reach.

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Table 1: Results of Unit Root Test for LN Balance of Payments of India and China

India			China		
Null Hypothesis: LNBOP has a Unit Root (Level) Exogenous: Constant			Null Hypothesis: LNBOP has a Unit Root (Level) Exogenous: Constant		
	t- statistic	**Probability***		**t-statistic**	**Probability***
ADF test statistic	-2.576248	0.1092	ADF test statistic	-1.276834	0.6259
Test critical values			Test critical values		
1% level	-3.679322		1% level	-3.689194	
2% level	-2.967767		2% level	-2.971853	
3% level	-2.622989		3% level	-2.625121	
Null Hypothesis: LNBOP has a Unit Root (Difference) Exogenous: Constant			Null Hypothesis: LNBOP has a Unit Root (Difference) Exogenous: Constant		
	t- statistic	**Probability***		**t-statistic**	**Probability***
ADF test statistic	-6.691154	0.0000	ADF test statistic	-6.383908	0.0000
Test critical values			Test critical values		
1% level	-3.699871		1% level	-3.699871	
2% level	-2.976263		2% level	-2.976263	
3% level	-2.627420		3% level	-2.627420	

Source: Mackinnon (1996) one-sided p-values

Table 2: Results of Unit Root Test for LN Exports of India and China

India			China		
Null Hypothesis: LNEX has a Unit Root (Level) Exogenous: Constant			Null Hypothesis: LNEX has a Unit Root (Level) Exogenous: Constant		
	t- statistic	**Probability***		**t-statistic**	**Probability***
ADF test statistic	1.650182	0.9993	ADF test statistic	0.848499	0.9931
Test critical values			Test critical values		
1% level	-3.679322		1% level	-3.689194	
2% level	-2.967767		2% level	-2.971853	
3% level	-2.622989		3% level	-2.625121	
Null Hypothesis: LNEX has a Unit Root (Difference) Exogenous: Constant			Null Hypothesis: LNEX has a Unit Root (Difference) Exogenous: Constant		
	t- statistic	**Probability***		**t-statistic**	**Probability***
ADF test statistic	-4.608811	0.0010	ADF test statistic	-5.189629	0.0003
Test critical values			Test critical values		
1% level	-3.689194		1% level	-3.699871	
2% level	-2.971853		2% level	-2.976263	
3% level	-2.625121		3% level	-2.627420	

Source: Mackinnon (1996) one-sided p-values

Table 3: Results of Unit Root Test for LN Imports of India and China

India			China		
Null Hypothesis: LNIM has a Unit Root (Level) Exogenous: Constant			Null Hypothesis: LNIM has a Unit Root (Level) Exogenous: Constant		
	t- statistic	**Probability***		**t-statistic**	**Probability***
ADF test statistic	2.063194	0.9998	ADF test statistic	2.944014	1.0000
Test critical values			Test critical values		
1% level	-3.679322		1% level	-3.769597	
2% level	-2.967767		2% level	-3.004861	
3% level	-2.622989		3% level	-2.642242	
Null Hypothesis: LNIM has a Unit Root (Difference) Exogenous: Constant			Null Hypothesis: LNIM has a Unit Root (Difference) Exogenous: Constant		
	t- statistic	**Probability***		**t-statistic**	**Probability***
ADF test statistic	-3.898171	0.0061	ADF test statistic	-5.153996	0.0003
Test critical values			Test critical values		
1% level	-3.689194		1% level	-3.699871	
2% level	-2.971853		2% level	-2.976263	
3% level	-2.625121		3% level	-2.627420	

Source: Mackinnon (1996) one-sided p-values

Table 4: Results of Unit Root Test for LN GDP of India and China

India			China		
Null Hypothesis: LNGDP has a Unit Root (Level) Exogenous: Constant			Null Hypothesis: LNGDP has a Unit Root (Level) Exogenous: Constant		
	t- statistic	**Probability***		**t-statistic**	**Probability***
ADF test statistic	-1.220143	0.6518	ADF test statistic	2.263630	0.9999
Test critical values			Test critical values		
1% level	-3.679322		1% level	-3.689194	
2% level	-2.967767		2% level	-2.971853	
3% level	-2.622989		3% level	-2.625121	
Null Hypothesis: LNGDP has a Unit Root (Difference) Exogenous: Constant			Null Hypothesis: LNGDP has a Unit Root (Difference) Exogenous: Constant		
	t- statistic	**Probability***		**t-statistic**	**Probability***
ADF test statistic	-1.134159	0.6864	ADF test statistic	-1.086246	0.7040
Test critical values			Test critical values		
1% level	-3.711457		1% level	-3.737853	
2% level	-2.981038		2% level	-2.991878	
3% level	-2.629906		3% level	-2.635542	

Source: Mackinnon (1996) one-sided p-values

Table 5: Johansen Co-Integration Tests of India and China

	Hypothesized No. of CE(s)s	Eigen Value	Trace Statistics	0.05 Critical Value	p-Value**	Max-Eigen Value Statistics	0.05 Critical Value	p-Value**
India	None*	0.543264	52.65264	47.85613	0.0166	21.94221	27.58434	0.2234
	At most 1	0.458986	30.71043	29.79707	0.0391	17.20070	21.13162	0.1627
	At most 2	0.379548	13.50974	15.49471	0.0974	13.36458	14.26460	0.0690
	At most 3	0.005171	0.145154	3.841466	0.7032	0.145154	3.841466	0.7032
China	None*	0.688086	59.76544	47.85613	0.0026	31.45578	27.58434	0.0151
	At most 1	0.490295	28.30966	29.79707	0.0735	18.19593	21.13162	0.1227
	At most 2	0.311404	10.11373	15.49471	0.2721	10.07370	14.26460	0.2071
	At most 3	0.001481	0.040022	3.841466	0.8414	0.040022	3.841466	0.8414

*denotes rejection of the hypothesis at the 5% level

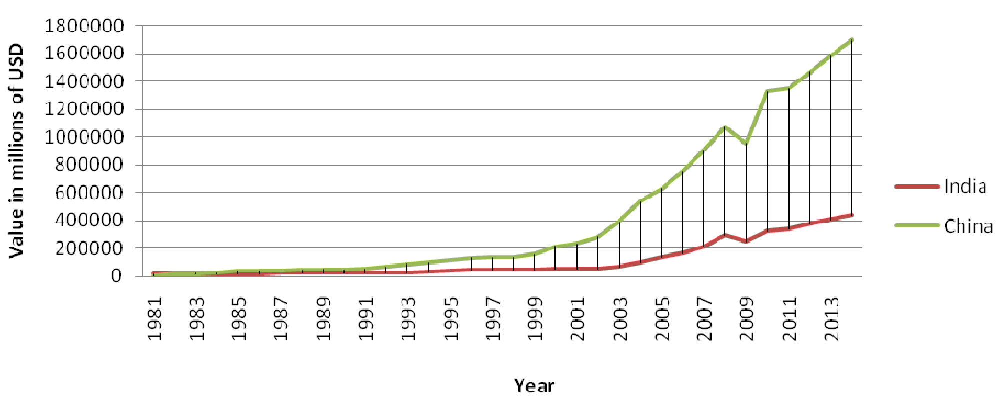
**MacKinnon-Haug-Michelis (1999) p- values

Table 6: Granger Causality Tests of India and China

India					China				
Log Variables	L_y	L_x	L_m	L_b	Log Variables	L_y	L_x	L_m	L_b
L_y		0.03909 (0.8448)	0.53524 (0.4710)	2.03189 (0.1659)	L_y		0.60119 (0.5569)	0.14938 (0.8621)	6.92749 (1.76525)
L_x	3.72726 (0.0645)		2.64702 (0.1158)	6.91215 (0.0142)	L_x	5.83846 (0.0092)		1.94599 (0.1667)	8.22533 (0.0022)*
L_m	3.93115 (0.0581)	0.39101 (0.5372)		9.26078 (0.0053)	L_m	4.42773 (0.0242)	1.64141 (0.2166)		6.85347 (0.0049)*
L_b	4.28136 (0.0486)	1.26455 (0.2711)	3.45276 (0.0745)		L_b	1.76525 (0.1945)	0.40646 (0.6709)	2.49359 (0.1057)	

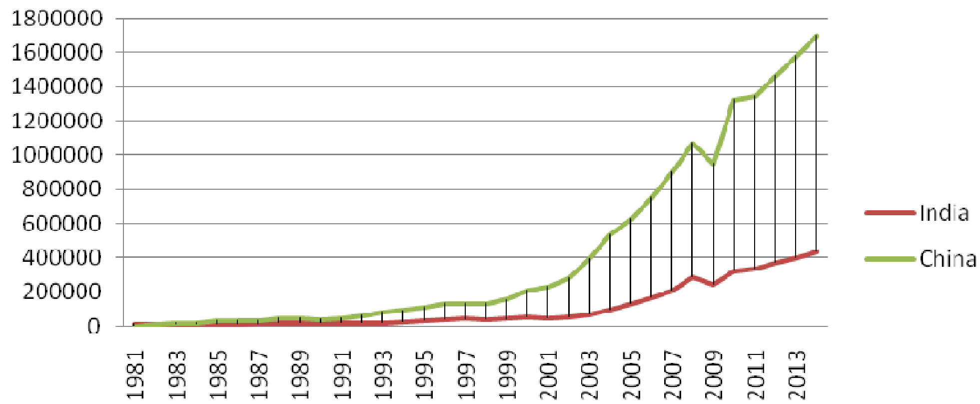
*indicates rejection of null hypothesis at 5% level of significance

Figure 1: Goods Exported from India and China during 1981 - 2014



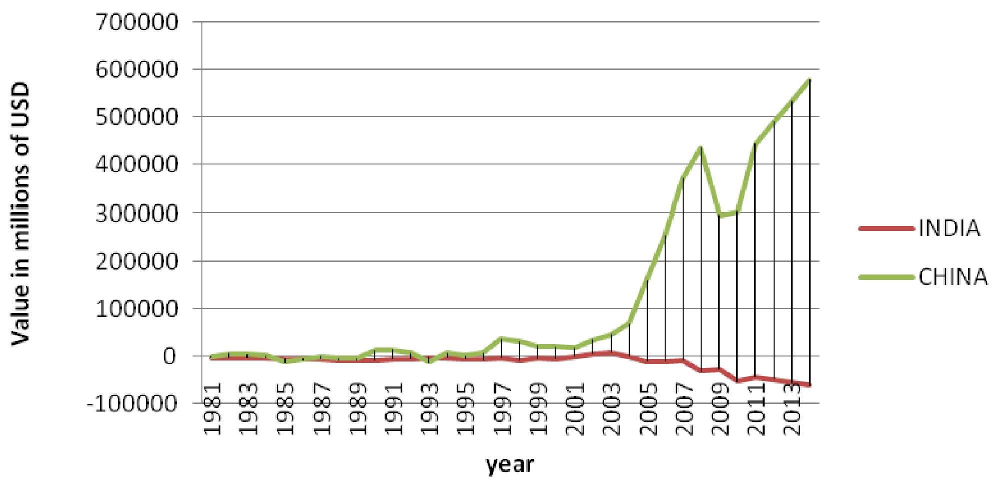
Source: Various issues of IMF Balance of Payments Year Books

Figure 2: Goods Imported from India and China during 1981- 2014



* Source: Various issues of IMF Balance of Payments Year Books

Figure 3: Balance of Payments of India and China During 1981 - 2014



* Source: Various issues of IMF Balance of Payments Year Books