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Analysis of Intra-Regional Trade among BRCS and India: Perspective and Challenges

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ABSTRACT

Globalization has paved the growth of every nation of the world. Under the belt of globalization, the economic regionalism holds great significance and scope for diversify international trade. Provocation of globalization foster the nations to pursue for greater efficiency through the larger markets, escalating competitiveness, distinguished technology and huge investment through Regional Integration Arrangements. Within such arrangements, assisting neighbouring countries for bilateral favourable cause, and to catch anticipatory operation to counter the spill over of disruption and abundance incomer. Paper enquires in to growth of Intra-regional trade and investment among India and BRCS nations and their prospects and challenges. Time series data has been used to evaluate intra-regional trade with Intra Industry Trade (IIT) index and econometric model i.e. ARIMA (Auto Regressive Integrated Moving Average) is being used for identifying prospects of trade and investment. The hope for greater progress to distend the intra-bloc trade and investment benefits with privileged liberalization within the regional disposition.

Keywords: Globalization, Regional Integration Arrangements, BRICS, IIT, ARIMA.

1. INTRODUCTION

International Trade is a junction for the different nations of the globe. It has been noticing since last few decades that trade among the economies would lead to growth and development by bringing cosmopolitan cultural and technological exchange. The trade also works as an engine of development for any economy especially witnessing India, as after economic reforms assisted the economy to had surplus of balance of payment because of high foreign reserves or currency inflows. Almost every country of the globe witnesses the increasing trend in overall growth including many active factors. The trade indeed helped every economy of the world to put up the alternatives among themselves which further aided the government to accumulate

the capital and to reduce the Current Account Deficit (CAD) by allowing more of foreign investment in to the economy (Kaur, 2016).

Defining the trade, there were many trading blocs made such as NAFTA, SAFTA, EFTA and SAARC, there was a trading block named BRIC established on 2001 with the motive of boosting the trade and good economical relations among the South region countries of the world. Brazil, Russia, India and China (BRIC) were the only member countries of the bloc. 2009 made an amendment in to the trading bloc BRIC with country South Africa and the new name was formed to BRICS (Brazil, Russia, India, China and South Africa) and the first summit of all these member nations happened in year 2010 and announced as an official community or institution. The BRICS nations are in actually known as S-S trading nations, as all the member countries of the trading bloc are having the similar features of developing nature with the South to South trade excluding few of the countries like Australia, U.K, Russia, New Zealand, U.K, EU 27 and Japan. The last few studies have proved that the SS trade actually experience the greatest expansion in the trade by moving more than 50 percent exports of the South countries gone to other countries of the south region of the globe. Thus, growth of the trade among the BRICS has grown faster than trade of the world. (Pant.M, 2011)

Trade happening among different trading blocs gives the boost to the term globalization which wherewithal the procedure in which geomorphologic remoteness between not so great important factor in formation and evolution of extra-national economic political and socio cultural connections. Networks of association and protectorate acquire a growing potential to become international and globalized (Neag and Bucata, 2015). Under the belt of globalization or international trade it is notified that BRICS nations grows rapidly because of mass demand of the goods and services basis for trade, expected from BRICS member countries which is nearly 40 per cent world's population. This has given a jump to the trade from inter industry to intra-industry that is countries are more inclined towards international trade on the basis of comparative cost and many other economic and non economic reasons, and enjoying the benefits out of it. In case of India with trading block like BRCS have very good relations as because of developing in nature as well as huge amount of trade among them. India's export or import are being carried out with these countries of BRCS bloc, therefore, trade is one of the major reason for the growth of India's GDP, correcting adverse BOP (Pant.M, 2011).

The five member countries of the BRICS bloc experience a 5.8 per cent growth in containerised commerce with the glob in first part of 2016 unlike 2.2 per cent of previous attained growth. The trade between India and China has rose to 26 per cent during first half of the year 2017. India is considered as a strong at back for the bloc, as India is growing very fast with growth rate of 5 to 6 per cent. China's rapid manufacturing growth has also pushing up the rate of growth among BRICS nations. Though the fact that every member country of the bloc is having a good and consistent rising growth rate but the lead is in the hands of India followed by China in the bloc. The main reason is because of the factors like, reasonable labour supply availability, cheap raw material, attractive interest rates, or due to environmental sustainability concern too, which actually compelled the production to be happen in developing countries. More specifically, South and South countries able to produce more and their export have increased as well in the total share of the world. The significance of trafficking amid BRICS countries was high spot. In the time of this Summit the BRICS nations acquires a prominent decision on set afloat all-inclusive words in context of BRICS which adopted a plan of action for Economic Partnership and a sketch BRICS

blueprint for BRICS commerce, Investment and Economic synergy (Pant, 2011). Aggregate merchandising of BRICS has probably enlarged from US dollar 2.8 trillion in 2006 to US dollar 5.7 trillion in 2015. This can be proved with the positive progressive presentation of exports and imports both. Cumulative BRICS exports rose drastically and increased the contribution of BRICS in inter-continental exports during 2006. BRICS aggregate imports also endorse a consistent progress during the time period. In 2016, in BRICS nations, FDI inflows were 277 or 16per cent of world share and contribute to world GDP by 22 per cent, after G20, APEC, NAFTA and Common Wealth and followed by ACP (UNCTAD, 2017).

2. RATIONALE AND OBJECTIVE OF STUDY

Most of study focused on overall trade growth of BRICS nations. Very few study are to be found on empirical analysis of intra-regional trade. The perspective of purposed study is to overcome the research gap and find the intra-regional trade at HS 2-digit code classification and their projection. Finally suggested some policies from analysis.

3. RESEARCH METHODOLOGY

To fulfil the purpose of study secondary data has been used. Data on trade has obtained from various authentic sources such as United Nation commodity trade statistics database (UNCOMTARDE) etc. Trade indices i.e. Intra Industry Trade Index (IIT) has been used for measure the intra-regional trade and econometrics model i.e. Auto regressive Integrated Moving Average (ARIMA) used to make forecast. IIT have been calculated on the basis of Grubel-Lloyd (1975) which measure intra-industry trade of a particular product. Intra-Industry Trade refers to the situation where a country considers exports the same quality of good i as much at the same country imports, whereas, Inter-Industry trade explains the country's consideration only for either export or import good i . The formula can be written in the form of-

$$IIT = 1 - |X_i - M_i| / (X_i + M_i)$$

where,

X_i denotes the export of product i , M_i the imports product i .

If IIT_i is equal to 1, intra-industry trade will occur or even if the value of IIT is near to 1 reveals the chances of opportunities of growing trade with benefits, on the other hand, if IIT_i is equal to 0, instead of intra-industry commerce there will be the occurrence of inter industry trade.

A projection of trade flow has been made with the help of Auto Regressive Integrated Moving Average (ARIMA). These projections have been made with the help of Box-Jenkins' ARIMA (Auto Regressive Integrated Moving Average) model.

Table 1 depicts the intra industry values at HS 2-digit level for India and BRCS during 2006 to 2016. The values of IIT are between 0 to 1 on the basis of two code products like from 01 to 99, few examples can be explained to justify the scope of trade for India with BRCS countries which may further enables to strengthen the globalization. In case of Animals & Animals Product it is notably seen that the values is remaining more than 1 in year 2006, 2009, 2011, 2013, 2015 and 2016 which reveal a healthy trade for India with BRCS or depicts the Intra-Industry trade where India are having exports and Imports both simultaneously. Unlike 2006, rest of the years are having less than value 1, which shows Inter-Industry may

be because of many reasons like High economics cost, scarcity of resource and excessive consumption at home country or high tariffs.

Table 1
Intra-Industry trade or commerce between India and BRCS

HS-Code	Product description	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
01-05	Animal & Animal Products	2.7	0.03	0.21	2.31	0.07	7.5	0.18	4.15	0.02	1.87	1.14
06-15	Vegetable Products	0.17	0.16	0.22	0.16	0.21	0.21	0.15	0.10	0.09	0.09	0.12
16-24	Foodstuffs	0.31	0.29	0.22	0.33	0.39	0.44	0.37	0.37	0.24	0.65	0.50
25-27	Mineral Products	0.03	0.06	0.02	0.03	0.03	0.02	0.02	0.02	0.02	0.04	0.03
28-38	Chemicals & Allied Industries	0.15	0.19	0.20	0.11	0.19	0.20	0.17	0.17	0.13	0.23	0.22
39-40	Plastics/Rubbers	0.15	0.27	0.26	0.36	0.36	0.26	0.34	0.34	0.26	0.41	0.49
41-43	Raw Hides, Skins, Leather & Furs	0.39	0.38	0.46	0.52	0.47	0.53	0.52	0.52	0.46	0.49	0.51
44-49	Wood & Wood Products	0.22	0.17	0.21	0.18	0.19	0.15	0.15	0.15	0.13	0.23	0.17
50-63	Textiles	0.46	0.50	0.44	0.45	0.43	0.42	0.40	0.40	0.43	0.43	0.43
64-67	Footwear/Headgear	0.32	0.29	0.25	0.32	0.27	0.21	0.26	0.26	0.30	0.27	0.29
68-71	Stone/Glass	0.50	0.54	0.59	0.39	0.61	0.47	0.48	0.48	0.48	0.46	0.35
72-83	Metals	0.23	0.17	0.25	0.27	0.24	0.25	0.26	0.26	0.26	0.29	0.28
84-85	Machinery/Electrical	0.78	0.79	0.84	0.62	0.83	0.77	0.80	0.76	0.76	0.84	0.87
86-89	Transportation	0.03	0.09	0.13	0.21	0.50	0.09	0.20	0.28	0.44	0.26	0.30
90-97	Miscellaneous	0.06	0.04	0.05	0.04	0.04	0.04	0.04	0.05	0.04	0.03	0.05

Source: Author Calculation UN COMTRADE.

Table 2
ARIMA (Auto regressive Integrated Moving Average)

Models	Adjusted R-Squared	Akaike Information Criterion (AIC)	Schwarz Criterion (SC)	Durbin-Watson Statistic (DW)	Number of Iterations	Model Rank
P = 1, D = 0, Q = 0	0.6865	41.8290	42.2896	1.8988	0	1
P = 1, D = 0, Q = 1	0.6419	41.8285	42.5193	1.9442	13	2
P = 2, D = 0, Q = 0	0.5041	37.2604	37.9928	1.9232	0	3
P = 0, D = 0, Q = 1	0.4711	38.7544	39.1904	1.0621	9	4
P = 2, D = 2, Q = 0	0.2830	35.9568	36.7908	0.3446	0	5
P = 0, D = 1, Q = 0	0.0000	42.1746	42.4049	1.7779	0	6
P = 0, D = 2, Q = 0	0.0000	38.0768	38.3209	2.9066	0	7
P = 0, D = 1, Q = 1	-0.1227	42.1726	42.6331	1.8872	18	8
P = 1, D = 1, Q = 0	-0.1408	37.5388	38.0270	1.9393	0	9
P = 2, D = 1, Q = 0	-0.3288	42.2077	42.9875	1.2347	0	10

Table 2 analyzed the ARIMA or Autoregressive Integrated Moving Average (p, d, q) models used for modelling the autocorrelation in the data provided for time series. The Primary element is (AR) the Autoregressive term. Autoregressive (p) replica employ the p lags in the equation of time series data. Order term (d) Integration is a secondary element. All integration sequence is proportionate for time series differencing.

Table 3
Regression Statistics

R-Squared (Coefficient of Determination)	0.7213	Akaike Information Criterion (AIC)	41.8290
Adjusted R-Squared	0.6865	Schwarz Criterion (SC)	42.2896
Multiple R (Multiple Correlation Coefficient)	0.8493	Log Likelihood	-209.15
Standard Error of the Estimates (SEy)	585019631.07	Durbin-Watson (DW) Statistic	1.8988
Number of Observations	10	Number of Iterations	0

Table 4 shown the regression statistics. Value of R-Square (R^2), reveals the proportionate change in the dependent variable which can be explained by the change occur in independent variable of regression model. Value of R^2 in the model is 0.7213 that is more than 60 per cent.

Table 4
Regression Result

	<i>Intercept</i>	<i>AR(1)</i>
Coefficients	884346343.8447	0.7146
Standard Error	425186118.0616	0.1570
<i>t</i> -Statistic	2.0799	4.5508
<i>p</i> -Value	0.0711	0.0019
Lower 5%	1675000353.6345	1.0066
Upper 95%	93692334.0549	0.4226

Table 5 demonstrated the result for regression model. The blue highlighted *p*-value of regression coefficient depicts the considerable statistically significance at confidence interval of 90 per cent or at 0.10 alpha level, while rest in black shows the statistically insignificance at different levels of alpha.

Table 5
ANOVA

	<i>Sums of Squares</i>	<i>Mean of Squares</i>	<i>F-Statistic</i>	<i>p-Value</i>	<i>Test for Hypothesis</i>	
Regression	2.221	2.221	20.71	0.0000	F-statistic critical value (with 99% of confidence interval along df of 1 and 8)	11.2586
Residual	8.583	1.072			F-statistic critical value (with 95% of confidence interval along df of 1 and 8)	5.3177
Total	3.0802				F-statistic critical value (with 90% of confidence interval along df of 1 and 8)	3.4579

Table 6 revealed the variance analysis or analysis of variance. The F-test value reveals the overall statistical significance of the variable in regression model for the best fit. The F-value outweighs the relevance of an individual explanatory variable's *t*-test value.

Table 7 explained the prospects of intraregional trade among India and BRCS in coming years. Projections has been made for the intraregional trade on the basis of their actual performance from 2006 to 2016. India can trade to BRCS US\$ 3091939911.75 million in 2026. Thus, based on India's trade with BRCS region, there exists a scope for intraregional trade in future. Therefore, efforts at the international level are required to be made to increase intraregional trade to earn a fair name for BRICS in the world trade.

Table 6
Autocorrelation

<i>Time Lag</i>	<i>AC</i>	<i>PAC</i>	<i>Lower Bound</i>	<i>Upper Bound</i>	<i>Q-Stat</i>	<i>Prob</i>
1	0.6976	0.6976	(0.6030)	0.6030	6.4890	0.0109
2	0.4208	(0.1283)	(0.6030)	0.6030	9.1456	0.0103
3	0.2429	0.0023	(0.6030)	0.6030	10.1572	0.0173
4	(0.1460)	(0.5628)	(0.6030)	0.6030	10.5837	0.0317
5	(0.3812)	(0.0332)	(0.6030)	0.6030	14.0711	0.0152
6	(0.4105)	(0.0061)	(0.6030)	0.6030	19.1270	0.0040
7	(0.3962)	0.1685	(0.6030)	0.6030	25.4069	0.0006
8	(0.3013)	(0.0614)	(0.6030)	0.6030	30.8543	0.0001
9	(0.1645)	(0.1276)	(0.6030)	0.6030	34.1003	0.0001

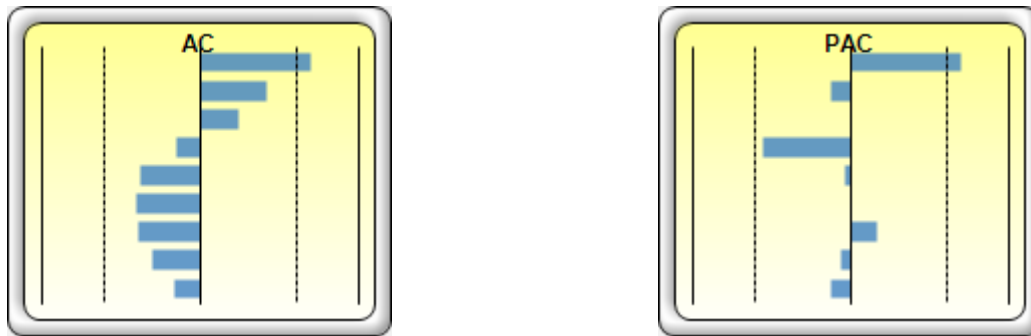


Figure 1: Autocorrelation and partial autocorrelation

Table 7
Projection for India and BRCS trade (US \$ Million)

<i>Period</i>	<i>Actual Values</i>	<i>Forecast values</i>
2006	1547987381	1547987381.355
2007	1907010961	1907010961.35
2008	2315687576	2315687576.865
2009	1870150967	19905,82,926.554
2010	2445216577	22471,51,567.310
2011	3036172122	25392,03,703.885
2012	3169828595	22208,10,348.834
2013	3374198992	26317,68,876.693
2014	3450751470	3054082812
2015	3143123081	3295646596
2016	2897570361	3130513062.54
Forecast 2017		2955033982.29
2018		2996099149.12
2019		3025445505.81
2020		3046417261.60
2021		3061404285.24

(Contd...)

<i>Period</i>	<i>Actual Values</i>	<i>Forecast values</i>
2022		3072114446.07
2023		3079768236.96
2024		3085237857.44
2025		3089146606.53
2026		3091939911.75

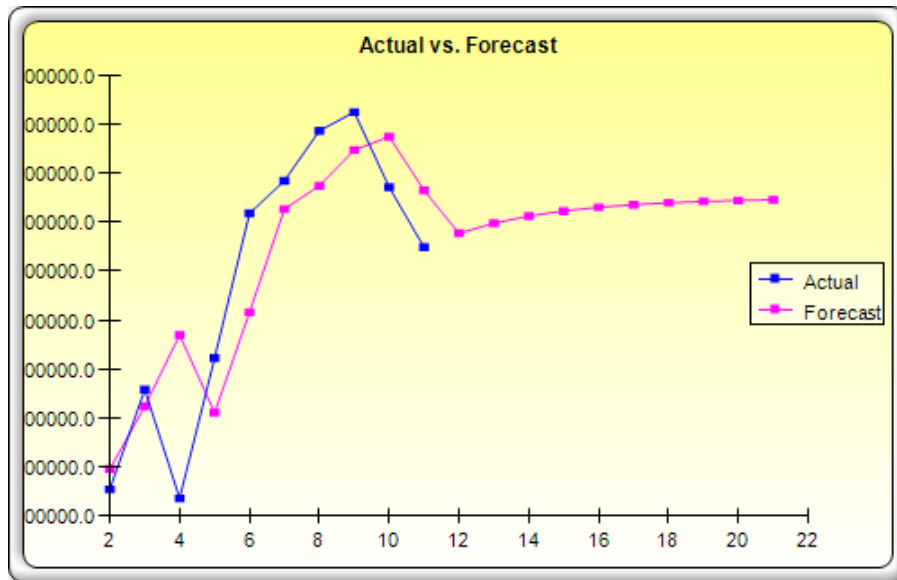


Figure 2: Actual vs. Forecast for India and BRCS trade

Figure 2 illustrated the actual vs. forecast of intraregional trade among India and BRICS nations in coming year.

4. OPPORTUNITIES AND CHALLENGES

Therefore, the data calculation enables the better understanding about the opportunities for the country like India with BRCS (Brazil, Russia, China, and South Africa) to increase the trade volume and can give a strong competition to other develop trading blocs like NAFTA (North America Free Trade Agreement) etc. More trade opportunities would open the economy and also assist the economy to improve their term of trade and also helps in correcting BOP disequilibrium along with huge foreign currency reserves. Becoming more globalize, make country, specifically India, a destination for foreign investors and also enables India to adopt advance technology for economy’s growth and welfare.

Along with many opportunities, challenges are also following them in terms of political instability, protectionism as some products which courtiers don’t want to trade with others for self interest, dumping done by countries which may harm the export oriented industries even in member countries of BRICS.

5. CONCLUSION

The overall objective of study is to identify the trade prospects and future growth for the member countries of BRICS nations with intention of improving terms of trade and become more globalize. Almost, the

study also justified the fact about the commodities in which India can have more scope for trade with other trading bloc's to along with BRCS countries and on the other side, what about the commodities having no IIT value or no future scope may also is the concern issue for India to consider upon. There are many ways to improve the intra industry trade such as government initiatives for strengthening export oriented industry at domestic level, by maintaining the mass consumption at domestic level and save the rest for improving trade as well and reduction of tariff and import duties may also improves terms of trade. India can gain out of trade more as there is large chunk of population is with the developing countries under BRCS members and all countries can get benefit of it. India can also get profit by using cheap resources available in BRCS courtiers available at reasonable rate. In gist, India and BRCS have still more potential for more opportunities by increasing trade specifically for Intra Industry Trade.

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