

Indian Journal of Economics and Development

Volume 15
No. 4
October-December, 2019

Print ISSN 2277-5412
Online ISSN 2322-0430



Indian Journal of Economics
and Development 2277-5412
Indexed
CABI COMMERCIAL
ESCI (Thomson Reuters)



The Society of Economics and Development
www.soed.in

The Society of Economics and Development

Objectives of the Society

- i. to promote awareness on the issues relating to economic development,
- ii. to promote better social and ethical values to promote development,
- iii. to promote economic prosperity and serve as a tool to create the consciousness for development,
- iv. to conduct research and publish reports on economic issues,
- v. to organize seminars, symposia, workshops to discuss the economic problems, and
- vi. to offer consultancy, liaison and services as a facilitator.

EXECUTIVE COMMITTEE

President

Dr. Viney Kumar Sharma

Vice Presidents

Dr. Anil Kumar Dixit, Dr. D.K. Grover, Dr. Narinder Pal Singh, Dr. Pratibha Goyal, and Dr. Simran K. Sidhu

Finance Secretary

Dr. Satnam Singh Chahel

General Secretary

Dr. Raj Kumar

Joint Secretary

Dr. Pankaj Kumar

Members

Dr. Abujam Anuradha Devi, Dr. Anil Bhat, Dr. Arjinder Kaur, Mr. Baldeep Singh, Dr. Deepak Shah, Dr. Harmeet Singh Kingra, Dr. Jagtar Singh Dhiman, Dr. Jasdev Singh, Dr. Jitender Kumar Bhatia, Dr. Lavleen Kaur, Dr. M. Javed, Ms. Mehak Jain, Dr. Prabhjot Kaur, Dr. Sadhika Beri, Dr. Seema Sharma, and Dr. Virender Kumar

EDITORIAL BOARD

Indian Journal of Economics and Development

Chief Editor

Dr. S.S. Chahal (India)

Editors

Dr. Anupama Uppal, Dr. R.B. Hile, Dr. Sanjay Kumar, Dr. Shalini Sharma, and Dr. S.S. Chhina

Members

Dr. A. Rohini (India), Dr. Ardi Gunardi (Indonesia), Dr. Catherine Neumeyer (Canada), Dr. Dalip Kumar Bishnoi (India), Dr. Deepak Upadhyaya (Nepal), Dr. Dharampal (India), Ms. Donata Ponsian Kemirembe (Tanzania), Dr. Gian Singh (India), Dr. Inderpal Singh (Australia), Ms. Isha Chawla (USA), Dr. Jasdeep Singh Toor (India), Dr. Kulwinder Singh (India), Dr. Lovlesh Garg (India), Dr. M.K. Sekhon (India), Dr. Manjeet Kaur Randhawa (India), Dr. Ravinderpal Singh Gill (Canada), Dr. Renjini, V.R (India), Dr. Richard Kwasi Bannor (Ghana), Dr. Rohit Singla (USA), Dr. Sadiq Mohammed Sanusi (Nigeria), Dr. Sendhil, R. (India), Dr. Timothy J. Colwill (Canada), and Dr. Varinderpal Singh (India)

<i>Membership type</i>	<i>Subscription Rates, 2020</i>	
	<i>India (₹)</i>	<i>Other Countries (\$)</i>
<i>Academics (Faculty and Students)</i>		
Annual	1000.00	30.00
Life	6000.00	300.00
<i>Institutional</i>		
Annual	4000.00	300.00
<i>Corporate</i>		
Annual	5000.00	500.00

Kindly login www.soed.in to remit membership fee via CC Avenue

Print ISSN 2277-5412
Online ISSN 2322-0430

Indian Journal of Economics and Development



The Society of Economics and Development
www.soed.in

Indian Journal of Economics and Development
Volume 15 (4) October-December, 2019

©The Society of Economics and Development

Printed and Published by Dr. Raj Kumar on the behalf of the
Society of Economics and Development

Email: chiefeditorijed@gmail.com
Website: <http://soed.in/> and www.tosed.com
Journal is available on www.indianjournals.com

Printed at FOIL PRINTERS
2051, Gobind Nagar
Ludhiana-141 001
Phone: 0161-2404093
Email: foilludhiana@gmail.com

Indian Journal of Economics and Development

(Journal of the Society of Economics and Development)

Volume 15

October-December, 2019

No. 4

Contents

Research Articles

- India BIMSTEC economic cooperation: Potential and prospects 489
B.P. Sarath Chandran
- Foreign investment, corporate governance and firm performance in Vietnam listed companies 499
P.T. Dong, T.T. ThanhThuy and N.T. ThanhTra
- A quick method to estimate area under modern varieties of rice 508
Parshuram Samal and Debdutt Behura
- Development of integrated cold chain in India: Pattern, performance and prospects 517
Robin Singhal and Shalini Saksena
- Why do farmers opt for crop insurance? A discriminant analysis 525
A.G. Adeeth Cariappa, G.B. Lokesh, Amrutha T. Joshi, B.S. Reddy and B. Hulagur
- Entrepreneurial motivation and challenges: A study on women entrepreneurs in Punjab 533
Rachna Saini and Baljit Kaur
- Impact of economic development on child labour 541
Palak Kakkar
- Progress and performance of protected cultivation in Maharashtra 555
P. Prakash, Pramod Kumar, Amit Kar, Awani Kumar Singh and P. Anbukkani
- Microeconomic aspects of farm household production and the state of vulnerability: Empirical evidence from a village economy of Punjab 564
Baldev Singh Shergill, Satjeet Singh Tiwana and Manjit Sharma
- Perception towards pesticide use on health hazards in okra cultivation in Gujarat: An assessment 574
S.R. Padavi, J.J. Makadia, Gaurav Sharma and R.T. Khatri
- Effect of cooperative dairy society on the performance of dairy farms in Mandya district of Karnataka 580
K.M. Ravishankara, Anil Kumar Dixit, K.K. Datta and Shyam Prakash Singh

Research Notes

- Constraints faced by agricultural extension personnel in utilization of internet as an agro-advisory tool: A study of CCS HAU Hisar 586
Anil Kumar Malik and Raj Kumar
- Indian family and its changing scenario in rural Punjab: Some major causes 591
Neha Wasal and Sukhdev Singh
- Production and marketing of turmeric in Tamil Nadu 600
A. Rohini and D. Muruganathi
- Insurance sector dynamics and economic growth of India 604
K.M. Shima and M. Vimala
- Total factor productivity and returns to investment in sugarcane research in Maharashtra 609
P.M. Adhale, V.G. Pokharkar, and C.M. Gulave
- Yield gap analysis and adoption pattern of cocoon cultivation in Himachal Pradesh 614
Vikalp Sharma, Megha Rattan and S.K. Chauhan

Review Articles

Carbon credit management and strategies to combat GHGs emission: An overview of the carbon market 619
Abhishek Tripathi

Emerging use of social media tools in Indian agribusiness: An overview 626
Amanjit Kaur and Ramandeep Singh

Evolution and rising trends of various watershed development programmes in Tamil Nadu 633
B. Kavitha and D. Suresh Kumar

Abstract i

Book review ii



India BIMSTEC Economic Cooperation: Potential and Prospects

B.P. Sarath Chandran

Associate Professor, VVM'S Shree Damodar College of Commerce & Economics, Margao, Goa-403601

Email: bpschandran7@gmail.com

Received: January 09, 2019

Manuscript Number: MS-19004

Revision Accepted: September 27, 2019

ABSTRACT

The Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) was established in 1997 is a unique sub-regional initiative in Asia. It combines the south and South-East Asia with five countries of SAARC and two countries of ASEAN. BIMSTEC is a sector-driven cooperative organisation with key areas of economic cooperation include trade, investment, regional value chains, energy, connectivity, technology, management and capacity building, people to people contact, among others. Even after two decades of existence, BIMSTEC achieved limited progress as India the largest member of the group showed little interest in it. But the failure of SAARC as an effective sub-regional economic integration in Asia and the incorrigible differences between India and Pakistan, the two largest economies of SAARC led to the rethinking and resurrection of BIMSTEC in the recent past. India's strategic interests in the Himalayan, Bay of Bengal and Mekong sub-regions have grown over the years and the expansionist tendencies of China in these regions led to India's renewed engagements with BIMSTEC. In this context, the paper looks into the trade relation between India and BIMSTEC countries and identified the unexplored trade potential and possible areas of cooperation between India and BIMSTEC countries. The trade impact of the likely India BIMSTEC Regional Trade Agreement (RTA) is ascertained using partial equilibrium simulation model. Indicators such as Trade Intensity Index (TII) and Revealed Comparative Advantage (RCA) showed that there is trade complementary existing between India and BIMSTEC countries and the possibility of enhanced economic cooperation between them. The SMART simulation showed that there is trade creation from a potential India BIMSTEC FTA for the participating countries. The simulation analysis also revealed that the total trade effect of India BIMSTEC RTA was 2.369 billion US dollars, total welfare was 267.044 million dollars and the trade creation was 412.2 thousand US dollars.

Keywords

Regionalism, FTA, BIMSTEC, India, Bay of Bengal Region.

JEL Codes

F10, F14, F15.

INTRODUCTION

Post WTO period witnessed the emergence of a large number of regional trade agreements all over the world to overcome the hardship of long drawn multilateral negotiations at the WTO. BIMSTEC is the outcome of a confluence of Thailand's look west policy and India's look east policy. The organisation was established as BIST-EC with the membership of Bangladesh, India, Sri Lanka, and Thailand on 06.06.1997. The membership increased to current seven when Myanmar joined on 22.12.1997 and Nepal and Bhutan joined in February 2004. BIMSTEC connects two important sub-regions of Asia mainly South Asia and Southeast Asia with Bangladesh, India, Nepal and Sri Lanka coming from South Asia and Myanmar and Thailand coming from south-east Asia. It is also a subset of SAARC and ASEAN regional groupings. BIMSTEC is a sub-regional grouping with sector-specific cooperation

among member nations. It has the secretariat in Dhaka, Bangladesh.

BIMSTEC has its inherent advantages. It has a combined population of 1.6 billion populations (24 percent of the world population) having a combined GDP of US\$ 2.8 trillion. Most of the BIMSTEC members showed higher average economic growth and has a trade potential of US\$ 59 billion. The intra-regional trade among BIMSTEC countries was worked out to 77 billion US\$ which is higher than SAARC (44 billion US\$ in 2013) which had an FTA and the existence of 30 years. In addition to this BIMSTEC members enjoyed a harmonious relationship with each other and had a desire to improve the trade relationship among them.

One of the important objectives of BIMSTEC is to promote Free Trade among the member countries. It also envisages increased cooperation in cross-border

connectivity, investment, and tourism sectors. An important characteristic of BIMSTEC is the promotion of technical cooperation among members. As a sector-driven cooperative organization, BIMSTEC initially had six sectors with a lead member in charge of the sector. These include Trade and Investment (Bangladesh), Technology (Sri Lanka), Energy (Myanmar), Transport and Communication (India), Tourism (India) and Fisheries (Thailand). The areas of cooperation are further extended with the inclusion of more sectors namely Agriculture (Myanmar), Cultural Cooperation (Bhutan), Environment and Disaster Management (India), Public Health (Thailand), People-to-People Contact (Thailand), Poverty Alleviation (Nepal), Counter-Terrorism and Transnational Crime (India), Climate Change (Bangladesh). The paper looks into the trade structure of BIMSTEC countries to see any trade potential existing between these countries and possible areas of cooperation between them.

Literature Review on BIMSTEC Trade

There is a growing literature of BIMSTEC region and their importance and potential as a viable sub-regional grouping (Bhattacharya (2007); Rao and Rao (2007); Upreti (2007); Chakraborty (2007); Nag and de (2007); Mukherji, I.N. and Paswan, N.K. (2007).

Chowdhury and Neogi (2013) looked into the macroeconomic indicators of BIMSTEC countries and contended that there is the possibility of this region to emerge as a strong business hub soon. Saxena and Bhadauriya (2013) viewed that there are country-specific export products are available and Thailand is the only country in the region that has developed a strategy to market these products and develop the region. Other countries of the region can follow this. Kaur and Dhama (2015) asserted that BIMSTEC is important for the smaller economies such as Nepal, Bhutan, Bangladesh and Myanmar for their economic development and occupy space in the emerging power struggle in Asia. Sharma and Rathore (2015) opined that the success of BIMSTEC and BCIM subregional groupings will surely contribute to improving the position of India particularly to the progress of the North-East region of India. Rahman and Kim (2016) reported that a large part of BIMSTEC's trade has remained unrealized due to high trade transaction cost and improvement of infrastructure and connectivity is important to realize BIMSTEC's trade and investment potential. Chowdhury and Neogi (2016) calculated the revealed comparative advantage of BIMSTEC countries from 1997-98 to 2012-13 for 16 major commodity groups and identified the major sector of trade cooperation. Chandramohan (2016) suggested BIMSTEC can well become a vibrant grouping through investor interest and connectivity projects that shrink geographical distances.

Banerjee and Dey (2016) identified major tradable energy sector products of India with BIMSTEC countries and also measured the trade and welfare creation from the

BIMSTEC Regional Trade Agreement (RTA) for the member countries. The study found that a BIMSTEC FTA would benefit the trade of energy sector products and all countries likely to benefit from this. Rahman and Grewal (2017) studied the causality between FDI and world trade across panel data for BIMSTEC countries and found a causality running from FDI inflows and imports to exports for the region as well as from imports and exports to FDI inflows. Kaur, Sarin, and Dhama (2017) reported that there was bidirectional causality between GDP and export among BIMSTEC bloc. The results supported the exports led to growth and growth-led export in case of BIMSTEC. Rahman and Bari (2018) said BIMSTEC cooperation could help countries like India and Thailand to overcome middle-income trap by taking advantage of establishing value chains within the region based on comparative advantages. Pattanaik (2018) believed that unlike SAARC, there are no longstanding protracted conflicts between BIMSTEC countries and there is a potential for increased cooperation among like-minded countries that are growing economies. Neogi and Chowdhury (2017) used a panel data regression model for the period 1987-88 to 2012-13 found that economic integration through Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation has a positive and significant impact on India's exports to the entire region of BIMSTEC.

Economic and Trade Profile of BIMSTEC Countries

India is by far the biggest economy of BIMSTEC in terms of land area, population and GDP and assumes a leadership position in the group for stimulating growth and regional integration. India is also the fastest growing economy in the region as well as in the world attracting large FDI inflows into the country (Table 1). Thailand is the second largest economy in the group with the highest per capita income, largest FDI outflows, highest trade to GDP ratio and a positive trade balance. Bangladesh is the third largest economy with the second highest population and third highest year on year economic growth rate. Sri Lanka is small in terms of land area and population but doing better economically with the second highest per capita income. Nepal is the least developed country in the region with a small economy and lowest per capita income and Bhutan is the tiny Himalayan kingdom with nominal presence in the groupings.

Expectedly, India is having largest merchandise trade and services in the region. India exported 267.44 billion US\$ and Imported 392.87 billion US\$ with a large trade deficit of 125.42 billion US \$ (Table 2). Thailand, Bangladesh and Sri Lanka are having a second, third and fourth position in international trade from the region. Nepal and Bhutan are having miniscule trade share from the region.

India is the largest exporter and importer in the BIMSTEC region with a trade balance of 125.42 billion US\$. Thailand is the second largest exporter with the export of 214.35 billion US\$ and import of 202.65 billion

US\$ with a positive trade balance. Bangladesh and Sri Lanka are the other two important members of international trade. Nepal and Bhutan having smaller shares in exports and imports.

Intra BIMSTEC exports showed that India is the largest export partner of Bangladesh (85.62 percent) followed by a small export share with Thailand and Bangladesh (Table 3). Myanmar's largest export is with Thailand (76.45 percent) as both of these countries are

members of ASEAN trade grouping. Almost entire exports of Nepal (97.57 percent) for the region is with India. Same is true with Sri Lanka also. Thailand's largest export is with India followed by Myanmar. India is the largest country in the region has more spread out trade with exports with the regions of the country such as Bangladesh, Sri Lanka, Thailand, and Nepal. The intra-regional export share is highest for Myanmar followed by Sri Lanka, Thailand, and India.

Table 1. Economic and trade profile of BIMSTEC countries -2015

Indicators	Bangladesh	Bhutan	India	Myanmar	Nepal	Sri Lanka	Thailand
Land area (m) km ²	130,170 [5]	38,117 [7]	2,973,190 [1]	653,080 [2]	143,350 [4]	62,170 [6]	510,890 [3]
Population (million)	160.996 [2]	0.775 [7]	1,311.051 [1]	58.897 [4]	28.514 [5]	20.715 [6]	67.959 [3]
GDP millions current US\$	194,466 [3]	2,074 [7]	2,116,237 [1]	62,601 [5]	20,658 [6]	82,316 [4]	395,168 [2]
GDP per capita, current \$	1,208 [5]	2677 [3]	1614 [4]	1161 [6]	725 [7]	3974 [2]	5815 [1]
Real GDP growth YonY per cent	6.55 [3]	5.21 [4]	7.56 [1]	7.29 [2]	2.73 [7]	4.79 [5]	2.83 [6]
Current A/C balance (Per cent GDP)	1.38	-27.81	-1.01	-7.30	11.88	-2.64	8.08
Exchange rate (\$)	77.947	64.152	64.152	1162.615	102.405	135.857	34.248
FDI inflows(M\$)	2,235.39 [4]	12.09 [7]	44,208.02 [1]	2,824.00 [3]	51.44 [6]	681.24 [5]	10,844.64 [2]
FDI outflows (M\$)	45.50 [4]	--	7,501.43 [2]	--	--	53.26 [3]	7,776.24 [1]
Personal remittances (Per cent GDP)	7.89	0.94	3.10	5.11	32.69	9.19	1.33
Trade balance (Per cent GDP)	-6.05 (e)	-22.91	-4.71 (e)	-2.10 (2014)	-27.47 (e)	-10.50 (e)	11.38 (e)
Trade balance (Per cent imports)	-25.21 (e)	-40.38	-19.63 (e)	-9.50 (2014)	-70.21 (e)	-32.12 (e)	19.50 (e)
Trade (Per cent of GDP)	47.42	101.76	42.22	0.18	53.34	48.48	126.80

Source: UNCTAD Statistics, 2016.

Figures in the parenthesis indicate the country ranks.

Table 2. Trade by BIMSTEC countries in 2015

Countries	Merchandise			Services		
	Exports	Imports	Balance	Exports	Imports	Balance
Bangladesh	32,379	39,460	-7,082	3,271(e)	9,178 (e)	-5,907 (e)
Bhutan	549	1061	-511	124	184	-60
India	267,444	392,866	-125,422	155,840 (e)	123,111 (e)	77.1 (e)
Myanmar	11,429	16,885	-5,456	4,212 (2014)	2602 (2014)	1,609 (2014)
Nepal	721	6652	-5,931	1,519 (e)	1,248 (e)	271 (e)
Sri Lanka	10,505	18,935	-8,430	6,397 (e)	5,965 (e)	431 (e)
Thailand	214,352	202,654	11,698	60,643 (e)	50,779 (e)	9,864 (e)

Source: UNCTAD, 2016.

India is an important import destination for Nepal, Bangladesh, and Sri Lanka. Thailand and Myanmar import each other the largest as both are members of the ASEAN RTA (Table 4). India's import is highest with Thailand which is the second largest economy in the BIMSTEC.

India is the largest import and export partner for Bhutan. Among the top five trade partners, Bangladesh exports mainly to non-BIMSTEC countries whereas they import from India and Thailand (Table 5). It was noticed that India and Thailand primarily export and import with non-BIMSTEC countries.

Regional Integration among BIMSTEC Countries

BIMSTEC enjoys some natural advantages to become an effective regional grouping in emerging Asia.

The region is large in terms of economy and population. The region is home to 1.6 billion people, which is about 22 per cent of the world's population and contributes to a combined GDP of US\$ 2.8 trillion. Most of the BIMSTEC economies are showing higher growth rate capable of transforming quickly into the dynamic regions of production and consumption. South-east Asian economies are aspiring to become production houses to cater to the emerging markets of the world. Also, south-east Asian countries share a similar cultural background and historical ties. The region is the blend of countries with different stages of development suitable to help each other in their developmental efforts. BIMSTEC combines the south Asian and Southeast Asian region with no major political differences. This gives an advantage to

Table 3. Intra BIMSTEC export – 2015 (1000 US \$)

Country	Importing country							Intraregional share
	Bangladesh	Bhutan	India	Myanmar	Nepal	Sri Lanka	Thailand	
Bangladesh		2,441.97 (0.40)	517,890.72 (85.62)	21,135.49 (3.49)	2620.32 (0.43)	25985.94 (4.30)	34772.91 (5.75)	1.91
India	5,521,517.62 (29.74)	375,222.54 (2.02)		859,972.73 (4.63)	3195121.94 (17.21)	5501015.39 (29.63)	3113562.15 (16.77)	7.02
Myanmar	18,821.89 (0.43)		1,013,990.79 (23.07)		419.95 (0.01)	1744.00 (0.04)	3359358.08 (76.45)	36.03
Nepal	6,834.1 (1.59)	1,488.33 (0.35)	419,093.53 (97.57)	11.79 (0.0)		373.04 (0.09)	1713.73 (0.40)	1.59
Sri Lanka	92,725.55 (11.98)	15.91 (0.0)	642,390.24 (83.01)	1,633.73 (0.21)	3600.0 (0.47)		33480.13 (4.33)	11.98
Thailand	844,900.87 (7.93)	11,370.39 (0.11)	5,211,835.47 (48.90)	4,108,209.28 (38.55)	53,722.46 (0.50)	427034.49 (4.01)		7.93

Source: Computed from COMTRADE, World Bank.

*Figures in the parentheses indicate percent share.

Table 4. Intra BIMSTEC import – 2015 (1000 US \$)

Country	Exporting country							Intra-regional import share
	Bangladesh	Bhutan	India	Myanmar	Nepal	Sri Lanka	Thailand	
Bangladesh		39968.87 (0.58)	5882080.04 (84.76)	44071.19 (0.64)	51.67 (0.0)	112572.79 (1.62)	860605.19 (12.40)	14.44
India	639898.54 (7.24)	195022.13 (2.21)		1016301.07 (11.50)	489552.74 (5.54)	848781.63 (9.60)	5650144.84 (63.92)	2.26
Myanmar	9778.88 (0.40)		474040.99 (19.42)		19.3 (0.0)	271.68 (0.01)	1957262.72 (80.17)	14.44
Nepal	24799.95 (0.60)	3087.29 (0.07)	4008219.53 (97.03)	9863.43 (0.24)		1925.13 (0.05)	83181.73 (2.01)	62.48
Sri Lanka	37710.32 (0.78)		4268480.23 (88.47)	21438.77 (0.44)	17.04 (0.0)		497184.51 (10.30)	25.44
Thailand	44034.48 (0.70)	42.27 (0.0)	2618822.04 (41.74)	3556632.49 (56.69)	806.28 (0.01)	53782.09 (0.86)		3.15

Source: Computed from COMTRADE, World Bank.

*Figures in the parentheses indicate percent share.

BIMSTEC over SAARC which is facing virtual stagnation even after 30 years of its existence with strong internal differences between member countries.

METHODOLOGY

The paper used trade indicators such as trade intensity index (TII), Revealed Comparative Advantage (RCA) Index to understand the trade structure between India and BIMSTEC countries. The trade intensity index (TII) was used to determine whether the value of trade between the two countries was greater or smaller than would be expected based on their importance in world trade.

$$T_{ij} = \frac{\frac{x_{ij}}{x_{it}}}{\frac{x_{wj}}{x_{wt}}}$$

Where x_{ij} and x_{wj} are the values of country i's exports and world exports to country j and where X_{it} and X_{wt} are country i's total exports and total world exports respectively. An index of more (less) than hundred indicates a bilateral trade flow that is larger (smaller) than expected, given the partner country's importance in world trade. The trade intensity index shows whether the country has reached its trade potential or is there any scope for further expansion of trade with the partner country in the particular category.

The Revealed Comparative Advantage Index showed how competitive is a product in countries' export compared to the products share in world trade. A product with high RCA is competitive and can be exported to countries with low RCA. The RCA index of the country 'i' for product 'j' is often measured by the product's share in the country's exports about its share in world trade:

$$RCA_{ij} = (x_{ij}/X_{it}) / (x_{wj}/X_{wt})$$

Where x_{ij} and x_{wj} are the values of country i's exports of product j and world exports of product j and where X_{it}

and X_{wt} referred to the country's total exports and world total exports. A value of less than unity implies that the country has a revealed comparative disadvantage in the product. Similarly, if the index exceeds unity, the country is said to have a revealed comparative advantage in the product.

The economic impact of the proposed India-BIMSTEC Free Trade Agreement was analysed using SMART simulation model available with World Integrated Trade Solutions (WITS). WITS is a data extraction and tariff simulation software using databases maintained by UNSD COMTRADE, UNCTAD TRAINS, and WTO IDB/CTS. The SMART simulation model of the WITS allows users to estimate the partial equilibrium impact of tariff reductions for a single market at a time. WITS simulation is largely used to simulate the impact of preferential trade agreements. This simulation involved two aspects. First, a database was to be extracted to conduct simulation exercise. Secondly, simulation parameters are defined to get the impact of a tariff cut arising out of a Free Trade Agreement (FTA).

The study used different datasets for its analysis. Economic and Trade profile of BIMSTEC countries is taken from the UNCTAD database. Similarly, intra BIMSTEC export and import, the top five trade partner of BIMSTEC countries are also collected from the UNCTAD database. Trade indicators such as Trade Intensity Index (TII) and Revealed Comparative Advantage Index (RCA) are extracted from the WITS database maintained by the World Bank. India's export and import share with BIMSTC countries are computed from the data collected from the COMTRADE database. The data required for the partial equilibrium simulation model was extracted using WITS of World Bank.

RESULTS AND DISCUSSION

India's trade Intensity index with BIMSTEC

Table 5. Top 5 trade partners of BIMSTEC countries in 2015

Country	Top 5 partners			Country		
Bangladesh	Export	US	Germany	UK	Spain	France
	Import	Thailand	India	China	Indonesia	Singapore
Bhutan	Export	India	Bangladesh	Italy	Japan	Nepal
	Import	India	Korea, Rep	China	Japan	Austria
India	Export	US	UAE	China, HK SAR	China	UK
	Import	China	Saudi Arabia	Switzerland	United States	UAE
Myanmar	Export	Thailand	China, HK SAR	India	China	Singapore
	Import	China	Singapore	Thailand	Korea, Rep	Japan
Nepal	Export	India	US	Germany	UK	Turkey
	Import	India	China	UAE	Indonesia	Switzerland
Sri Lanka	Export	US	UK	India	Germany	Italy
	Import	India	China	Japan	UAE	Singapore
Thailand	Export	US	China	Japan	China, HK SAR	Malaysia
	Import	China	Japan	US	Malaysia	UAE

Source: Compiled from UNCTAD, Country Profile, 2017.

countries for the year 2015 is given in Table 6. India's trade intensity with Bangladesh was lowest for Stone and Glass and highest with Transport, Food products, and Minerals. India has very high trade intensity with Bhutan as it is landlocked and depended on India for the majority of its essential commodities. India's trade intensity was highest with miscellaneous commodities, wood, Machinery and Electricals, and metals. Among the BIMSTEC countries, India's trade intensity was lowest with Myanmar as India has low trade intensity in Fuels, Stone and Glass, Vegetables, Hides and Skin, and Textile and Clothing. India has very high trade intensity with Nepal and Sri Lanka also. Interestingly India has low trade intensity in Fuels, Hides & Skin, Textiles & Clothing, Footwear and Metals with Thailand. The trade intensity index analysis showed that there is scope for trade expansion, particularly concerning Myanmar and Thailand.

The revealed comparative advantage of BIMSTEC countries showed that there was trade complementarity existing with this group and there is potential trade expansion possible among these countries. Bangladesh has highest comparative advantage in textiles and clothing, and hides and skins and comparative disadvantage in all other commodity categories. India's highest comparative advantage is with stone, glass, textiles and clothing, vegetables, and animals, etc. The highest RCA for Myanmar is Vegetable, Fuels, and for Nepal, it is textiles and clothing, vegetables. For Sri Lanka, it is textiles and clothing, vegetable and for Thailand, it was food products, Plastic Rubber, etc. The RCA of the BIMSTEC countries revealed that there was

comparative advantage existing for BIMSTEC countries which can be exploited (Table 7).

India - BIMSTEC Trade Relationship

India's largest export markets in BIMSTEC are Bangladesh, Sri Lanka followed by Nepal and Thailand. India imports maximum from Thailand followed by Myanmar. India has a trade surplus with other south Asian nations namely Bangladesh, Bhutan, Sri Lanka, and Nepal and trade deficit with two ASEAN members of BIMSTEC namely Myanmar and Thailand (Table 8).

India's export share with BIMSTEC countries is relatively small due to the small share of intra-regional trade India is having with the group. Only two product categories namely textiles & clothing and transport equipment have an export share of more than one percent of India's export (Table 9). Chemicals and Fuels are also having a reasonably larger export share. This showed India can perform much better in terms of exports with BIMSTEC countries if right policy initiatives are taken.

India's import share from BIMSTEC was even smaller compared to exports. Only with Thailand India has a nominal exports share. India is having a negligible import from other SAARC members such as Bangladesh, Nepal, Bhutan, and Sri Lanka. This showed India's imports from BIMSTEC partners were much lower compared to India's position in international trade and concerted efforts from India's side is required to improve the intra block trade (Table 10).

Impact of India BIMSTEC FTA-SMART Simulation Analysis

The simulation exercise for the study used bilateral

Table 6. Trade intensity index of India with BIMSTEC countries, 2015

Product groups	Bangladesh	Bhutan	Myanmar	Nepal	Sri Lanka	Thailand
Animal	341.88	3,212.40	368.45	2,312.96	117.91	299.05
Vegetable	396.04	2,900.82	41.98	2,380.66	905.40	129.94
Food Products	1,458.42	7,615.04	1,289.61	7,446.20	2,100.46	134.53
Minerals	1,280.79	7,504.00	105.43	7,461.48	4,274.59	299.24
Fuels	468.30	5,080.22	6.31	5,023.61	2,124.53	17.67
Chemicals	695.52	3,243.72	624.83	2,865.93	1,229.47	152.52
Plastic Rubber	1,043.56	6,795.41	205.62	7,165.59	1,441.34	118.49
Hides, Skin	142.04	1,172.49	63.02	148.97	317.02	46.57
Wood	734.95	16,331.62	183.99	16,271.44	3,682.22	163.13
Textiles, Clothing	421.74	294.61	96.83	332.84	425.43	62.26
Footwear	104.47	958.69	595.43	386.54	508.84	22.57
Stone, Glass	63.70	1,405.65	9.26	319.81	185.75	105.01
Metals	514.58	4,505.25	118.88	4,653.69	867.53	81.09
Machinery, Electrical	1,408.54	14,106.69	455.02	8,320.53	2,208.11	108.27
Transport	2,588.57	2,943.73	124.16	5,419.55	4,143.56	166.67
Miscellaneous	1,164.92	17,531.48	280.75	4,523.06	1,516.09	122.59
Total	814.83	4,425.17	231.10	3,701.92	1,671.54	108.19

Source: Extracted from WITS, World Bank.

trade data between India and BIMSTEC countries for the year 2015. India is cutting tariff and the beneficiary Countries are BIMSTEC countries. Tariff cut is done across the board and all products were affected by that. Since the attempt was made to understand the impact of FTA, the new tariff rate is kept at zero percent. There arise five results from the simulation exercise. They are total trade effect, export effect on partners, effect on average duty, welfare effect and tariff revenue effect.

When India enforces 100 percent tariff cut against BIMSTEC countries as part of the Free Trade Agreement, they gained access to the Indian market and the exports to India will increase substantially. The results presented in Table 11 revealed a change in exports and revenue change out of an FTA for the exporting countries. The biggest gains in terms of exports will be achieved by Thailand, followed by Sri Lanka and Nepal (Table 11). In percent terms, the highest export gains will be achieved by Sri Lanka (65.14percent), Thailand (45.01per cent) and Nepal (10.57 percent).

India's imports from BIMSTEC countries will increase as a result of tariff cut done as a part of RTA. India's total import before the RTA was 377.54 billion US dollars and after the RTA it increased by another 2.37 billion US dollars. The total tariff collection before RTA was 40.97 billion dollars and this witnessed a decline of 3.43 billion dollars (Table 12). A reduction in tariff means goods will be available cheaper to the public and the consumer welfare will be augmented. The total consumer surplus out of tariff cut was to the tune of 245.647 million. Welfare effects include the total trade effect and consumer surplus that arise out of tariff reduction. A decline in the

Table 8. India's Trade with BIMSTEC Countries (1000 US Dollars), 2015

BIMSTEC /World	Exports	Imports	Trade Balance	TB as per cent of exports
Bangladesh	5,521518	639898.5	4881619	88.41
Bhutan	375222.5	195022.1	180200.4	48.02
Sri Lanka	5,501015	848781.6	4652234	84.57
Myanmar	859972.7	1,016301	-156328	-18.18
Nepal	3,195122	489552.7	2705569	84.68
Thailand	3,113562	5,650145	-2536583	-81.47
World	264,381003.6	390,744731.41	-126363727.78	-47.80

Source: COMTRADE database.

revenue collection of 3.43 billion makes the new weighted rate of revenue collection to 12.43 per cent.

The total trade creation of India-ASEAN FTA is 4.075 billion US dollars and the total trade diversion is 0.1 million. The very little trade diversion (0.1 million) and a substantial trade creation makes the RTA mutually beneficial and economically viable. The tariff rate cut makes the simple customs duty to decline to 9.88percent. The simulation analysis showed that the total trade effect of India BIMSTEC RTA is 2.369 billion US dollars, total welfare is 267.044 million dollars and the trade creation is 412.2 thousand US dollars. The results conform with earlier studies such as Banerjee and Dey (2016); Neogi and Chowdhury (2017); Rahman and Bari (2018) and others which used Gravity models and trade indicators as the tools of analysis. Similar results are also arrived here

Table 7. Revealed Comparative Advantage (RCA) among BIMSTEC Countries, 2015

Product groups	RCA Bangladesh	RCA India	RCA Myanmar	RCA Nepal	RCA Sri Lanka	RCA Thailand
Animal	0.72	1.74	1.99	0.57	0.90	0.69
Vegetable	0.18	1.83	6.89	4.92	6.11	1.37
Food products	0.23	0.64	0.74	3.24	0.99	2.43
Minerals	0.03	0.75	0.16	0.01	0.22	0.42
Fuels	0.05	1.13	3.90	0.00	0.17	0.37
Chemicals	0.03	1.30	0.00	0.50	0.16	0.49
Plastic rubber	0.07	0.61	0.26	0.34	1.82	2.49
Hides, Skin	2.72	1.94	0.12	2.47	0.34	0.75
Wood	0.07	0.30	1.16	0.59	0.67	0.76
Textiles clothing	18.60	2.93	1.84	8.90	10.07	0.68
Footwear	2.53	1.20	0.78	3.60	1.14	0.37
Stone, Glass	0.03	3.57	1.31	0.17	0.74	1.37
Metals	0.04	1.15	0.52	1.76	0.08	0.64
Machinery electrical	0.03	0.32	0.01	0.02	0.12	1.28
Transport	0.04	0.71	0.00	0.00	0.20	1.15
Miscellaneous	0.05	0.31	0.62	0.21	0.20	0.45

Source: Computed from COMTRADE database.

Table 9. India's export share with BIMSTEC Countries (Percentage), 2015

Product	Bangladesh	Bhutan	Myanmar	Nepal	Sri Lanka	Thailand	BIMSTEC
Animal	0.015	0.002	0.006	0.007	0.006	0.134	0.170
Vegetable	0.192	0.003	0.005	0.144	0.127	0.089	0.560
Food Products	0.086	0.009	0.099	0.057	0.062	0.026	0.339
Minerals	0.039	0.003	0.002	0.022	0.052	0.009	0.126
Fuels	0.056	0.035	0.001	0.283	0.299	0.018	0.691
Chemicals	0.214	0.005	0.075	0.105	0.140	0.195	0.735
Plastic Rubber	0.085	0.003	0.008	0.063	0.051	0.037	0.247
Hides, Skin	0.005	0.000	0.001	0.000	0.002	0.006	0.014
Wood	0.013	0.003	0.001	0.028	0.038	0.009	0.093
Textiles, Clothing	0.788	0.000	0.031	0.036	0.220	0.061	1.137
Footwear	0.003	0.000	0.007	0.002	0.003	0.001	0.016
Stone, Glass	0.014	0.001	0.001	0.021	0.024	0.242	0.304
Metals	0.132	0.018	0.020	0.173	0.074	0.115	0.533
Machinery, Electricals	0.204	0.028	0.044	0.112	0.115	0.123	0.626
Transport	0.207	0.016	0.020	0.139	0.845	0.087	1.312
Miscellaneous	0.036	0.017	0.006	0.015	0.021	0.026	0.120

Source: Computed from COMTRADE database.

Table 10. India's Import Share with BIMSTEC Countries (Percentage), 2015

Import Partner	Bangladesh	Bhutan	Myanmar	Nepal	Sri Lanka	Thailand	BIMSTEC
Product	Share	Share	Share	Share	Share	Share	Share
Animal	0.0055		0.0012	0.0004	0.0002	0.0004	0.0078
Vegetable	0.0098	0.0001	0.2271	0.0236	0.0646	0.0128	0.3380
Food Products	0.0050	0.0015	0.0000	0.0275	0.0192	0.0196	0.0729
Minerals	0.0058	0.0002	0.0001	0.0000	0.0006	0.0163	0.0231
Fuels	0.0051	0.0109	0.0000	0.0000	0.0018	0.0100	0.0278
Chemicals	0.0076	0.0082	0.0000	0.0092	0.0034	0.1588	0.1871
Plastic Rubber	0.0054	0.0027	0.0000	0.0142	0.0097	0.2622	0.2943
Hides, Skin	0.0050	0.0000	0.0002	0.0004	0.0002	0.0128	0.0186
Wood	0.0005	0.0009	0.0308	0.0006	0.0144	0.0239	0.0711
Textiles, Clothing	0.0926	0.0000	0.0000	0.0215	0.0230	0.0410	0.1781
Footwear	0.0031	0.0000	0.0001	0.0069	0.0000	0.0025	0.0126
Stone, Glass	0.0005	0.0006	0.0000	0.0001	0.0071	0.0394	0.0478
Metals	0.0090	0.0249	0.0000	0.0198	0.0066	0.1529	0.2133
Machinery, Electricals	0.0025	0.0000	0.0002	0.0006	0.0128	0.5371	0.5531
Transport	0.0055	0.0000	0.0000	0.0000	0.0327	0.1111	0.1494
Miscellaneous	0.0008	0.0000	0.0002	0.0004	0.0209	0.0451	0.0673

Source: Computed from COMTRADE database.

Table 11. Trade effect of India-BIMSTEC FTA

Partner name	Product code	Exports before in 1000 USD	Exports after in 1000 USD	Export change in revenue in 1000 USD	Percentage change in exports
Bangladesh	Total	546207.8	549191.9	2984.111	0.55
Bhutan	Total	195022	202276.3	7254.249	3.72
Myanmar	Total	1016096	1006112	-9984.62	-0.98
Nepal	Total	488676.9	540310.4	51633.49	10.57
Sri Lanka	Total	777683.9	1284304	506619.8	65.14
Thailand	Total	5417513	7855840	2438327	45.01

Source: Extracted from WITS simulation results.

Table 12. Trade, revenue and welfare effect of India-BIMSTEC FTA

Market View of India-BIMSTEC FTA					
Imports	Imports	Tariff	Tariff	Tariff	
Before (\$ '000)	Change In	Revenue (\$ '000)	New revenue (\$ '000)	Change In revenue (\$ '000)	Consumer surplus (\$ '000)
377535382	2369886.158	40965439.83	37534450.3	-3430989.527	245647.055
Revenue Impact of India-BIMSTEC FTA					
Revenue Effect (\$ '000)	Trade total effect (\$ '000)	Trade value (\$ '000)	Old weighted rate (%)	New weighted rate (%)	
-918033.212	2369886.158	377535382	10.85	9.88	
Welfare Impact from India-BIMSTEC FTA					
Trade total effect (\$ '000)	Welfare (\$ '000)	Old weighted rate (%)	New weighted rate (%)		
2369886.158	267044.877	10.85	9.88		
Trade creation from India –BIMSTEC FTA					
Trade Total effect (\$ '000)	Trade diversion effect (\$ '000)	Trade creation effect (\$ '000)	Price effect	Old simple duty rate (%)	New simple duty rate (%)
412.206	0	412.206	0	2.5	1.37

Source: Extracted from WITS simulation results.

through partial equilibrium simulation exercise using the SMART model available with WITS.

CONCLUSIONS

The above analysis showed that India and other members of BIMSTEC can gain considerably if there is further trade liberalisation. Formation of a Regional Trade Agreement (RTA) will eliminate trade barriers and enhance trade flows among members. To enhance the trade potential, BIMSTEC countries have to overcome the challenges faced by them collectively. The challenges include Connectivity and infrastructure constraints, Non-tariff and long negative list, Trade Facilitation problems, Border issues, Refugee issues, Lack of political will, Bureaucratic hurdles and Lack of regular summit meetings. Except for Sri Lanka, all the BIMSTEC countries can be connected through land and infrastructure development and connectivity plays a very important role in improving trade relations with these countries. BIMSTEC region has large natural resources to explore and there should be sharing of scientific know-how and resources among the members for exploiting them for rapid growth. Given the current standoff between India and Pakistan and the volatile political differences, BIMSTEC has emerged as a viable sub-regional integration for enhancing trade and investment cooperation and achieve faster economic growth in the region.

REFERENCES

- Banerjee, K., & Dey, D. (2016). *India and BIMSTEC: A comparative study of the trade potential of India's energy sector products in BIMSTEC and BIMSTEC 1 region*. Retrieved from SSRN: <https://ssrn.com/abstract=2874294> or <http://dx.doi.org/10.2139/ssrn.2874294>.
- Bhattacharya, S.K. (2007). *Does BIMSTEC-Japan economic cooperation promote intra-regional trade? The case for free trade arrangement*. Centre for Studies in International Relations and Development, Discussion Paper No. 23, 1-49.
- Chakraborty, D. (2007). *Trade performance and integration experience of BIMSTEC: A review of issues*. Centre for Studies in International Relations and Development, Discussion Paper No. 30, pp. 1-50.
- Chandramohan, N. (2016, November). *BIMSTEC: An idea whose time has come?* ORF Research Brief, Issue No.164. Retrieved from <https://www.orfonline.org/research/bimstec-an-idea-whose-time-has-come/>
- Chowdhury, A.B., & Neogi, D. (2013). An economic overview of BIMSTEC countries: (1997-2011). *Journal of Asian Business Strategy*, 3(8), 210-223.
- Chowdhury, A.B., & Neogi, D. (2016). Identifying suitability of commodities for trade among Bay of Bengal initiative for multi-sectoral technical and economic cooperation (BIMSTEC) nations: An application of revealed comparative advantage approach. *International Journal of Management Sciences and Business Research*, 5(5), 15-27.
- Kaur, G., & Dhami, J. (2015). An outlook of BIMSTEC as emerging trading Bloc in Asia-A literature review. *International Journal of Research in Economics and Social Sciences*, 5(11), 235-246.
- Kaur, G., Sarin, V., & Dhami, J.K. (2017). Causality between exports and GDP: Empirical evidence from the BIMSTEC region. In *Current issues in economics and finance* (pp. 77-94). In K. Bandi, C.S. Shylajan, S.V. Seshaiyah, M. Aruna, S. Mukherjee (Eds.), Springer Nature Singapore.
- Mukherji, I.N., & Paswan, N.K. (2007). India's trade and investment opportunities in BIMSTEC. In T. Nirmala Devi (Ed.). *India and Bay of Bengal Community: The BIMSTEC Experiment*, 60-105.
- Nag, B., & De, D. (2007). *Asian integration process and BIMSTEC*. Centre for Studies in International Relations and Development, Discussion Paper No. 35, 1-24.
- Neogi, D., & Chowdhury, A.B. (2016, August 26-27). Has

- India-BIMSTEC economic integration helped in increasing India's trade in the region? A panel data analysis. *3rd International Conference on Social Sciences Economics and Finance*, Montreal.
- Pattanaik, S.S. (2018). Transforming Eastern South Asia: Relevance of BIMSTEC. *Strategic Analysis*, 42(4), 422-429.
- Rahman, M., & Bari, E. (2018). *Value chains in BIMSTEC Region current Status, possibilities and challenges*. Dhaka: Centre for Policy Dialogue (CPD).
- Rahman, M.M., & Kim, C. (2016). Prospects for economic integration of BIMSTEC: Trade and investment scenario. *International Journal of u- and e-Services, Science and Technology*, 9(4), 235-248.
- Rahman, M.N., & Grewal, H. (2017). Foreign direct investment and international trade in BIMSTEC: Panel causality analysis. *Transnational Corporations Review*. New Delhi: Routledge Publications.
- Rao, B.M., & Rao, S.S. (2007). Re-envisioning India-Myanmar relations. In T. Nirmala Devi (Ed.), *India and Bay of Bengal Community: The BIMSTEC Experiment* (pp. 218-234). Delhi: Gyan Publishing House.
- Saxena, S.P., & Bhadauriya, S. (2012). India and BIMSTEC: An analysis of India's trade performance and prospects. *Business Analyst*, 33(1), 103-114.
- Sharma, A., & Rathore, C.K. (2015). *BIMSTEC and BCIM Initiatives and their Importance for India*. CUTS International, Discussion Paper.
- Uperti, B.C. (2007). Development of BIMSTEC: Nature, direction, challenges and issues. In T. Nirmala Devi (Ed.), *India and Bay of Bengal community: The BIMSTEC experiment* (pp. 184- 196). Delhi: Gyan Publishing House.