Export Specialization of India with Top Five Agricultural Economies: An Application of RCA and RSCA

Tawheed Nabi, Tushinder Preet Kaur

Abstract: The paper attempts to determine Revealed Comparative Advantage (RCA) and Revealed Symmetric Comparative Advantage (RSCA) of Indian agriculture sector with respect to top five agriculture exporting countries viz; USA, UK, UAE, Singapore and China. The study evaluates the structure of comparative advantage from 1995-2017. Data as per the Standard International Trade Classification (SITC-1) is used to compute RCA and RSCA index. The indices reveals the comparative advantage in case of majority of commodities like fish, fish preparations, fruits, vegetables, sugar, sugar preparations, miscellaneous food products, wood, lumber and cork. Increasing world demand for exports trailed by the competitiveness of Indian exports has played an important role in export performance..

Keywords : RCA; RSCA; Export performance; SITC; Exports; Competitiveness

I. INTRODUCTION

India started a progression of financial restructuring towards opening up of the economy in early nineties. Remarkable among these is the broad exertion to liberalize its foreign trade. It is subsequently projected that opening up of economy of India has impelled changes in the structure of exports in order to mirror comparative advantage of India to the world economy. A nation's comparative advantage in global trade might be affected by disparity rates of progress in gathering of construction issues or due to the improved trade integration of different nations. India is one of the biggest agrarian economies and contributes around 18% of India's GDP and gives employment to almost half of the nations personnel. Agriculture supplies sustenance as well as makes it conceivable to trade some portion of its surplus nourishment, bringing about an ideal effect on parity of instalments. The exporting nations can't want to acquire adequate remote trade through fare of modern items since the expense and nature of their produced products are not aggressive in global markets. Along these lines extension of agricultural fares is probably going to be most encouraging method for expanding income and increasing trade profit (Patil, et al; 2013).

As, agriculture sector was kept outside GATT since 1995 which was later fetched through Uruguay Round where every member nations of WTO was dedicated to trail set of rules personified in WTO's Agreement on Agriculture (AOA) . These agreements included domestic support, market access and export subsidies. (Nabi and Dhami, 2013). It was anticipated that exchange advancement and usage of AOA would convey vast advantages to the creating nations through enhanced access to the built up nations' business sectors, expanded exchange and better valuing condition for tropical and different results important to the creating nations. The extent of this examination is restricted to export execution of Indian agriculture for post WTO period. (WTO, Annual Report 2017)

OBJECTIVE OF THE STUDY

The paper aims to study the export specialization of India with top five agricultural economies with comparative advantage indices and also analyses how the application of asymmetric comparative advantage is different from revealed symmetric comparative advantage.

II. REVIEW OF LITERATURE

Batra A., Khan Z. (2005) has studied RCA for China and India for manufacturing sector. They found substantial resemblances in the building of global specialization for China and India especially in the areas such as; textiles, articles of apparels and clothing accessories etc. Yilmaz (2003) studied the structure of economy of Turkey and its competitiveness and trade specialization comparing with the 5 European Union countries viz; Romania, The Czech Republic, Bulgaria, Poland, Hungary, and the EU/15 by using 4 different competitiveness measures and the findings suggested that in raw material and labour intensive goods Turkey is having strong and positive comparative advantage while as Hungary is the lone nation which has a advantage in exporting of simply imitable research goods. The study by Ranjan et. al. (2005) has demonstrated a deteriorating export attractiveness of Indian potatoes in post WTO period, which needed prompt consideration of policymakers to enhance the export competitiveness by expanding the profitability and reducing the cost of production. Bhattacharyya (2011) examined the attractiveness of trade of Indian horticulture in contradiction of its main competitors in the North American, Asian, and EU markets, as against China, Malaysia, Thailand and Indonesia.

Export Specialization of India with Top Five Agricultural Economies: An Application of RCA and RSCA

The pragmatic results advised that India has advantage over its main competitors in EU markets especially in vegetables and fruits but not in flowers. Chaudhary A. (2016) made an attempt to study the Potential of Indian Textiles Export Industry in the Post Multi Fibre Agreement (MFA) era with the help of RCA. The study found that export potential of India for textiles have uninterruptedly improved in the post MFA period and the trade has robust comparative advantage in relations of total global textiles exports. The study suggested that policies need to be supported to meet out the worldwide challenges by textiles exporters of India after the phase out of MFA. But Kaur N. and Sarin V. (2017) measured the Indian export competitiveness vis-a-vis ASEAN countries in case of agriculture products. Strengthening trade relations with East Asian countries have always been a matter of priority as India wants to reduce dependence on developed countries and also want to exploit large potential of growth lying with East Asian countries. In this direction, most coveted "Look East Policy" came into existence and India got her first free trade agreement in the form of India and ASEAN free trade agreement (AIFTA). They identified stagnation in comparative advantages as the reason why Indian agriculture export has not been on positive note, as far as India's Look East policy is concerned. Another study by Veeramani S. and Anam (2018) intended to analyse the tussle between India and member nations of ASEAN and also put forth the reasons and suggestions for Trade Deficit in order to strengthen the policy framework of Indo-ASEAN relation. Trade remains the sore point between India-ASEAN relations, as the already existing AIFTA (ASEAN INDIA Free Trade Agreements) has received serious criticism on its overall impact and Market access issue. Thus, more importantly this study was an attempt to understand the theoretical concept of RCEP and forecast possible impacts of Regional Comprehensive Economic Partnership (RCEP) on India ASEAN Bilateral Trade. The results showed RCEP as an important contributor to India's Act East Policy which need to be studied critically. Another study by Kannan E. (2018) designates the competitiveness of Indian textile export with the help of RCA and RSCA. The study revealed the alarming situation of deteriorating pattern in India's comparative advantage in garment exports.

III.   DATABASE AND METHODOLOGY

The study is based on trade data of agricultural commodities as per the Standard International Trade Classification (SITC). The secondary data from 1995-2017 has been taken for top five Agricultural Economies of the World from various sources such as WTO, FAO, UNACTD, UNCOMTRADE. RCA and RSCA Index has been used to find the export competitiveness of the top five Agricultural economies which are USA, UK, China, Singapore, UAE. The paper follows RCA Index as proposed by Bela Balassa (1965) and RSCA index proposed by Dalum (1988). Thus, RCA and RSCA Index will give much clear picture of the items which are having comparative advantage or disadvantage with respect to other nations.

 RCA INDEX: The idea of RCA by Balassa in 1965, 1977, 1986 and 1989 relates to the comparative trade routine of countries in selected supplies. On the hypothesis that the product design of trade imitates the internal changes in relative prices and in non-price aspects, this is presumed to "Reveal" the trade advantage and disadvantage of the countries. The factor that donate to actions in RCA is economic: operational change, enhanced global demand and trade concentration. The comparative advantage of the India with top five agricultural exporting countries, has been calculated by using RCA index. The Balassa's index is calculated as follow:

$$RCA_{jk}= (X_{jk} / X_j)/ (X_{kw} / X_w)$$

Where; X_{jk}= India's export of commodity k to nation j
X_j= India's export to world of j commodity
X_{kw}= Exports of commodity k to world
X_w= Total export to world

RCA value lies between 0 and ∞ . A country is said to have a comparative advantage if the value exceeds 1.

RSCA INDEX: The major limitation of RCA is that its index varies from 1 to infinity which is asymmetric. Dalum et al; (1998) anticipated the Revealed Symmetric Comparative Advantage (RSCA) index; to lessen the skewedness problem. The formula for RSCA is:

$$RSCA=RCA-1/RCA+1$$

RSCA ranges from -1 to +1 (-1<RSCA<1) and evades the problematic 0 values. Positive indices show a comparative advantage while negative indices reflect a comparative disadvantage.

IV.   RESULTS AND DISCUSSIONS

The table (in appendix) shows RCA and RSCA value of the products of top five agricultural economies i.e UK, USA,UAE, Singapore, China. It can be stated that the values which are less than one reveals that the export of these commodities are disadvantageous for India. RSCA has also been applied to check the comparative advantage and disadvantage. Negative values of RSCAs represents comparative disadvantage whereas positive values represent comparative advantage in exporting the products.

RCA and RSCA value of UK from 1995 to 2017 by using SITC Rev.1 has been applied. Export of commodities like (SITC-3,5,6,7,9,12,24 and SITC-25) has positive values that means has comparative advantage for India. The products like (SITC-0,1,2,4,8,9,11,21,22,23 and SITC-26) has negatives values that means the export of these commodities is disadvantageous for India.

The results of RCA and RSCA of USA shows that Export of commodities like (SITC-3,5,7 and SITC-9) has positive values that means it has comparative advantage for India whereas for the products like (SITC-0,1,2,4,6,8,10,11,12,13,14,15,16,17,18,19,20,21,22,23, 24,25 and SITC-26) have negatives values that means the export of these commodities are disadvantageous for India.

The application of RCA and RSCA for UAE from 1995 to 2017 shows that export of commodities like (SITC-2,4,5,7,10, and SITC-24) have positive values that means the country has comparative advantage for India whereas for the remaining products, the exports are not advantageous.

The results for Singapore shows that Export of commodities like (SITC-7,8,9,10 and SITC-11) describes comparative advantage for the country and for the other commodities, it shows negative comparative advantage.

The results of RCA and RSCA index on China shows that there exists comparative advantage for exports of only commodities (SITC-22 and SITC-26) and for the remaining commodities, there arises comparative disadvantage.

V. CONCLUSION

The study has clearly revealed the scenario of exports of different agricultural commodities of India with top five agricultural economies. The study has retorted inversely in terms of comparative advantage throughout the post-reforms period. RCA and RSCA index of selected agricultural exports of India on an average all through 1995-2017 has been calculated, it has helped us to recognize the merchandises in which India has a comparative advantage on the base of resource endowment. RCA and RSCA index discovered that, India having a comparative advantage in products like fruits and vegetables, fish and fish preparations, sugar and sugar preparations, miscellaneous food products, cork wood and lumber. The values of RCA index which are more than 1 and RSCA Index which are more than 0 highlights India's comparative advantage. Still India is lacking in the world guide of cutting edge innovation. The RCA record for most of the commodities is not as much as solidarity in the event of imports and also exports all through the time. Consequently, more noteworthy gathering of physical and human capital is obligatory, if India has to move to a higher direction of front line innovation and all the more vitally, offer a near favorable position in such products, in connection to whatever remains of the world (Burange and Chaddha, 2008).

REFERENCES

1. Balassa, Bela (1977) "Revealed Comparative Advantage Revisited- An Analysis of Relative Export Shares of the Industrial Countries, 1953-1971", The Manchester School of Economic & Social Studies, 1977, Vol. 45, Issue 4, pp: 327-44
2. Balassa, Bela (1986) "Comparative Advantage in Manufactured Goods: A Reappraisal", The Review of Economics and Statistics, Vol. 68, No. 2, pp. 315-319
3. Balassa, Bela. (1989), "Comparative Advantage, Trade Policy and Economic Development", Harvester Wheatsheaf, New York
4. Batra Amita and Khan Zeba (2005) "Revealed comparative advantage: An analysis for India and china" Indian Council for Research on International Economic Relations Working Paper No 168,August.
5. Bhattacharyya (2011) "Revealed Comparative Advantage and Competitiveness: A Case Study for India in Horticultural Products" International Conference on Applied Economics – ICOAE 2011
6. Burange L. G. and Chaddha Sheetal J. (2008) "India's Revealed Comparative Advantage In Merchandise Trade" University of Mumbai, Working Paper Ude28/6/2008
7. Chaudhary Asiya (2016) "Revealed Comparative Advantage Index: An Analysis of Export Potential of Indian Textiles Industry in the Post MFA Period" American Journal of Economics pp: 344-351, ISSN: 2166-4951,
8. Dalum Bent, Laursen Keld and Vilumsen Gert (1998) "Structural Change in OECD Export Specialization Patterns: de-specialization and 'stickiness"
9. International Review of Applied Economics, Vol. 12, No. 3, 1998 423
9. Kannan E. (2018) "India's Comparative Advantage in Export of Textiles and Apparel Products. In: Kumar K. (eds) A Study of India's Textile Exports and Environmental Regulations". Springer, Singapore
10. Kaur Namita and Sarin Vishal (2017) "Comparative advantages and competitiveness of Indian agricultural products exports to ASEAN in context of India's look east policy" Int. J. Agricult. Stat. Sci. Vol. 13, No. 1, pp. 159-167, ISSN : 0973-1903
11. Nabi Tawheed and Dhami (2013) "Analysis of India's Agriculture Export Performance in Pre and Post WTO Regime" International Journal of Enhanced Research in Management & Computer Applications, ISSN: 2319-7471Vol. 2, Issue 4, pp:1-5
12. Patil Shirish S., Kelkar Tushar S. and Bhalerao Satish (2013) "Export of Horticultural Products–The Path Ahead" International Journal of Life Sciences, Vol.1 (1); pp: 1-6 ISSN: 2320-7817
13. Ranjan Nalini Kumar, Singh B.P, Khurana S.M. Paul and Pandey N.K. (2005) "Impact Of WTO On Potato Export From India". Agricultural Economics Research Review Vol. 18 July-December 2005 Pp 291-304
14. Veeramani. S and Anam (2018) "An Analysis on India-ASEAN Trade: Towards Regional Comprehensive Economic Partnership (RCEP)" Journal of Management (JOM)Volume 5, Issue 4, pp. 81–96, ISSN: 2347-3940, 2347-3959
15. WTO Annual Reports (2015), (2016), (2017), (2018); Retrieved from https://www.wto.org/english/res_e/reser_e/annual_report_e.htm
16. Yılmaz, B. (2003), "Turkey's Competitiveness in the European Union: A Comparison with Five Candidate Countries – Bulgaria, The Czech Republic, Hungary, Poland, Romania – and the EU15", Ezoneplus Working Paper, No.12,.

AUTHORS PROFILE

Dr. Tawheed Nabi is currently Assistant Professor at Mittal School of Business ACBSP USA, Accredited, Lovely Professional University, Punjab (India). Dr. Nabi received his PhD degree from DOS in Economics, Karnatak University, Dharwad and has been UGC-UPE research fellow. His expertise entails areas like International Trade, Agriculture Economics and Business Models. He has published his research ideas in journals, edited volumes, conference proceedings in the areas of International Economics, Agricultural Economics and Business Models. He has presented several papers in International and National level seminars and participated in various workshops and FDP's.

Dr.Tushinder Preet Kaur has done Ph.D (Guru Nanak Dev University), M.Phil (Guru Nanak Dev University), M.Sc(Hons) Economics (Guru Nanak Dev University), and B.Sc (Hons) Economics (Guru Nanak Dev University). She is currently Professor at Mittal School of Business (MHRD NIRF India Rank 52; ACBSP USA, Accredited), Lovely Professional University, Phagwara, Punjab (India).In academic career spanning over 12 years, she has served at Khalsa College of Women, Amritsar and Departmental research scholar at Punjab School of Economics, GNDU, Amritsar. She has presented papers in various national and international conferences. She has to her credit various research papers published in refereed, national and international journals of repute. She has authored many chapters in referred books. She has chaired the session and acted as a Resource person for various national seminars/conferences. She has also conducted one day Faculty Development Programme entitled, "How to teach Managerial Economics" to various faculty members in LPU. She has taken one day session entitled Gender Inequality: A Serious Threat to our country Currently, she is assisting Mittal School of Business as a Coordinator of Research. She is also a member of Doctoral Board for Economics and evaluated many research scholars at various platforms.

APPENDIX

Table1: RCA and RSCA index of India with Five Agriculture Exporting Nations

S. No	Commodities	SITC	RCA of India with respect to..					RSCA of India with respect to..				
			USA	UK	UAE	SINGAPORE	CHINA	USA	UK	UAE	SINGAPORE	CHINA
1	Live Animals	0	0.6	0.85	0.77	0.39	0.21	-0.24	-0.08	-0.12	-0.43	-0.65
2	Meat, meat preparations	1	0.01	0.01	0.74	0.02	0	-0.98	-0.98	-0.14	-0.94	-0.99
3	Dairy Products, eggs	2	0.11	0.01	1.34	0.48	0.01	-0.79	-0.97	0.14	-0.34	-0.96
4	Fish. fish preparations	3	1.23	1.05	0.44	0.38	0	0.1	0.024	-0.38	-0.44	-0.99
5	Cereals, cereals preparations	4	0.19	0.85	1.15	0.2	0.1	-0.66	-0.07	0.07	-0.65	-0.8
6	Fruit, Vegetables	5	1.35	1.33	1.05	0.39	0.39	0.15	0.14	0.02	-0.42	-0.43
7	Sugar, Sugar Preparations, honey	6	0.2	3.51	0.83	0.22	0.74	-0.65	0.55	-0.08	-0.63	-0.14
8	Coffee, tea, cocoa, spices, etc	7	7.07	0.47	6.93	3.76	0.67	0.75	-0.35	0.74	0.58	-0.19
9	Feeding stuff for animals	8	0.01	0.04	0.18	1.38	0.23	-0.98	-0.91	-0.68	0.16	-0.61
10	Miscellaneous food preparations	9	1.76	1.79	1.25	1.06	0.12	0.27	0.28	0.11	0.03	-0.77
11	Beverages	11	0.24	0.3	0	1.9	0.01	-0.6	-0.53	-1	0.31	-0.99
12	Tobacco, tobacco manufacture	12	0.28	1.36	0.69	0.71	0.09	-0.55	0.15	-0.18	-0.16	-0.82
13	Hides, skins, fur skins, undressed	21	0.13	0.12	0.05	0.58	0.11	-0.76	-0.77	-0.89	-0.25	-0.79
14	Oil seeds, oil nuts, oil kernels	22	0.48	0.7	0.18	0.37	0.04	-0.34	-0.17	-0.68	-0.45	-0.92
15	Crude Rubber	23	0.65	0.34	0.27	0.15	4.25	-0.2	-0.48	-0.57	-0.73	0.61
16	Wood, lumber, cork	24	0.45	0.4	1.64	0.44	0.01	-0.37	0.99	0.24	-0.38	-0.97
17	Pulp, waste paper	25	0.51	1.01	0.63	0.31	0.01	-0.32	0.01	-0.22	-0.51	-0.99
18	Textile fibers	26	0.12	0.14	0.06	0.08	6.5	-0.78	-0.74	-0.88	-0.84	0.73

Source: Comtrade-WITS, United Nations. RCA, RSCA Calculated by Author