The Structure & Competitive advantage of Indian Processed Food trade in the Global Market

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Abstract: This study has been undertaken to investigate the level of competitiveness of Indian Processed Food Sector. The nations selected for analysis and are trade partners of India are as follows: ASEAN (Brueni, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand, Vietnam), North East Asia (China, Japan, Republic of Korea, Hong Kong, Taiwan, Macao and Mongolia), Switzerland, South Africa, Australia, Brazil, New Zealand, USA (signed in 1994), and EU partners. For the very purpose yearly time series data has been arranged from 2003 to 2016. The analytical framework contains **RTA, RXA & RMA.**

Index Terms **– Processed Food, Trade, Import, Export, Competitive Advantage.**

1. INTRODUCTION

1.1. Processed Food Sector

There are good reasons available for studying the processed food sector in India. The Indian food industry is known for large development, and its contribution to the world food trade is increasing each year. The food sector is developed as a high-growth and high-profit sector due to its massive efficiency for value addition, in the processed food industry, in India. Currently, the food industry, which is estimated at US$ 39.71 billion, is believed to attain a Compounded Annual Growth Rate (CAGR) of 11 per cent to US$ 65.4 billion by 2018. Around 31 per cent of India's consumption basket account by Food and grocery. The Government of India has been active in the growth and development of the food processing industry by accounting for about 32 per cent of the country's total food market. The government by the Ministry of Food Processing Industries (MoFPI) is attempting all possibilities to motivate investments in this sector. Furthermore, it has approved proposals for Joint Ventures (JV), foreign collaborations, industrial licenses, and 100 per cent export-related units.

Related to the data given by the Department of Industrial Policies and Promotion (DIPP), the food processing sector in India has gained around US$ 7.47 billion value of Foreign Direct Investment (FDI) during the period from April 2000 to December 2016. The Confederation of Indian Industry (CII) calculates that food processing sectors have the efficiency to grasp as much as US$ 33 billion of investment over the next coming 10 years and to create employment of nine million person-days. The Government of India has set up a dairy processing infra fund worth Rs 8,000 crore (US$ 1.2 billion) in Union Budget 2017-18. Union Budget 2016-17 revealed 100 per cent FDI through FIPB (Foreign Investment Promotion Board) way in the marketing of food products manufactured in India (IBEF, 2017).

According to these trade models developed countries in North and developing economies in South inclined to trade products that are vertically differentiated by quality. In different production levels VIIT is found and can be described by field along quality varieties within a particular industry (Fontagne et al., 2005). Falvey and Kierzkowski (1987) indicated that greater varieties of differentiated products which are distinguishable based on price and quality can be produced with the tendency of great relative capital. Based on demand perspective, consumers rank other varieties with respect to the measure of quality of the products, with the demand for each quality being denoted as a matter of income and price. Hence, a normal is expected to choose High Quality (HQ) products to Low Quality (LQ) products, however since the income levels of consumer constrains the choice of product, if the income level increased then the initially consumed LQ products can substitute toward HQ products, vice versa. Additionally, in the case of VIIT for final goods, Feenstra and Hanson (1997) improve an excellent model to analyze trade in intermediate goods between North and South nations that is developed and developing nations.

2. RESEARCH METHODOLOGY

2.1. Data collection

For the present research, secondary data is collected from the International Harmonized System of classification (Harmonized Tariff system) of trade data which is available from World integrated trade solution (WITS) data base which is

developed in collaboration with the United Nations Conference on Trade and development (UNCTAD) and the Ministry of Commerce and the World Bank. For the present research, the researcher used the common HS code which facilitated the researcher to examine the import and export of products to and from any nation. All products are segregated into 21 sections wherein each section is segregated further into 98 chapters from HS-01 to HS-98. For the present research, the food processing sector was selected since the industry has an enormous potential towards boosting the competitiveness of a nation (NPC 2010). Since the present research focussed on the processed food industry (e.g. meat products, grain based foods, processed fruits and vegetables). The description for the sections is provided in Table 1. Processed food products are defined as trade in product groups with HS Chapters 02, 03, 04, 15, 16, 20, 21 which are classified as processed food products. Further the 2-digit level is further classified into 4-digit level (e.g. 0201 (ITC, 2015). The Processed food products like meat and edible offal, fish, crustaceans, molluscs, aquatic invertebrates, dairy products, eggs and animal products, cereal, flour, vegetables, fruits and nuts are some of the processed food products which were included in the study.

HS code:

Chapter, HS Code	Description
02	Meat and Edible meat offal
03	Fish and Crustaceans, molluscs and other aquatic invertebrates
04	Dairy products; bird's egg, natural honey, edible products of animal origin, not elsewhere specified or included.
15	Animals or vegetable fats and oils and their cleavage products, prepared edible
16	Preparation of meat, of fish of crustaceans, Mollusks or other aquatic invertebrates
19	Preparation of cereal, flour, starch, or milk, pastry cooks products
20	Preparation of vegetables, fruits, nut or other parts of plants
21	Miscellaneous edible preparation

2.2. Sampling

In the present research, the nations selected for analysis and are trade partners of India are as follows: ASEAN (Brueni, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand, Vietnam), North East Asia (China, Japan, Republic of Korea, Hong Kong, Taiwan, Macao and Mongolia), Switzerland, South Africa, Australia, Brazil, New Zealand, USA (signed in 1994), and EU partners (Germany and France) (major export 20%) (Indian Trade Portal, 2014b; Aggarwal & Chakraborty, 2017). These nations are selected for the research since they contribute to the nation's import and export significantly.

2.3. Analytical tools used

The generally utilized tools for empirical examination in economics and other domains for research are time series and cross section. The value for a single or more variables within a period is examined through time series, for instance, for examining a nation's national income or GDP within numerous time periods that is either years period, quarters or months period, etc. Time serious is also named as Vertical analysis since in this case similar data for various time periods in one parameter, organized chronologically and the method is generally utilized for trend analysing. Whereas in cross section data the values for single or more variables are gathered for numerous model units or persons, for instance the growth of GDP for various Asian nations within a provided time. Hence cross-sectional examination is also named a horizontal analysis due to this case data for various objects but for the similar year is provided and the method is mostly used for comparative analysis.

2.3.1. Competitive Advantage Formula:

$$RTA_{ict} = RXA_{ict} - RMA_{ict}$$

Where,
RTA Competitive Advantage of India
RXA_{ict} The relative export advantage index for industry i, country c in period t.
RMA_{ict} The relative import advantage index for industry i, country c in period t.

$$RXA_{ict} = \frac{X_{ict} / X_{iwt}}{XT_{ct} / XT_{wt}}$$

X_{ict} = Export value of industry i, country c in period t.
X_{iwt} = Export value of industry i of the world w in total in period t.
XT_{ct} = Total export value of industries of country c in period t.
XT_{wt} = Total export value of industries in the world in period t.

$$RMA_{ict} = \frac{M_{ict} / M_{iwt}}{MT_{ct} / MT_{wt}}$$

M_{ict} = Import value of industry i of country c or of the world w in total in period t.
M_{iwt} = Import value of industry i of the world w in total in period t.
MT_{ct} = Import value of industry i of country c in total in period t.
MT_{wt} = Total import value of industries in the world in period t.

3. RESULTS AND DISCUSSION

The present study utilizes the secondary data. The final sample comprises of 25 countries with a period of fiscal years from 2003 to 2016 that has been used for analysis. A series of statistical tools like growth, contribution, descriptive, statistics have been used to analyse the data by using SPSS 20.0 in the case of Indian processed food sector.

Table 1 represents the export of processed food from India to other countries between 2003 and 2016. The value of export is very large and so log transformation is implied, which shows to small values.

The methodology in the present research for the assessment of competitive advantage of the Indian processed industry is adopted from the method that was used in previous researches by (Poppe et al., 2007; Wijnands et al., 2015). It is deemed that the export share on the world market could be considered as a straight-forward indicator for the assessment of competitive performance or advantage (Buckley et al., 1988 cited in Wijnands & Verhoog (2016). Hence, the difference in the export share of the nation on the world market between two periods could be considered as a viable technique for the examination of the growth prospects and competitive performance. However, considering the growth rates between two different periods has its own flaws which need to be rectified. Hence, the research considered the various indicators such as relative export advantage index, relative import advantage index and Relative Trade Advantage index which could provide better insights on the competitive advantage that is achieved by a nation

3.1. Competitive advantage of India

Table 1: Export of Food Processed from India to other Countries

Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Australia	17.15	17.17	14.96	17.35	17.32	17.04	17.17	17.25	17.60	17.80	17.98	18.04	17.94	17.91
Belgium	18.14	18.14	18.48	18.75	18.72	18.71	18.26	18.58	18.90	18.93	19.17	19.39	19.11	18.90
UK	18.40	18.39	18.67	18.82	18.86	18.83	18.77	18.92	19.14	19.09	19.38	19.47	19.33	19.40
Hong Kong	17.11	17.20	17.68	17.66	18.06	18.11	18.70	18.92	16.17	18.64	18.56	18.48	18.42	18.42
Bangladesh	16.13	16.65	17.32	16.71	17.03	17.66	17.51	17.67	17.56	18.25	19.00	18.98	18.40	18.45
Brazil	12.02	14.03	12.16	12.30	15.62	14.91	15.92	15.97	18.42	16.81	16.39	15.40	14.84	15.63
Italy	17.59	17.76	17.81	18.02	18.31	18.37	18.23	18.61	18.74	18.65	18.80	18.95	18.90	19.00
Nigeria	14.22	13.47	13.37	14.42	14.61	15.84	17.43	15.88	15.96	15.57	16.90	16.99	16.13	16.10
Vietnam	14.82	17.45	17.46	17.66	18.35	19.41	19.60	19.72	20.93	21.00	21.79	24.26	21.79	21.88
Germany	17.56	17.70	17.67	17.88	15.67	18.17	17.91	17.77	18.00	17.97	18.04	18.26	18.18	18.06
Sri Lanka	15.77	16.05	14.32	16.88	16.97	17.18	16.75	16.90	17.24	17.15	17.39	17.34	17.45	17.55
Switzerland	14.23	14.18	14.35	14.48	13.95	15.08	14.90	14.74	15.25	15.11	15.88	16.14	15.88	15.68
Netherland	17.78	18.01	18.02	18.05	18.48	18.82	18.45	19.03	19.25	19.17	19.32	19.45	19.47	19.36
Singapore	17.00	17.27	17.35	17.49	20.02	20.15	17.76	17.89	18.19	18.21	18.38	18.24	18.13	18.18
France	17.64	18.17	18.29	18.33	18.72	18.93	18.73	19.07	19.43	19.18	19.35	19.36	19.23	19.18
Indonesia	15.58	16.41	16.11	16.49	16.23	16.63	17.07	16.97	17.35	17.70	17.82	17.70	17.36	19.34
Japan	19.40	19.45	19.65	19.57	19.60	21.90	19.36	22.06	19.54	19.87	20.16	20.09	20.00	19.93
Korea	16.90	17.18	17.41	17.19	17.28	17.28	17.39	17.04	17.53	17.74	17.28	17.85	17.72	17.73
USA	19.99	19.98	20.00	19.90	19.73	19.90	19.86	20.32	18.46	20.87	21.23	21.38	21.37	21.48
China	18.53	18.48	19.06	19.24	19.28	19.08	19.44	20.00	20.07	20.15	20.13	19.85	19.90	19.83
Iran	16.12	16.39	17.26	17.48	17.48	17.47	17.01	18.06	18.50	18.94	19.08	18.30	18.05	18.15
Malaysia	18.42	18.60	18.96	18.85	18.74	19.02	19.06	19.38	19.72	19.82	20.11	20.08	20.14	19.96
Thailand	17.58	17.08	15.26	17.67	17.77	18.24	18.19	18.75	19.30	19.72	20.10	19.94	19.76	19.47
UAE	18.23	18.67	19.06	18.98	19.30	19.38	19.32	19.60	19.90	20.08	20.31	20.39	20.30	20.24
Qatar	15.54	15.82	16.14	16.29	16.66	16.88	16.77	16.91	17.48	17.53	17.74	17.84	18.05	17.98
Total	**21.19**	**21.30**	**21.48**	**21.53**	**21.77**	**22.57**	**21.76**	**22.72**	**22.30**	**22.59**	**22.97**	**24.44**	**22.94**	**22.98**

These indicators were used in the present research wherein the following inferences were made:

- Twenty-five nations were considered in the research wherein their import and export trade with India were examined to arrive at the values for the indicators. Since the values of import and export share are huge, the researcher converted the same to log values which hence transformed to smaller values
- The relative export advantage index revealed a declining trend in the exports; however, there were slight increases in the values during the year 2009 and 2011 (Figure 1)
- The relative import advantage index revealed a sharp decline in the trends from 2006 to 2011 wherein a slight increase was evident which grew to some extent in 2016 (Figure 2).

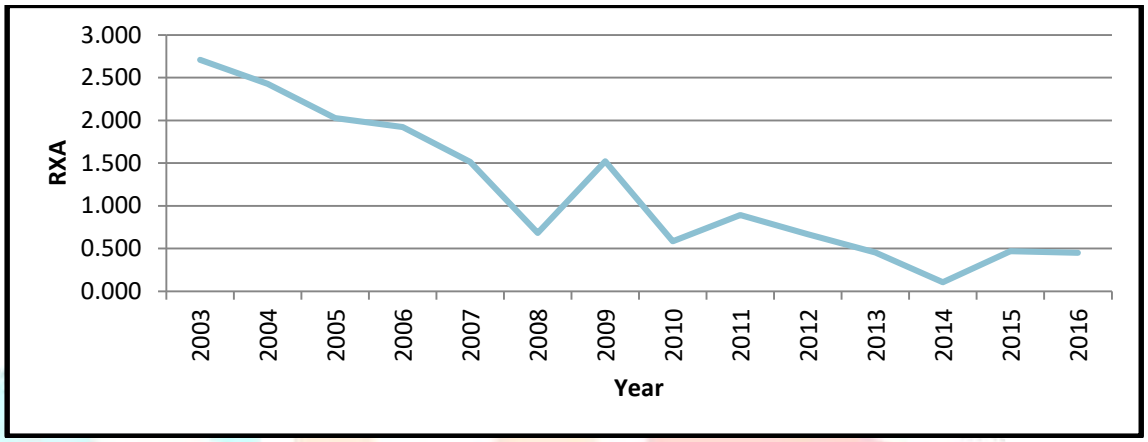

Figure 1: Graph of relative export advantage index

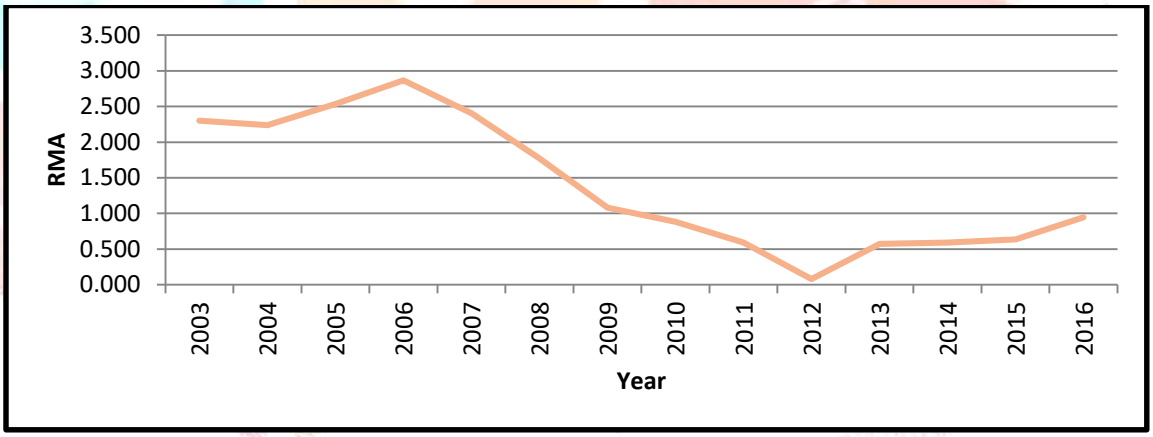

Figure 2: Graph of relative import advantage index

An explanation to the inferences is as follows:

In the Indian processed food industry, it is deemed that there is a decreasing trend in the relative export advantage and some increases in certain years. According to Wijnands and Verhoog (2016) when the relative export advantage is equal to 1, it means the nation has equal specialisation with respect to the total world exports wherein values that are below 1 depicts unspecialised and above as relatively specialised. The above 1 scenario depicts the export advantage that was achieve by the nation. In the Indian processed food sector, the values of relative export advantage is found to have been high in the years 2003, 2004, 2005, 2006, 2007, 2009, whereas the rest years (2008, 2010, 2011, 2012, 2013, 2014, 2015, 2016) recorded values less than 1. This means that the nation's processed food sector witnessed no good export advantage in the years in which the sector witnessed less than 1 relative export advantage value.

The Indian processed food industry tends to be a competitive sector wherein it has a significant position in steering the growth of the nation's economy. Since India is an agriculture- oriented nation the processing of agri-products such as mere cleaning, sorting and packaging itself adds value to the shell-life of the products. In addition, processed food generally becomes high value-added product and tends to provide remunerative prices to the farmers. Indian food produce has increased significantly in the last two decades wherein the trend is set increasing every year (Rabo India Finance, 2005).

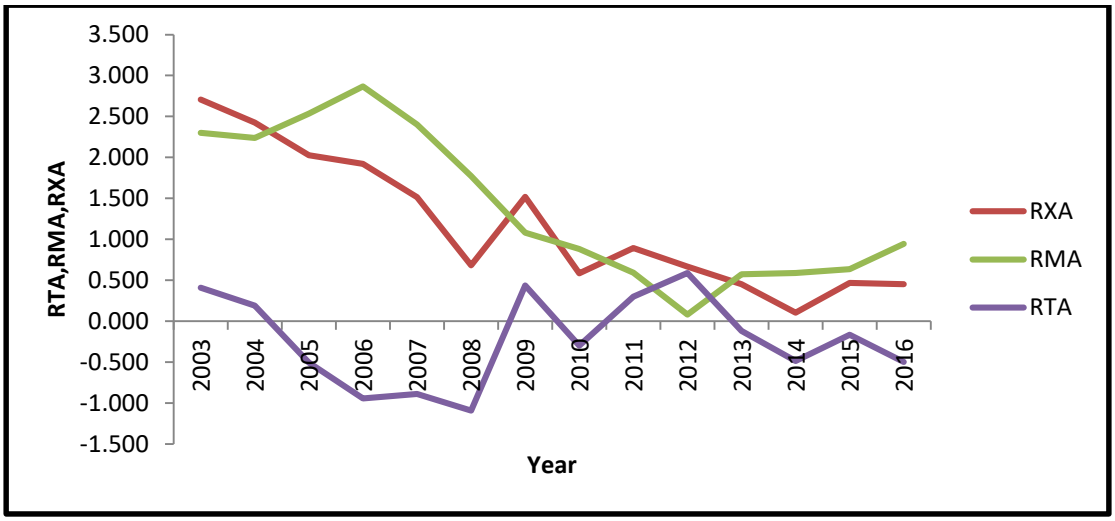

Figure 3: Graph of Competitive advantage of India year wise

In the Indian processed food industry, the growth of the sector is steered by the partial liberalisation of the retail sector which led to the entry of new private players which in turn improved the internal competitiveness in the sector. Presently, the Indian processed food industry is one among the leading growth contributors to the nation wherein the same contributes to more than 30 per cent of the exports of the nation, 6 per cent of the total industrial investment and 14 per cent of the manufacturing GDP (Ibef, 2017). In line with these inferences, the researcher in the present study attempted to examine the competitive advantage possessed by this sector in India. Competitive advantage is one measure to determine the international pattern trade wherein a nation's competitive advantage with respect to imports and exports will be discerned using this method (Ashish & Kannan, 2015). Sustainable competitive advantage as depicted by Porter is the basic source for the above average performance (Porter, 1980, 1990). From the viewpoint of Porter, it is evident that the competitiveness of the food industry could be defined as the sustained capability of the industry to acquire better gains and good market share in the export and domestic markets in which the industry is deemed active (Wijnands & Verhoog, 2016).

It is deemed that relative import advantage is reverse form of relative export advantage wherein the value below 1 depicts competitive advantage. It was revealed that in the processed food industry of India the values of imports have decreased from the year 2009 which could be associated with the fact that the nation's processed food industry is importing relatively less products and has better production sites which could satiate the needs of the nation. However, the researcher also examined the Relative Trade Advantage which is the overall means to examine whether the Indian processed food sector has competitive advantages over other nations' sector. It was revealed that in many years considered in the research, the values of Relative Trade Advantage were negative which depicts competitive disadvantages. Hence there is a need to improve the stance of Indian processed food industry to embrace better economic benefits and achieve competitive advantages.

Table 2 illustrates the calculation on RXA index (relative export advantage index) and RMA index (relative export advantage index). A positive RTA index (Relative Trade Advantage index) indicates a competitive advantage: the exports exceed the imports. Negative values signify competitive disadvantages. In the period from 2005 to 84 and from 2013 to 16 imports exceed the export while in the period from 2003 to 04 and from 2011 to 12 exports exceed the imports.

Table 3 shows the import of processed food from India to other countries between 2003 and 2016. The value of export is very large and hence log transformation is applied, which shows to small values.

Table 2: Competitive advantage of India in a yearly mode

Year	RXA	RMA	RTA
2003	2.709	2.300	0.409
2004	2.426	2.236	0.190
2005	2.026	2.534	-0.507
2006	1.923	2.866	-0.943
2007	1.514	2.402	-0.888
2008	0.682	1.772	-1.090
2009	1.520	1.082	0.438

Year	RXA	RMA	RTA
2010	0.584	0.883	-0.299
2011	0.892	0.592	0.301
2012	0.667	0.080	0.587
2013	0.454	0.572	-0.119
2014	0.105	0.590	-0.485
2015	0.470	0.635	-0.165
2016	0.450	0.946	-0.496

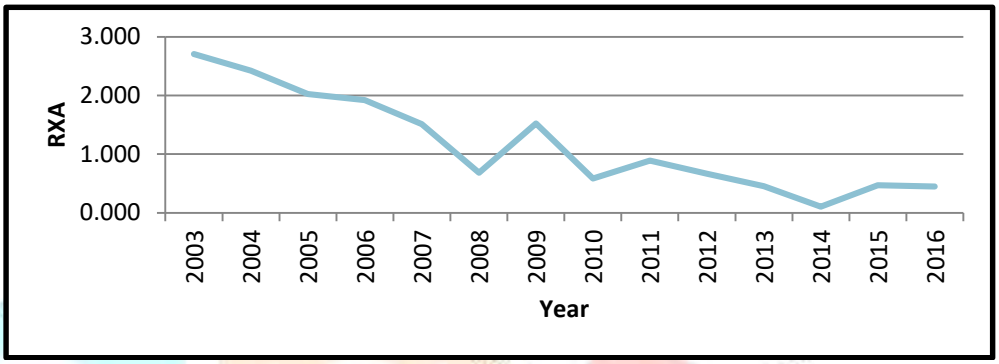

Figure 4: Graph of relative export advantage index

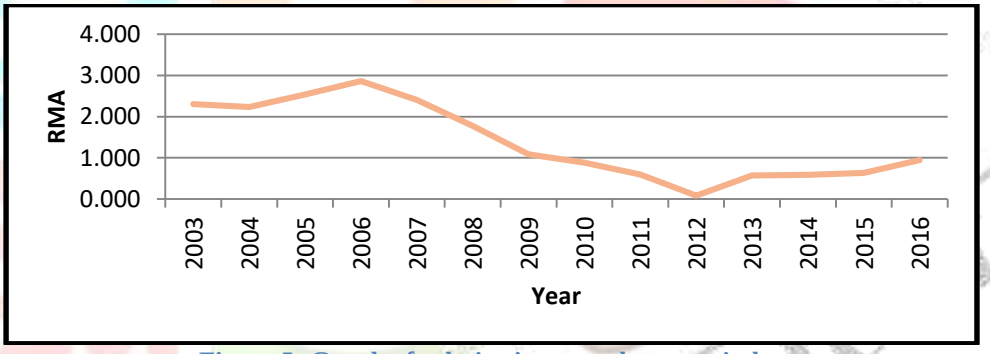

Figure 5: Graph of relative import advantage index

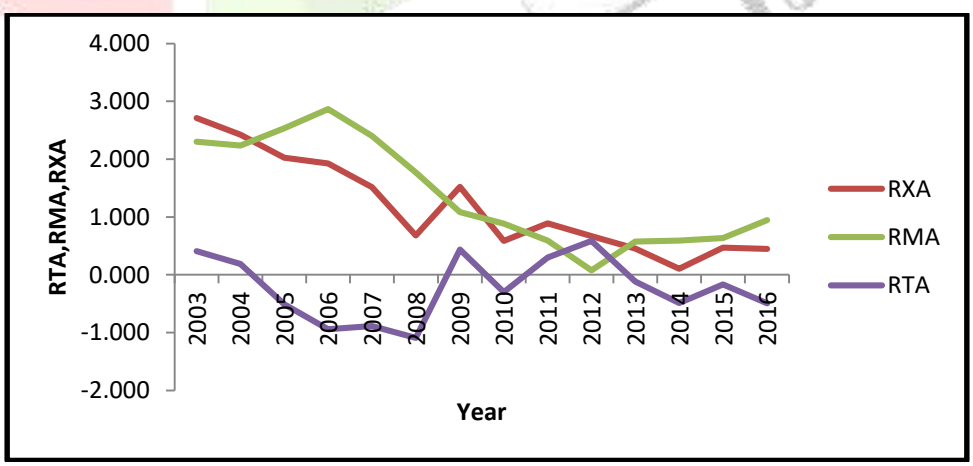

Figure 6: Graph showing Competitive advantage of India in a yearly mode

Table 3: Import of Food Processed from India to other Countries

Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Australia	15.61	14.08	13.93	13.17	13.66	14.39	16.38	17.59	17.56	15.28	15.11	15.27	14.89	15.13
Belgium	14.92	15.34	14.78	14.90	15.51	15.08	15.03	15.33	16.26	15.93	15.68	15.60	15.23	15.23
UK	15.88	14.94	15.28	15.04	15.46	15.81	15.32	15.88	17.36	16.98	16.20	13.99	16.21	18.50
Hong Kong	10.49	10.07	11.52	11.65	14.32	11.74	11.37	11.66	12.89	11.84	12.08	12.81	12.89	13.23
Bangladesh	15.34	16.12	16.17	16.94	16.67	17.62	17.06	15.28	18.45	17.73	16.64	17.17	17.30	16.82
Brazil	18.66	18.85	19.01	18.50	16.46	18.45	18.85	18.01	18.98	19.58	18.87	19.75	20.10	20.02
Italy	14.71	14.87	15.26	15.42	17.89	16.11	18.24	16.48	17.09	17.04	17.03	17.00	16.86	16.93
Nigeria	7.87			4.84	4.44	6.25		8.19	9.63	6.17	8.01	5.33	4.22	9.80
Vietnam	12.18	12.25	13.81	12.11	13.33	13.35	14.35	15.29	16.60	16.77	16.87	16.87	17.51	17.05
Germany	14.95	15.06	14.88	14.65	14.72	14.76	15.25	15.45	17.56	17.57	15.41	15.72	15.72	13.68
Sri Lanka	15.28	16.47	18.70	18.51	18.78	17.58	15.33	15.48	13.18	15.85	15.11	15.09	14.80	14.94
Switzerland	13.67	13.89	13.99	13.55	14.00	14.17	14.66	14.73	15.35	15.19	14.57	14.08	14.42	14.45
Netherland	15.45	15.32	15.52	15.81	15.75	16.32	16.64	16.39	17.08	17.10	16.96	16.86	18.96	16.43
Singapore	15.78	15.19	15.20	15.12	16.06	16.06	15.48	16.60	17.32	17.42	17.17	16.97	16.23	16.24
France	15.11	15.22	15.37	15.47	15.57	15.73	15.76	13.85	17.51	15.16	18.83	16.72	17.64	17.02
Indonesia	20.80	21.03	20.80	20.74	21.02	21.51	21.80	22.08	22.36	24.71	22.36	22.14	22.03	22.03
Japan	12.85	13.05	13.62	15.74	14.56	14.22	14.15	14.66	17.34	16.62	15.19	15.17	12.84	14.68
Korea	14.02	13.16	13.87	13.40	15.89	14.02	14.73	14.90	17.24	15.99	14.63	14.60	14.66	14.83
USA	17.91	17.09	17.61	17.51	17.34	17.54	18.85	19.20	18.64	18.16	19.07	18.12	18.10	18.31
China	15.22	15.20	15.32	16.13	16.89	17.49	16.72	17.28	18.99	18.81	17.11	19.49	17.24	17.32
Iran	11.18	11.27	8.93	10.08	11.20	12.71	13.34	13.05	11.68	14.03	11.59	16.14	11.41	12.81
Malaysia	20.26	19.89	19.53	19.21	18.98	15.17	20.43	20.46	21.14	21.67	21.37	21.67	21.61	19.12
Thailand	16.92	15.24	14.80	16.60	17.40	17.61	17.24	17.36	18.10	17.49	19.09	18.42	17.15	17.06
UAE	13.35	14.17	14.66	14.86	14.94	15.19	15.70	16.88	17.75	16.79	16.50	16.32	16.97	16.23
Qatar	3.99			9.95	9.58			9.94	15.78	14.42			7.34	
Total	**14.50**	**15.12**	**15.33**	**14.80**	**15.22**	**15.37**	**16.20**	**15.68**	**16.87**	**16.57**	**16.31**	**16.30**	**15.69**	**16.16**

4. SUMMARY & CONCLUSION

With the emergence of the World Trade Organisation (WTO) in the year 1995, the member nations considerably made reformations in their tariffs which led to the facilitation of the cross-border trade flows. Over the past 30 years, there has been increase in the import and export trade especially in the region of South East and East Asia (United Nations Economic and Social Commission for Asia and the Pacific, 2011). With the initiation of several Regional Trade Agreements (RTAs), the process of trade has been facilitated and have also paved way for the growth of the Intra-bloc IIT which means cross country trade within the ASEAN (World Trade Organisation, 2011). However, the initiation of trade liberalisation by India in the year 1991 led to the export-oriented growth (Chaisse et al., 2011).

The Indian processed food industry is known to have better growth prospects which are associated with the following facts: The nation is the 10th largest country in the world to have the largest arable land resources (161 million tonnes). With more than 20 agri-climatic regions, almost all the 15 major climates prevailing in the world does exist in India and possesses more than 40 different soil types in the world. The nation is also known as the largest producer of milk, vegetables and fruits and has the largest population of livestock across the globe. The livestock segment contributes to more than 25 per cent of the nation's GDP that comes from farm based resources. In addition, the strategic location of the nation in terms of geography and the proximity of the nation being placed in the zone that has other developing nations close to it have also favoured the nation in terms of exporting processed foods (Ibef, 2016). The Indian food processing industry is basically export oriented wherein the traditional food export which was once active is now replaced by processed food exports (Majumdar, 2013).

The food processing industry involves canning, dairy and food processing, speciality processing, packaging, frozen food/refrigeration and thermal processing. Furthermore, fruits and vegetables, fisheries, milk and milk products, meat and poultry, packaged/convenience foods, alcoholic beverages, soft drinks and grains are the main products involved in food processing. Moreover, healthy food and nutrition supplement foods are other continuously increasing categories of this industry. With some fiscal relief and incentives, to motivate commercialisation and value addition, Indian Government has presented 'high priority' rank to the food processing industry.

India shifted from a level of scarcity to surplus in food production, during the last one decade. In trade, production of food products in the Indian food processing industry is on a sure route of development and economic advancement. It is considered to entice remarkable investment in human, technological, capital and financial fields. In the following 10 years, it is anticipated that the total food production of India is estimated to double. Therefore, possibilities exist for bulk investments in food and food process industries, skill improvement in the sector and tools used. The food processing industry involves canning, dairy and food processing, speciality processing, packaging, frozen food/refrigeration and thermal processing. Furthermore, fruits and vegetables, fisheries, milk and milk products, meat and poultry, packaged/convenience foods, alcoholic beverages, soft drinks and grains are the main products involved in food processing. Moreover, healthy food and nutrition supplement foods are other continuously increasing categories of this industry. With some fiscal relief and incentives, to motivate commercialisation and value addition, Indian Government has presented 'high priority' rank to the food processing industry.

The present study clearly indicates that food processing is imperative to encourage labour efforts from agriculture to manufacturing. Numerous hopeful dynamics are available to support the efficient development of food processing industry; however, this industry still facing some critical challenges and needs to be addressed earlier which can improve the trends of the food processing sector in India. The major barrier identified in the Indian food processing industry is capital intensive which is a powerful obstacle and reduces the number of players to enter into the market. The recommendations for sustainable Indian food processing industries are awareness among consumers about nutrient benefits of processed foods; need for distribution network; dealing with low price elasticity for processed food products; streamlining of food laws; marketing channels enhancement; food testing network and improving food quality standards; strengthening institutional framework to develop manpower for improving R&D capabilities to address global challenges. These challenges must be addressed to achieve full potential of the Indian food processing industry.

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