Comparative advantage of groundnut export from India with other selected countries

M Malarkodi[1], VM Indumathi[2] and B Krishnakumare[3]

[1]Directorate of Agribusiness Development, [3]Department of ARM
Tamil Nadu Agricultural University, Coimbatore 641003 Tamil Nadu, India
[2]ICAR- Krishi Vigyan Kendra (TNAU), Vamban, Pudukkottai 622303 Tamil Nadu, India
Email for correspondence: malarkodi.m@tnau.ac.in

 Received: 04.09.2020/Accepted: 02.11.2020

ABSTRACT

The paper analyses the comparative advantage in the export of groundnut between some selected countries. Current global integration and changing export pattern has resulted in the reduction of trade barriers. Such increment in the international trade led the countries to get productive gains and enjoy the comparative advantage over other countries for which a measure of revealed comparative advantage (RCA Balassa index) is used. Groundnut exports share in India's total exports have shown a decreasing trend over the years and it was only 0.141 per cent in 2018. Although the Indian groundnut has wide scope for exports in the international market yet the groundnut farmers are suffering from many backlogs which hinder the actual growth of groundnut exports. Groundnut farmers of India have confronted with various challenges to survive in the international market. India has an increasing growth in terms of comparative advantage in groundnut export. It has maintained stability over the years which indicates that India's groundnut export has significant potential for growth. Country has the highest comparative advantage 13.69 in the exports of groundnut in comparison with other selected countries as it holds the potential of being the world's leading groundnut producer with the ongoing research to develop technologies for rainfed groundnut farming.

Keywords: Groundnut; revealed comparative advantage; Balassa index; exports

INTRODUCTION

Groundnut (*Arachis hypogea* L), the most important oilseed crop, has its origin from South America and is grown mainly for its edible seeds by small, large and commercial producers. It is one of the world's fifteenth leading food crops cultivated throughout the world. It is considered as high protein nut because of its high nutritional value. It is one amongst the most important foods in the international trade.

After 1960s Brazilian groundnut farmers shifted to soybean cultivation in order to meet the growing protein and oil demand of the world. After 2000s Brazilian government was involved in many researches to engage its farmers in groundnut production as reported by Thiago Reis et al (2018) in their study.

This paper determines the comparative advantage of groundnut export among five different countries by using international trade data to find out which country had the highest advantage in the production of groundnut and its export relative to other countries.

Worldwide groundnut is grown over 100 countries at 26.4 million hectares with a total production of 37.1 million MT and an average productivity of 1.4 MT/ha. The production of groundnut is concentrated in Asia and Africa with 56 and 40 per cent of the global area and 68 and 25 per cent of the global production respectively. The major groundnut producing and exporting countries are India (4,57,188 USD), USA (4,54,090 USD), China (2,78,586 USD), Netherlands (2,41,178 USD) and Brazil (2,30,778 USD) where India stands in the first position and Brazil in the fifth position. Developing countries constitute 97 per cent of the global

area and 94 per cent of the global production of groundnut where India stands first in groundnut export (as per 2018 data) and second in world groundnut production (6.2 MT as per 2018 data). There has been a shift in importers of Indian groundnut over period of time in pre-liberalization period while their share has been declining in the post-WTO period because of high aflatoxin content which lead India to lose the markets (Varghese 2014).

METHODOLOGY

Comparative advantage approach is used to measure a country's comparative advantage and disadvantage in a particular industry or export of a commodity. To identify the sector in which the country has the comparative advantage, revealed comparative advantage (RCA) indices use the trade pattern and it is done by comparing the country's trade profile with the world average.

To capture the degree of trade specialization of a country, Balassa proposed the revealed comparative advantage (RCA) index (Balassa 1965):

$$RCA_{CL} = \frac{x_{CL}/X_C}{x_{WL}/X_W}$$

where x_{CL}: exports of product L by company C, X_C: Total exports from country C, x_{WL}: Total exports of product L by rest of the world, X_W: Total exports from world

The RCA index is the ratio of two shares. The numerator is the share of a country's total exports of a commodity in its total exports. The denominator is the share of world exports of the same commodity in total world exports and it takes the value between 0 to $+\infty$. If the value of ∞ exceeds 1 than the country is said to have a revealed comparative advantage. Based on this RCA index, a country's specialization in export of a certain product can be identified if the market share of the product is higher than the average. Similarly if the weight of the product of the country's export is higher than the exports of other countries. If RCA index is more than 1 it shows that the country's export of those products is more than expected on the basis of its importance in total exports of the reference areas. Main data sources were from International Trade Centre (ITC) developed by World Trade Organization. Time period of the study was 2011-2018.

RESULTS and DISCUSSION

The quantity of groundnut exported by major groundnut producing countries is depicted in Table 1. The quantity exported by India in 2011 was 7,60,764 tonnes. However the quantity exported by India showed a downward trend over the years and it was only 4,71,236 tonnes during 2018. Other countries such as USA, China, Netherlands and Brazil showed an upward trend in case of the quantity of groundnut exported. For instance the quantity exported by USA was only 1,67,226 tonnes in 2011. The quantity exported by USA reached at its peak to 5,58,469 tonnes during 2016 and thereby gradually reduced in the next couple of years.

Netherlands showed a similar fluctuating trend during the period 2011-18. In case of China and Brazil the trend was upward. Brazil exhibited a positive trend towards the quantity of groundnut exported. The quantity exported was only 54,092 tonnes in the year 2011 which was very less as compared to other four countries. Nevertheless the number skyrocketed to 2,07,043 tonnes. The percentage increase in the quantity exported was very high in case of Brazil than other countries. The graph explaining the upward and downward trend in the quantity of groundnut exported by 5 major groundnut producing countries is given in Fig 1.

The share of India's groundnut export in the world's total groundnut exports (Table 2, Fig 2) was about 0.002 per cent while it was 0.0023 per cent for USA, 0.0014 per cent for China, 0.0012 per cent for Netherlands and 0.00119 per cent for Brazil. Groundnut exports share in India's total exports showed a decreasing trend over the years and it was only 0.141 per cent in 2018. Even India's share of groundnut export to the world's total export also decreased from 0.005 in 2011 to 0.002 in 2012. Other countries share was bit higher in comparison to India. Although the Indian groundnut has wide scope for exports in the international market yet the groundnut farmers are suffering from many backlogs which hinder the actual growth of groundnut exports. Groundnut farmers of India have confronted with various challenges to survive in the international market.

Revealed comparative advantages analysis at aggregate level

The estimation of quantity of groundnut exported and percentage share to the world's total

Table 1. Quantity of groundnut exported (tonnes)

Year	India	USA	China	Netherlands	Brazil
2011	7,60,764	1,67,226	1,65,333	1,40,205	54,092
2012	6,55,690	1,90,536	1,46,059	1,43,308	61,108
2013	4,38,267	4,00,567	1,34,740	1,46,133	80,729
2014	6,60,010	3,46,412	1,38,189	1,48,905	63,781
2015	5,57,069	3,35,427	1,27,646	1,55,271	1,00,844
2016	6,32,567	5,58,469	1,21,023	1,45,725	1,05,810
2017	6,33,266	3,90,689	1,48,708	1,43,412	1,53,317
2018	4,71,236	4,00,311	1,98,561	1,45,105	2,07,043

Table 2. Share of groundnut export to the world share

Year	Share of total domestic export (%)					Share of total world export (%)				
	India	USA	China	Netherlands	Brazil	India	USA	China	Netherlands	Brazil
2011	0.312	0.014	0.013	0.050	0.030	0.005	0.001	0.0014	0.0014	0.0004
2012	0.309	0.017	0.013	0.057	0.045	0.004	0.001	0.0014	0.0017	0.0005
2013	0.143	0.034	0.009	0.050	0.046	0.002	0.002	0.0011	0.0015	0.0005
2014	0.211	0.027	0.008	0.047	0.038	0.003	0.002	0.0010	0.0014	0.0004
2015	0.243	0.028	0.009	0.050	0.061	0.003	0.002	0.0013	0.0013	0.0007
2016	0.276	0.040	0.009	0.050	0.065	0.004	0.003	0.0012	0.0014	0.0007
2017	0.227	0.028	0.009	0.050	0.089	0.0038	0.002	0.0012	0.0014	0.00111
2018	0.141	0.027	0.011	0.041	0.096	0.002	0.0023	0.0014	0.0012	0.00119

Table 3. Revealed comparative advantage analysis at aggregate level

Year	India	USA	China	Netherlands	Brazil
2011	35.495	1.166	1.089	3.995	2.256
2012	30.782	1.265	0.987	4.316	3.171
2013	13.713	3.385	0.835	4.430	3.741
2014	24.421	2.818	0.766	4.418	3.245
2015	24.086	2.450	0.743	3.999	4.594
2016	22.038	3.001	0.573	3.209	3.982
2017	18.978	2.182	0.684	3.528	6.094
2018	13.695	2.633	0.992	3.596	8.362

export during 2011 to 2018 provide evidence on the movement in the pattern of revealed comparative advantage for India, USA, China, Netherlands and Brazil (Table 3, Fig 3). India had an increasing growth in terms of comparative advantage in groundnut export. India's groundnut export had a revealed comparative advantage and it was greater than unity (RCA >1). It maintained stability over the years which indicates that India's groundnut export has significant potential for growth.

While comparing the trend between nations viz USA, China, Netherlandss and Brazil; Brazil held comparative advantage in this sector however it was placed favorably lower than India. The RCA indices have shown that USA and Netherlands shared comparative advantage in the groundnut export but with the decreasing pattern. China stood much below as compared to India. China had no comparative advantage in this sector due its lesser RCA (<1) measured through Balassa index.

The analysis shows that India's production quantity and export dropped from 7,60,764 tonnes in 2011 to 4,71,236 tonnes in 2018 where the demand was met out by Brazil and USA where these two

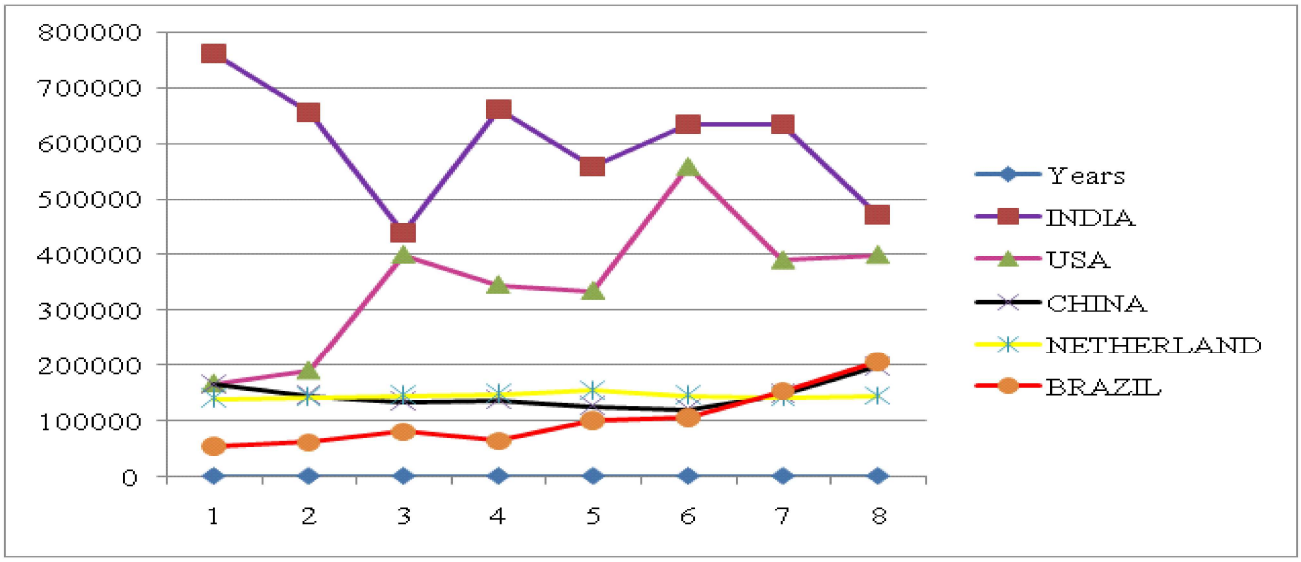

Fig 1. Quantity of groundnut exported (tonne)

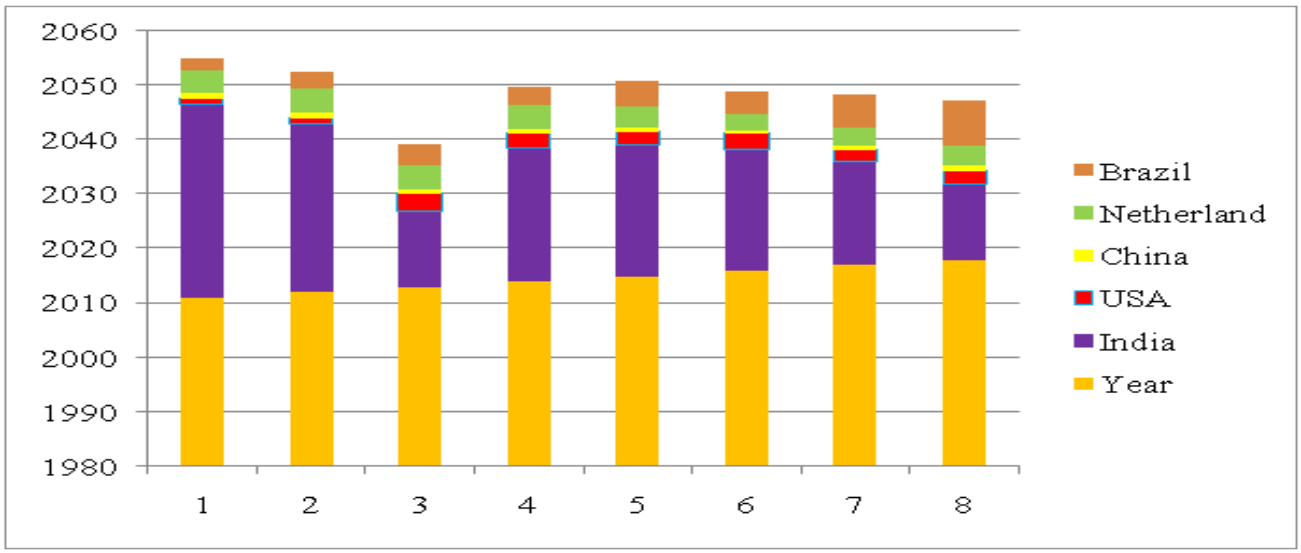

Fig 2. Groundnut export share in total exports and world's total groundnut exports

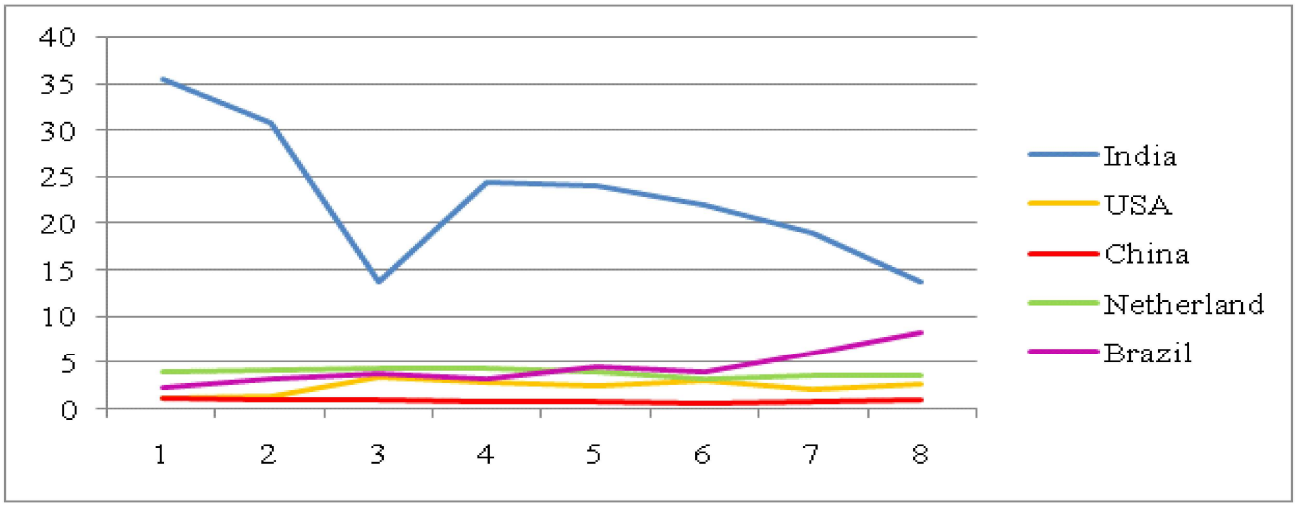

Fig 3. Comparison between nations: relative comparative advantage

countries increased its export quantity from 54,092 tonnes in 2011 to 2,07,043 tonnes in 2018 and for USA it was from 1,67,226 tonnes in 2011 to 4,00,311 tonnes in 2018. India also lost its domestic market share and world market share of groundnut from 0.312 and 0.005 per cent in 2011 to 0.141 and 0.002 per cent in 2018. But still India has the highest comparative advantage of 13.69 in the exports of groundnut in comparison with other selected countries as it holds the potential of being the world's leading groundnut producer with the ongoing research to develop technologies for rainfed groundnut farming.

CONCLUSION

The estimations for the years 2011 to 2018 concluded that if India fails to increase its production and export quantity, it would lose its groundnut market share in the world market. The lost market share can probably be captured by either Brazil or USA as Brazil has the comparative advantage of 8.632 which stands next to India. Therefore steps must be taken to grab the export potential of groundnut.

REFERENCES

Balassa B 1965. Trade liberalisation and 'revealed' comparative advantage. Manchester School **33:** 99-123.

Thiago Reis T, Lourenzani AEBS and Machado JGCF 2018. Innovation in peanut productive chain in Brazil between 1996-2016. International Journal for Innovation Education and Research **6(5):** 142-154.

Varghese N 2014. The effect of trade liberalization on Indian groundnut exports: a Markovian analysis. Journal of Business and Economic Policy **1(1):** 1-8.