

Dynamics in the Export of Small Cardamom from India

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ABSTRACT

India was previously a major exporter of cardamom and played a major role in the international market. Since 1980s, there was a drastic decline in the export of the commodity from India and the trade orientation became more towards the domestic market. The present study focused on growth, instability, concentration and structural changes in the export of small cardamom from India. While there was negative growth rate and high instability in export during pre-WTO period, it was found that in post-WTO period the export growth rate was positive and the instability in export reduced considerably. Compared to pre-WTO period, the geographic diversification of small cardamom export declined in the post-WTO period. The study found a changing trend in the stability of export markets and declining probability of retention of major export markets over the period of time, with the exception of Saudi Arabia. The low-priced cardamom from Guatemala, higher production cost in India and domestic market orientation remain as barriers for small cardamom export from India and there is a need to develop plans and policies focusing

these issues and expanding the markets for Indian small cardamom.

Keywords Dynamics, Export, Growth, Instability, Small cardamom.

INTRODUCTION

Small cardamom from India plays a major role in the international market owing to its superior quality. Alleppey Green Extra Bold Cardamom (AGEB), Alleppey Green Bold Cardamom (AGB) and Alleppey Green Superior Cardamom (AGS) are the well-known grades of Indian cardamom in the International market.

Guatemala was the largest producer and exporter of small cardamom in the world with an average annual production of 38,000 tonnes in 2015-16, while India occupies the second position with an annual production of 22,000 tonnes and an export of 5,500 tonnes in 2015-16 (Spices Board 2016).

Even though there was five fold increase in the production of small cardamom, India's export intensity of production declined gradually from 69% in 1972-73 to 27.5% in 2017-18. India also failed to ensure the stable markets for its cardamom export and it lost its share of world market to its competitor, Guatemala.

In this background, the study attempts to evaluate the dynamics of small cardamom export from India in terms of growth, instability, concentration and structural changes over the years from 1970-71 to 2017-18.

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MATERIALS AND METHODS

Time series data on export and production of small cardamom for the period from 1970-71 to 2017-18 were collected from Spices Board, Cochin. The analysis was carried out by dividing the period of study into pre-WTO period (1970-71 to 1994-95), post-WTO period (1995-96 to 2017-18) and overall period (1970-71 to 2017-18).

The dynamics in the export of small cardamom was analyzed in terms of changes in the export growth rate, instability, geographic concentration and stable export markets. The compound growth rate was measured by fitting an exponential function for the variables viz., export quantity, export value and unit value (Gujarati Sangeetha 2007). The instability in export of small cardamom in terms of quantity, value and unit value was analyzed using Coppock's instability index (Coppock 1966) and the Hirschman Index was used to measure the geographic concentration in the export of cardamom. The structural change in the export of small cardamom was examined by estimating the transitional probability using the Markov-chain model and the examination of the diagonal elements indicate the loyalty of the importing countries to India's export (Atkin and Blandford 1982).

RESULTS AND DISCUSSION

Export growth rate of small cardamom

Using the exponential growth function, the growth rate in the export of small cardamom from India in terms of quantity, value and unit value was evaluated and the results are presented in Table 1.

Table 1. Growth rate of Indian small cardamom export. Pre-WTO : 1970-71 to 1994-95; Post-WTO: 1995-96 to 2017-18; Over all period: 1970-71 to 2017-18.

Year		Quantity (kg)	Value (Rs)	Value (\$)	Unit value (Rs/kg)	Unit value (\$/kg)
Pre-WTO	GR	-8.61	-2.19	-7.80	7.03	0.88
	SE	4.16	5.38	5.58	2.42	2.67
	Sig	-0.48	-2.46	-0.71	0.34	3.02
Post-WTO	GR	12.82	18.66	15.78	5.18	2.62
	SE	3.97	5.31	4.79	2.07	1.91
	Sig	0.31	0.28	0.30	0.40	0.73
Overall period	GR	0.59	6.58	0.92	5.95	0.33
	SE	2.30	2.57	2.70	0.81	0.87
	Sig	3.92	0.39	2.93	0.14	2.63

During pre-WTO period, there was decline in the export of small cardamom from India in terms of quantity and value, while there was a positive growth in terms of unit value. It was the decline in export quantity that led to the decline in export value in spite of increase in the price of the cardamom. This could be due to the increased domestic demand in India and flow of cheaper cardamom from Guatemala into international market.

During post-WTO period, positive growth rate was registered in terms of quantity, value and unit value of export possibly due to the increase in production and productivity of small cardamom in India, while there was lower production and thus deficiency in supply of cardamom from the world's largest exporter, Guatemala.

Increase in domestic demand which in turn led to the increase in annual average domestic price was considered to be one of the major factors affecting the Indian small cardamom export. It could be observed from Fig.1 that the quantity of small cardamom

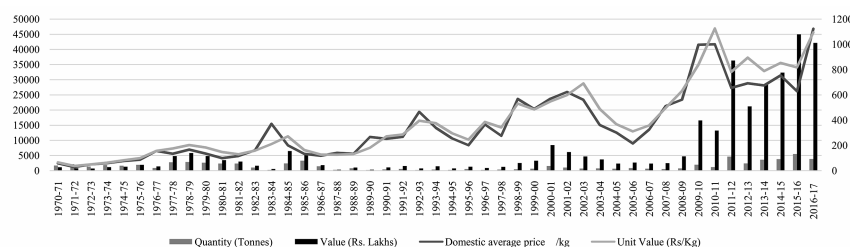


Fig. 1. Comparison between domestic market price and export of small cardamom from India.

Table 2. Instability in export of small cardamom from India.

Period	Quantity (kg)	Value (Rs)	Value (\$)	Unit value (Rs/kg)	Unit value (\$/kg)
Pre-WTO	141.87	145.33	145.03	29.99	28.51
Post-WTO	70.11	62	59.93	25.67	25.27
Overall period	110.59	108.05	107.26	28.28	27.44

exported from India declined with the increase in average annual domestic price, even though there was increase in the international price. Thus, it was the increase in demand and price in domestic market that led to the reduction in export quantity of Indian small cardamom, while the increase in unit value of export contributed solely to the increase in value of small cardamom export from India.

Export instability

Coppock's instability index was used to estimate the instability in the export of small cardamom from India in terms of quantity, value (in \$ and Rs) and unit value (in \$/kg and Rs/kg) the results are displayed in Table 2.

The export of small cardamom from India was found to be more unstable during the pre-WTO period compared to the post-WTO period as there was lower restriction for trade in the post-liberalization period. The instability in the unit value of export was less compared to the quantity and value of export of small cardamom. The analysis revealed that the stability in export earnings was affected by the fluctuation in the quantity of export than that in the price of small cardamom exported from India.

Geographic concentration of export

The results of geographic concentration measured

Table 3. Geographic concentration of Indian small cardamom export.

Period	HI
Pre-WTO	53.62
Post-WTO	63.20
Overall period	57.69

using Hirschman Index is presented in Table 3. The geographic concentration index of small cardamom export from India was above 50% in both pre-WTO and post-WTO periods indicating the higher level of concentration and uneven distribution of the export that could result in higher instability and risks in export earnings. Compared to the pre-WTO period (52.62), the geographic concentration was more in the post-WTO period (63.20). A wide variation and highly increasing trend in the geographic concentration was also found in the post-WTO period. Most of the exports from India were highly concentrated in the Middle East countries which was reflected in the higher geographic concentration of the exports.

Structural changes in the export of small cardamom from India

The structural change in the export of small cardamom from India was analyzed using the Markov chain model by considering eighteen major export markets of Indian small cardamom viz., Australia, Bahrain, Bangladesh, Canada, Iran, Iraq, Japan, Jordan, Kuwait, Malaysia, Qatar, Russia, Saudi Arabia, Singapore, South Africa, UAE, UK and USA and the export to all the other countries was categorized under others (Fig. 2).

The diagonal elements of transitional probability

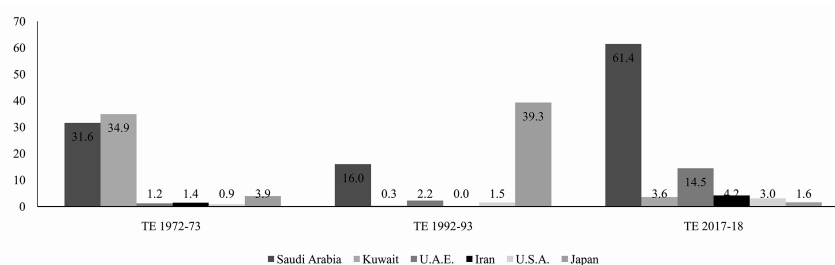
**Fig. 2.** Change in the share of different countries in Indian small cardamom export.

Table 4. Stability-wise major importing countries of small cardamom from India.

Period	Countries
Overall period (1970-71 to 2017-18)	Saudi Arabia > Kuwait > Japan > USA > Malaysia > Russia > Qatar > UAE > Iran > Bahrain > South Africa > Others > Bangladesh > Canada > Singapore
Pre-WTO period (1970-71 to 1994-95)	Malaysia > Kuwait > Saudi Arabia > Qatar > Japan > Bahrain > Russia > UAE > Others
Post-WTO period (1995-96 to 2017-18)	Iran > Saudi Arabia > Japan > USA > Malaysia > Bangladesh > UAE > South Africa > Canada > Others > UK

matrix were used to identify the stable markets and the results are presented in Table 4. Malaysia was the most stable market for Indian cardamom in the pre-WTO period, with 75% probability of retaining the previous period market share, while Kuwait was the second most stable market with 73% probability of retention followed by Saudi Arabia, Qatar, Japan, Bahrain, Russia and UAE.

Compared to the pre-WTO period, a major change in the pattern of stable markets was observed in the post-WTO period. During the post-WTO period, Iran emerged as the most stable market with 83% retention probability, while its probability of retention was zero in the pre-WTO period. Saudi Arabia was the second most stable market with 81% probability of retention and its market share improved greatly over the period of time. It was found that Saudi Arabia gained considerable probability of transfer from other countries viz., others, Russia and Singapore, Japan, USA, Malaysia, Bangladesh, UAE, South Africa and Canada were the others reliable importers for Indian cardamom in the post -WTO period. Compared to pre-WTO period, India lost the markets of Kuwait, Qatar,

Bahrain and Russia in the post-WTO. Kuwait which was the second most stable market in the pre-WTO period (0.73) lost to UAE (0.56) and others (0.41) in the post-WTO period. The major markets gained in the post-WTO period were Iran, USA, Bangladesh, South Africa and Canada.

Considering the overall study period from 1970-71 to 2017-18, Saudi Arabia and Kuwait were the most stable markets for small cardamom export from India, each with 83% probability of retention (Table 5). Japan was the second most stable market (0.70), followed by USA (0.59), Malaysia (0.55) and Russia (0.51). The other stables markets identified in the overall period were Qatar, UAE, Iran, Bahrain, South Africa, Bangladesh, Canada, Singapore and others.

Saudi Arabia, Malaysia, Japan and UAE were found to be the stable markets in both pre-WTO and post-WTO periods. Though India gained considerable market share of UK, Iran and Bangladesh in the recent past, it also lost the market share of major countries viz., Kuwait, UAE and Qatar. The results of Markov chain analysis indicate the changing trend in stable

Table 5. Dynamics in export of small cardamom from India. Figures in parentheses indicate retention probabilities of the respective countries.

Period	Stable markets						Markets gained	Markets lost
Overall period (1970-71 to 2017-18)	Saudi Arabia (0.83)	Kuwait (0.83)	Japan (0.70)	USA (0.59)	Malaysia (0.55)	Russia (0.51)		
Pre-WTO period (1970-71 to 1994-95)	Malaysia (0.75)	Kuwait (0.73)	Saudi Arabia (0.53)	Qatar (0.49)				
Post-WTO period (1995-96 to 2017-18)	Iran (0.83)	Saudi Arabia (0.81)	Japan (0.73)	USA (0.59)			Iran, USA, Bangladesh, South Africa, Canada	Kuwait, Qatar, Bahrain, Russia

markets and declining probability of retention of major countries over the period of time with the exception of Saudi Arabia. This could be probably due to the higher price of Indian small cardamom and emergence of Guatemala as the major competitor (Rajesh 2002) and also the quality issues faced by Indian cardamom with regard to the presence of toxic residuals.

CONCLUSION

The study analyzed the dynamics in the export of small cardamom from India for the period from 1970-71 to 2017-18. It was observed that there was negative growth rate in terms of quantity and value of export during the pre-WTO period, while the post-WTO period registered a positive growth rate and the export unit value was found to be the major source of growth in the value of small cardamom export from India. The stability in the export of small cardamom from India improved in the post-WTO period compared to the pre-WTO period. Over the period from 1970-71 to 2017-18, geographic concentration increased gradually, especially during the post-WTO period. The Markov chain analysis identified that Saudi Arabia, Malaysia, Japan and UAE were the stable markets in both pre-WTO and post-WTO periods. While India gained a considerable market share of UK, Iran and Bangladesh in the recent past, it lost the market share

of major countries viz., Kuwait, UAE and Qatar.

Even though there is high demand and price for Indian small cardamom in the international market, the high cost of cultivation, high demand and price in the domestic market and the quality control measures established by the importing countries remain as constraints for the export of the commodity from India. These issues need to be addressed promptly through scientific and innovative ways of production and marketing of cardamom that helps in increasing the production and reducing the cost. India's export policies need to be directed towards retaining the current share of the stable markets and expanding the market share of other countries in the export basket of small cardamom from India.

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