

**INDIA'S SPICES EXPORTS DURING THE PRE-WTO AND WTO PERIODS: A
COMPARATIVE STUDY**

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Abstract

Export has assumed an important place in the development of any country and considered as the engine of economic growth. India requires huge amount of foreign exchange both for its essential import and for achieving rapid economic growth. Millions of job opportunities have to be created to utilise the youth for nation building. Even though the country has different sources of foreign exchange, export earning is the safe way of obtaining it in the long run. Export of high valued traditional products not only gives foreign exchange, but also employment to large number of people. Spices are the traditional products of India its production process is highly intensive in semi and unskilled labour, and has high domestic and foreign market prices compared to other traditional products. The new world trade scenario with the establishment of WTO has affected India's spices export considerably.

The study examines the export performance of Indian spices in the WTO regime taking the export of major spices from 1985 to 2016 using the growth of export, trend and instability in growth rate, export performance ratio and the prospects of spices in earning foreign exchange during the WTO period and Pre-WTO period. The analysis reveals that the overall performance of Indian spices exports during the WTO regime are satisfactory. Export volume and value increased much during this period. But the decrease in market share of spices export during the WTO period reflects that, the favourable conditions in the international market are not exploited by India. High Revealed Comparative Advantage (RCA) and Value Elasticity (EV) of major spices amidst the low export shares shows that export performance of Indian spices during the WTO regime was not mainly affected by external demand factors. Both the domestic supply factors and foreign demand factors influence the export performance of Indian spices. The long term performance of Indian spices exports are mainly influenced by domestic supply factors as suggested by Supply Deficiency Thesis and short term performance is mostly influenced by external demand factors as suggested by Demand Deficiency Thesis.

Key Words: *Spices, Spices Board, Export, Export earning, Export performance, Traditional export, WTO, WTO regime*

Introduction

The World Trade Organisation (WTO) came into being on 1st January 1995. A new era of international trade has begun with the establishment of WTO. India has a well-known reputation as the land of spices from time immemorial. Indian spices have much popularity for their flavour in both domestic and foreign markets. Today, India produces number of spices with different varieties. But the present international trade scenario, after the establishment of WTO and the subsequent trade liberalization had a major impact on India's agricultural trade.

In this study, an attempt have been made to examine the changing pattern in the export performance spices using, growth rate, instability and trend of growth rate, prospects of spices for earning foreign exchange and comparative advantage of spices trade during WTO regime and also compares the performance of export during the Pre-WTO and WTO period.

Review of Literature

Krishna Das M. (2010) in his thesis 'Production and Export Performance of Major Indian Spices – An Economic Analysis' has given the result of his study on the production and export performance of India's major spices from 1979 – 80 to 2006 – 07. Objectives of his study were, to examine the growth in production, productivity and the area of major spices, to find out the instability in production of major spices, to analyse the growth in exports, and find out the direction of major spice trade.

He used four important tools for the analysis of data such as Compound Growth Rate Analysis, Instability Analysis, Markov Chain Model and Regression Analysis. He found that the export of turmeric, chillies, coriander and cumin were found to be increasing both in terms of value and quantity. Even though the volume of export of pepper had declined, export earnings were found to be increasing. Exports of major spices were not stable and export shares to major destinations of spices export were found to be declining.

Angels S et al (2011) in their article 'Impact of Globalisation on Production and Export of Turmeric in India- an Economic Analysis' examined the production and export performance of Indian turmeric for the period from 1974- 75 to 2007-08. They analysed the growth rate of area, production, productivity and export of turmeric using Compound Growth Rate (CAGR) analysis, the instability related with turmeric such as area of

cultivation, yield, production, market price, export value and quantity using Standard Deviation (STDV) and changes in the direction of trade by using Markov Chain Approach.

They found that there was a significant growth in production and export of turmeric during the study period and has high instability in production, export and domestic and international market prices.

Indian Institute of Foreign Trade (2011) in the research paper of Ministry of Agriculture, Government of India 'Analysis of Export of Spices from India to Middle East (Gulf cooperation council)', analysed the spice trade with Middle East. The primary objective of the study was detailed analysis of the current situation, changing market trend, and future outlook in the spice trade with the Middle East.

The report stated that, out of the 109 spices listed by the ISO, India produces as many as 75 in its various agro climatic regions. Spices exports have registered substantial growth during the previous decade, registering an Annual Average Growth Rate (AAGR) of 13percent in value and 9 percent in volume. India commands a favourable condition in the world spice trade with 48 percent share in volume and 44 percent in value. Spices are exported to more than 150 countries. Even though export constitute nearly some 10- 12 percent of estimated annual production of spices with 4 million tonnes (2009 – 10) there is high demand for spices in domestic market.

This paper analysed the export performance of major Indian spices to Middle East from 2006 to 2009 with the help of UN Comtrade six digit HS classified data using Compound Annual Growth Rate (CAGR) and Revealed Comparative Advantage (RCA). The study found that the spices in which India has been growing at a much greater than the world are nutmeg and cinnamon. RCA for commodities like pepper (not dried/ grounded) cinnamons, cloves, turmeric, saffron and curry have been showing an increasing trend, while spices like dried pepper, cardamom, cumin seeds coriander seeds and caraway seeds have decreasing RCA values.

S. Krishnan (2012) in his PhD thesis 'Impact of WTO on Spice- Sector in India – An Econometric Analysis' examined the impact of WTO on Indian spices with the specific objectives of examining the trend in area, production, productivity of spices, to examine the direction and magnitude of export of spices since reforms, to identify the major determinants of spices production and trade and assess the impact of reforms and spice industry since globalisation. He used single Kink and Two Kink model for the analysis.

Sudheer. S.P (2012) in his PhD thesis 'Impact of Globalisation on the Spices Economy of Kerala with Special Reference to Pepper' examined the impact of globalisation and WTO agreements on the spices economy of Kerala with special reference to pepper.

He also analysed the problem faced by pepper cultivators and exporters as a result of globalisation. He used compound growth rate, correlation, regression, instability index, benefit- cost Ratio and RCA for analysis. He found that globalisation process and the establishment of WTO have influenced spices trade in many ways. Even though the state has good prospects for spices industry, existing productivity of major spices and their domestic prices are the challenges to our exports.

Satya Sandaram (2012) in an article 'Spices: Boosting Exports' examined the recent trend in spices exports. According to him India's natural advantage of diverse climatic condition helps the cultivation of wide range of spices in different regions. In recent years, spice export has been showing an encouraging trend. But even though the production was satisfactory, the trade was hurt by weak export demand during 2011- 12. So, it is now time to move up the value chain to command a higher share of the export market. He hopes that recent steps of Spices Board to focus on organic crop cultivation in the coming years and the establishment of a chain of Spices Banks across the country are expected to boost our spices exports.

Srinivasa Rao (2012) in his article 'Indian Spices Export: Their Growth and Instability' analysed the growth and instability of Indian spices export from 1960 to 2010. The major objectives of the study were to discuss the trends in growth and instability of Indian spices exports both by volume and value during the period (1960-2010) and identifies the future growth prospects and challenges of Indian spice trade.

The analysis was mainly by using the Compound Annual Growth Rate (CAGR) and Coefficient of Variation (CV). He found that during the fifty years of the study period, total spices exports grew at an Annual Compound Growth Rate of 12.83 percentages in terms of value and 5.01 percentages in terms of volume. The growth rate of total spices export during the post reform period are much higher in value (16.42 percentages) and volume (7.61 percentages). The instability is higher in export value than export volume. He concluded that, India is expected to emerge as the global processing hub of spices in the coming years.

Mary.PU (2012) in her PhD thesis 'Role of Spices Board in the Cultivation and Export of Spices: A Study with Special Reference to Kerala', studied the role of Spices

Board in the cultivation and export spices in Kerala with the specific objectives such as, the role played by the Spices Board in the development of the two segments of spices sector such as cultivation and exporting, the problems faced by growers in cultivation and exporting, the problems faced by growers in cultivation and marketing of spices etc. The researcher found that most of the schemes for the cultivators are underutilized by them due to technical reasons, lack of time by information lack of initial funds etc. But the schemes for the export promotion have been utilized by exporters to a remarkable extent.

Sajith Mohan et al (2013) in their article 'Marketing of Indian Spices as a Challenge in India', analysed the marketing challenges of Indian spices taking the recent years data (from 2008-09 to 2011-12) for studying the problem. According to them the important marketing challenges that Indian spices are faced are- low productivity, poor product quality, in sufficiency of legal provision, in adequate surplus for exports and insufficient quantities of quality spices.

Business Standard (2013) in a report titled 'Syrian Crisis Spices up, Jeera Exports from India' stated that as per the Spices Board of India data, this year jeera (cumin seed) exports have touched nearly 80000 tonnes till second week of December 2013 and more exports are likely to take place in days to come. The report stated that, Syrian Crisis coupled with dismal crop condition in other jeera (cumin Seed) producing national has created an advantageous situation for jeera export of India.

OBJECTIVES OF THE STUDY

The basic objective of the study was to examine the changes in the export performance of Indian spices during the WTO regime. Specific objectives are-

1. To analyse the growth, instability and trends in the growth rate of spices export during the Pre-WTO and WTO period.
2. To find out the export performance major spices during WTO regime and to compare the performance with Pre-WTO period using Revealed Comparative Advantage approach.
3. To find out the prospect of spices to earn foreign exchange.

Methodological Issues

The data

The study is exclusively based on secondary data. Time series data related with spices and spice products of both India and other countries, obtained from official sources have been taken into account.

Data were obtained from

1. COMTRADE Statistics 1988 to 2013
2. Spices Board, Cochin 1985 to 2017
3. RBI Hand Book 2017
4. Directorate of Commercial Intelligence and Statistics 1985 to 2017

Tools and Analytical Models

The data collected were analysed using different analytical tools which have been widely used all over the world. Some statistical and mathematical software like Excel and Gretl were used for analysis.

The important Statistical and Mathematical tools, and analytical models used in this study are-

Average Annual Growth Rate (AAGR)

Standard Deviation

Method of Least Squares

Balassa's Revealed Comparative Advantage (Export Performance Ratio)

Elasticity of Value with respect to Quantity

Chow Test

Results and Discussions

I. Growth of India's Spices Exports during The Pre-WTO and WTO Period

India, the major supplier of many spices, exports varieties of spices and its products to the world market. Even though spices export started from the time of immemorial, a drastic change in the world trade experienced with the establishment of WTO. Natural obstacles were removed because of the development of modern transport and communication facilities and artificial restrictions were removed due to multi-lateral agreement.

In order to check whether there is a structural change in the growth of spices export between two periods-Pre WTO and WTO ,a popularly used test known as ‘ Chow Test ‘ was used.

The test result shows that, there is a structural change in the growth of export of spices during the WTO period. Total spices export from 1985-86 to 2012-13 has a break in 1995 with P vale 0.0160868.

Table No.1

Average Annual Growth Rate (AAGR) of Spices Export and Aggregate Commodity Export During the Pre-WTO and WTO Period

Growth Rate	Pre-WTO Period 1985-86 to 1994-95	WTO Period	
		1995-96 to 2004-05	2005-06 to 2014-15
AAGR of Spices in Rupees	8.78	11.24	20.65
AAGR of Spices in US Dollar	(-) 1.693	7.651	17.58
AAGR of Aggregate Commodity Export in Rupees	22.52	15.13	16.20
AAGR of Aggregate Commodity Export in US Dollar	12.05	11.55	13.12

Note: AAGR: Average Annual Growth Rate

Sources: Calculated from Spices Statistics 2004, Statistics Section of Spices Board, Cochin, RBI Hand Book 2016-17

Table No.1 indicates that AAGR of spices has increased both in terms of Indian Rupee and US Dollar during the WTO period as compared with the pre-WTO period. As compared with the aggregate commodity export the growth of spices export is more encouraging.

Since the growth rates are not stable, it will be highly useful to study the instability in the growth rates of spices in different period of time.

II. Instability in the Growth Rate of Spices Export

Indian spices exports suffered instability in its export growth during the study period. The growth rates in some years were very high and in some other years, it was very low or negative.

In this section the instability in the growth rate of spices and aggregate commodity exports were presented. To examine instability in the growth rate of spices exports from India, standard deviation technique was used.

Table No.2

Standard Deviation (STDV) of Growth Rate Spices Export and Aggregate Commodity Export During the Pre-WTO and WTO Period

STDV of Growth Rate	Pre-WTO Period 1985-86 to 1994-95	WTO Period	
		1995-96 to 2004-05	2005-06 to 2014-15
STDV of GR Spices (in Rupees)	22.22	16.16	18.1
STDV of GR of Spices (in US Dollar)	20.16	15.40	21.95
STDV of GR of Aggregate Commodity Export (in Rupees)	6.31	8.01	10.29
STDV of GR of Aggregate Commodity Export (in US Dollar)	7.58	10.54	13.04

Note: GR: Growth Rate

Sources: Calculated from Spices Statistics 2004, Statistics Section of Spices Board, Cochin, RBI Hand Book 2016-17.

From table 2, it is clear that the volatility in the growth rate of spices both in terms Rupee and Dollar were decreased during the period II (first ten years of WTO period). Even though it is low in rupee term during the Period III (2005-06 to 2014-15), it is high in the

growth rate taken in Dollar terms. But volatility in growth rates of aggregate export is higher during the WTO period as compared with the pre-WTO period.

III. Trend of the Spices Export Growth Rate

Since the growth and instability in the exports of spices are not uniform, to understand the long-term movement of growth rate, one has to obtain the trend of growth. In this section, the trend in the growth of exports of spices are obtained using Ordinary Least Square (OLS) method for pre-WTO period and WTO period, and presented in tables. Regression equations (Trend equations) are obtained for the purpose of predicting the future growth rate of export.

Table No.3

Equation of Trend line of Spices' Export Growth

Period	Trend Equations of Growth Rate	
	In Indian Rupees	In US Dollar
Pre-WTO Period	$Y = 2.9875x - 6.1578$	$Y = 2.4789x - 14.088$
WTO Period I	$Y = (-)3.0768x + 28.159$	$Y = (-)1.909x + 18.151$
WTO Period II	$Y = (-) 2.2068x + 32.787$	$Y = (-)3.5513x + 37.109$

Note: Period I -1995-96 to 2004-05, Period II-2005-06 to 2014-15

Sources: Calculated from Data from Spices Board, Cochin. RBI Hand Book 2017

Table 4

Equation of Trend line of Aggregate Commodity Export Growth Rate

Period	Trend Equations of Growth Rate	
	In Indian Rupees	In US Dollar
Pre-WTO Period	$Y = 0.1923x + 21.557$	$Y = (-)0.3163x + 13.628$
WTO Period I	$Y = 0.4069x + 12.891$	$Y = 1.5743x + 2.8866$
WTO Period II	$Y = (-) 1.3032x + 23.367$	$Y = (-)2.3614x + 26.112$

Note: Period I -1995-96 to 2004-05, Period II-2005-06 to 2014-15

Sources: Calculated from obtained from RBI Hand Book 2017

From the table 3 and 4, it is clear that even though growth and growth rate of spices export are positive and encouraging, the trend of growth rates are not encouraging. This is the case of aggregate commodity exports too.

IV. Performance of Indian Spices Exports: A Revealed Comparative Advantage (RCA) Analysis

In this section, the export performance of major spices during the WTO regime in comparison with the spices export of other countries is provided.

For the study of the export performance, the mathematical tools Balassa's Revealed Comparative Advantage is used. Since the latest data are not available right now, data of important spices from 1988 to 2012 were taken for calculation.

Table No.5

Revealed Comparative Advantages of Major Spices during WTO period and Pre-WTO

$$\text{Period} \left(\frac{X_{jI}}{X_{tI}} / \frac{X_j}{X_t} \right)$$

Items & HS Code	Period I (1988-1994)	Period II (2006-12)
Pepper - 090411	48.15	7.79
Cardamom - 090830	45.67	7.069
Chilli - 09420	29.84	26.69
Ginger - 091010	30.04	4.41
Turmeric - 091030	381.10	74.82
Coriander - 090920	91.86	21.45
Cumin - 090930	59.12	40.10

Source: Calculated from the data obtained from UN Comtrade Statistics, 2015

WTO Statistics 2015

From the table No.5 one can see that Revealed Comparative Advantage of all major spices are greater than one both in pre-WTO and WTO periods. Even though, it has declined during the WTO period, a RCA greater than one means that , that country has comparative advantage in the export of that commodity.

V. Export Performance of Major Spices using Elasticity of Value with Respect to Quantity (EV) Approach

The export performance Ratio (EPR) or RCA is not enough to understand the export performance of a particular sector. One of the major determinants of EPR or RCA is the export earnings. High export earnings can be attained either by exporting more quantities of commodities or by exporting high valued commodities or both. If the high export earnings are due to the export of more quantities of commodities and not with the export of high valued commodities, the country's prospects for earning foreign exchange will be low. On the other hand, if the high export earnings are due to the export of high valued commodities, and not with the export of more quantities of commodities, the country has more prospects for earning foreign exchange. For comparing the export performance of pre-WTO and WTO periods, the changes in the export quantities and values of major spices were analysed by percentage change in quantity (QC) and value (VC) and Elasticity of Value with respect to quantity (EV) i.e., ratio of VC to QC.

Table 6

Elasticity of Value with respect to Quantity (EV) of Spices $EV = \frac{VC}{QC}$

EV I In Rupees	EV I In Dollar	EV II In Rupees	EV II In Dollar
2.79	0.796	5.77	2.11

Note: Period I (1985-86 to 1994-95), Period II (1995-96 to 2004-05) and Period III (2005-06 to 2014-15)

EV I: Elasticity of Value between Period I and II,

EV II: Elasticity of Value between Period I and III

Source: Calculated from Data obtained from Spices Board and RBI Hand Book

From the table No.6 it is clear that, the Elasticity of Value with respect to quantity (EV) in the initial ten years of WTO period was high in terms of Indian rupees, but it was low in terms of US dollar. It shows that the country's prospects of earning foreign exchange was low during that period. But recent ten years trend shows that, the country is able to attain more foreign exchange by exporting spices because of high elasticity of value both in terms of rupee and dollar.

Summary and Conclusions

The study was conducted to analyse the export performance of Indian spices during the WTO period using some most important tools widely used for the performance study. A comparison is also made to understand the difference of performance with pre-WTO period. From the study, the following findings were obtained.

1. AAGR of spices has increased both in terms of Indian Rupee and US Dollar during the WTO period as compared with the pre-WTO period. Compared with the aggregate commodity export the growth of spices export is more encouraging.
2. Volatility in the growth rate of spices both in terms Rupee and Dollar were decreased during the period II (first ten years of WTO period). Even though it is low in rupee term during the Period III (2005-06 to 2014-15), it is high in the growth rate taken in Dollar terms. But volatility in growth rates of aggregate export is higher during the WTO period as compared with the pre-WTO period.
3. Even though growth and growth rate of spices export are positive and encouraging, the trend of growth rates are not encouraging. This is the case of aggregate commodity exports too.
4. Revealed Comparative Advantage of all major spices are greater than one both in pre-WTO and WTO periods. Even though, it has declined during the WTO period, a RCA greater than one means that, that country has comparative advantage in the export of that commodity.
5. Elasticity of Value with respect to quantity (EV) in the initial ten years of WTO period was high in terms of Indian rupees, but it was low in terms of US dollar. It shows that the country's prospects of earning foreign exchange was low during that period.
6. Recent ten years trend shows that, the country is able to attain more foreign exchange by exporting spices because of high elasticity of value both in terms of rupee and dollar.

To conclude that, Indian spices export have improved in many respects during the WTO period as compared with the pre-WTO period. India has comparative advantage in the production and export of many spices and has high prospect for earning foreign exchange. Specialisation in the production and export of foreign exchange not only give foreign

exchange for essential import but also provide employment opportunities for millions of semi and unskilled people.

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