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Performance of spices exports during the WTO regime: A disaggregated analysis

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Abstract

It is an undoubted fact that the spices sector is one of the key areas in which India has an inherent strength to dominate the global markets. The setting up of the World Trade Organization (WTO) has paved new ways for the country to make use of its potential in the area of spices trade in its maximum. In this era of WTO regime, competitiveness has emerged as the prime mover of international marketing. It is in this context that this study addresses some of the export issues in Indian spices based on the performance during the two time periods, pre -WTO regime and WTO regime. Specifically speaking, this paper examines the export performance of Indian spices during the WTO regime taking the export of major spices from 1985 to 2013. The performance of the spices exports has been analysed using the growth rate, trends and instability in growth rate. A serious attempt has been done to examine the performance of spices exports before and after the 1995. The study is based on the secondary data obtained from the official sources. The trend-analysis method has been used to derive the export potential of our country. The analysis reveals that the overall performance of Indian spices exports during the WTO regime are satisfactory and openness has led to the growth of India's spice export. It is assumed that the revelations of the study will bring new insights in the area of spices exports and also provide useful thoughts to policy makers.

Keywords: Spices, export performance, WTO regime, growth rate, instability in growth, foreign exchange

Introduction

From time immemorial, the prosperity and development of societies and regions were attained through the exchange of goods between different civilizations of far reach regions and even between the continents. For centuries, India had been the dream land for navigators to reach in. In ancient and medieval periods, India was the epicentre of global trade. For a long period of time, India has been endowed with much land and labour, but capital was a scarce factor. With this background, India remained better off in the production of natural resource intensive and labour intensive commodities. After medieval period, before independence, India's export mainly composed of plantation crops and raw materials, while the imports consisted of some consumer goods and other manufactures. At that time the structure of India's foreign trade was a reflection of systematic exploitation by the Westerners.

After independence, till 1985 India had followed a strict import substitution policy. But it was a total failure for the industrial development of the country. It led to the rapid increase in the country's import bill and deficit in the balance of payment. This condition compelled India to shift its policy towards an export oriented or outward looking strategy. Prior to reform, India's trade policy was an example of dualism. Several policy measures were against export, but at the same time some measures were taken to encourage export. India's trade policy shift from import substitution to export promotion was not sudden. During the reform period, the country's policy was a mix of both import substitution and the export promotion. It gradually shifted towards export oriented growth as the East Asian Growth Model. Restrictions on manufactured exports were removed between March 1990 and March 1993. However, the control on the export of agricultural commodities acted as significant obstruction to the growth of Indian export.

The World Trade Organisation (WTO) came into being on 1st January 1995. A new era of international trade had begun with the establishment of WTO. Even though India introduced policy reforms in July 1991 encompassing various sections of the economy including external trade, trade restrictions on agricultural products were lifted subsequently through

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different policies and programmes like EXIM Policy, Foreign Trade Policies, Agricultural Export Zones, Special treatment of Special Economic Zone and Regional co-operation and Integration.

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. For long, the country had produced almost all the known spices in the world. Each and every state in India had been gifted with some spices. The diverse agro climatic conditions existing in different parts of the country provide an enormous scope for cultivation of different variety of spices. Out of the 109 spices listed by ISO, India now produces as many as 75 spices in different varieties; of them 52 are under Spices Board of India.

In this study, the researcher attempts to examine the changing pattern in the export performance taking growth rate, instability and trend in growth rate of major spices and spice products during WTO regime and also compares the performance of export during the Pre-WTO and WTO period. It is in the perspective of new world trade scenario; a study of the performance of Indian spices export has become pertinent. Citing of the few studies on this area would be needed to understand that the present study is in the proper perspective. Several empirical studies have been conducted in different aspects of spices, but only few are available in the spices exports.

Review of Literature

Sajjad (1987) ^[11] in his article 'India's Cardamom Trade with Middle East' pointed out that; there is a change in the pattern of India's cardamom trade with Gulf countries.

Menon (1988) ^[5] in his study 'Processing Procurement and Marketing of Pepper with Special Reference to Co-operative Sector' has made a detailed study of the various aspects of production, processing and marketing of pepper. His study has mainly emphasized the cultivation, processing and marketing aspects of pepper. He has analysed the domestic and international market for pepper, problems and suggestions for improving the return of the producers and traders, the role of co-operative societies in the field of pepper marketing etc.

An article titled 'Agriculture Export of India- Issues of Growth and Instability' stated that the least developed countries have comparative advantage in the production of many agricultural products. But the comparative advantages enjoyed by these countries are not exploited by them. In an article titled 'World Market and India: An Analysis of Growth and Instability' examined the growth of world pepper market for the period of 1975- 1990. Their finding was that, among the exporting countries, Sri Lanka recorded the highest Annual compound Growth Rate (CAGR) of 24.59% during the study period. But it was mainly due to its low base in the initial years. In the case of India, the growth was positive and statistically significant. The growth rate of pepper producing countries was statistically not significant.

Mamatha (1995) ^[10] in an article 'Export Trade of Selected Spices in India- An Economic Analysis', estimated the growth rate of production and export of selected spices for the period from 1970-71 to 1991-92. For the study she has taken pepper, ginger, turmeric and chillies. She found that, the positive growth rate in respect of production and export of these spices was due to the increased demand from international market and domestic production. In her study

she also found that the increased domestic production and export of spices were mainly because of the measures taken by the Spices Board of India.

In an article 'The Indian Black Pepper, Economics and Marketing' described the state of black pepper industry in India at that time in relation with the international pepper market. It also examined production of pepper and value added pepper products and their economic contribution, fluctuation in pepper price in the international market and its impact on the industry, the direction of export of pepper at that time and the future for Indian pepper in the international market.

Philip (2003) ^[13] in a study 'Marketing of Spices: A Study with Special Reference to Pepper and Cardamom' analysed the marketing of spices with the objectives of major factors influencing the marketing, the role played by the spices Board of India in the marketing, the future prospects of the Indian Spices in the changing global economic scenario taking the data from 1998 to 2002. He found that domestic and international markets offer plenty of opportunities to Indian species, provided, one is able to commute the emerging challenges effectively.

Douglas *et al.*, (2005) ^[3] in their report 'Herbs, Spices and Essential Oils: Post – harvest Operations in Developing Countries' examined different spices, essential oils and herbs, and their post harvest operations in developing countries. According to them the most important spices traditionally traded throughout the world are products of tropical environments. Their report shows that there are 40 to 50 spices of global economic and culinary importance.

Peter *et al.*, (2005) ^[12] in their article 'Spices Production and Export from India, Scenario through Five Decades' examined the spices production and exports from India for a period of 40 years from 1960 to 2000. They found that the export quantity and export earnings during the study period showed an increasing trend except for five years which showed a decreasing trend in quantity.

Sujatha *et al.* (2007) ^[16] in their article 'Structural Changes in Pepper Export from India- An Econometric Analysis' stated that during the WTO regime, the newly emerged spice producing countries pose a substantial threat to traditional exporters like India. New entrants do not have much domestic market, which compels them to sell their products at cost price or even below it in foreign market.

Angels *et al.* (2011) ^[1] 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 (SD) 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 their research paper of Ministry of Agriculture, Government of India titled '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. In an article 'Spices: Boosting Exports' examined the recent trend in spices exports. According to him 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.

Srinivasa Rao (2012) [15] in his article 'Indian Spices Export: Their Growth and Instability' analysed the growth and instability of Indian spices export from 1960 to 2010. 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. Spices Board of India (2013) in its report 'Review of Export Performance of Spices during 2012- 13' stated that despite of decline in total export in the country, Indian spices exports have been able to record strident gain in both volume and value in rupee terms.

From the literature reviewed above, it is clear that even though large number of studies have been conducted in the various aspects of spices and spice products in the aggregate level and disaggregate level, no comprehensive study has been conducted so far covering the export performance of India's major spices in the WTO period. Some of the studies are at the aggregate level taking all spices together, and some others are related with the export performance of individual spices. This study considered export performance of major spices taking the aspects of spices exports such as growth, instability and trend in growth. The study also compared the export performance of spices exports during the WTO period with pre-WTO period.

Objectives the Study

The basic objective of the study was to examine the changes in the export performance of Indian spices during the WTO regime. Considering the recent Indian as well as world trade scenario, the study was initiated with the following specific objectives.

1. To analyse the growth in the export of major Indian spices and spices products during the Pre-WTO and WTO period.
2. To examine the instability in the growth rate of spices export during the Pre-WTO and WTO period.
3. To find out the trends in the growth rate of spices export during the Pre-WTO and WTO period

Methodological Issues

The data

The study is exclusively based on secondary data. Time series data related with spices and spice products of India obtained from official sources have been taken into account. Data were obtained from: (i) FAO Trade Year Book 1985 to 2014., (ii) FAO Production Year Book 1985 to 2014, (iii) Spices Board, Cochin 1985 to 2014, (iv) RBI Hand Book 2014., (v) RBI Bulletin 1985 to 2014, and (vi) Directorate of Commercial Intelligence and Statistics 1985 to 2014

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:

Simple Growth Rate

The growth of exports of major spices of India during the WTO period and pre-WTO were calculated on annual basis and average of five years, ten years and eighteen years using simple growth rate to obtain Average Annual Growth Rate (AAGR)

Compound Growth Rate (CGR)

The growth of export of major spices and spice products for a period of 28 years from 1985-86 to 2012-13 were also computed using Compound Annual Growth Rate (CAGR) analysis. For comparing the growth rate between the Pre-WTO and WTO period, the two periods were taken as 1985-86 to 1994-95 as period I and 2003-04 to 2012-13 as period II.

Standard Deviation

The extent of variability in the growth rate of export of major spices over the years, were analyzed through Standard Deviation

Method of Least Squares

The export growth trend of various spices and spice products from 1985-86 were obtained by using the method of least squares. This method is an algebraic device and widely used. It gives us a straight line from which the sum of the deviations on either side will be equal to zero.

Chow Test

In order to find out 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 ' is used.

Period of the Study

The study is based on the time series data of 28 years from 1985-86 to 2012-13. This period includes both the Pre-WTO period WTO period.

Empirical Results

In the modern world, trade performance of a country is the key determinant of economic performance. For trade performance many indicators are often used such as the level of openness (Ratio of Trade in Goods and Services to GDP), growth of exports over a given period of time (used in World Bank's World Development Indicators), Trade Performance Index or Revealed Comparative Advantage, etc. In this study an attempt has been made to provide the details regarding the growth of India's major spices exports during the pre-WTO period and WTO period. The growth of all major spices and spices products, the instability in the growth and the trend of growth are given here.

India, the major supplier of many spices, exports varieties of spices and its products to the world market. From 1994-95 to 2012-13 India's exports of spices increased 368.76 percent in terms of quantity and 1853.34 percent in terms of rupee value. With the establishment of WTO, trade liberalisation policies adopted by member countries led to the entry of new suppliers in the world market. At the same time instead of traditional markets, India found some new

markets for her spices. Hence any external shocks from any parts of the world as crisis and any favourable condition like prosperity may affect India's spices exports. In this context an effort is made to analyse the growth of India's spices export during the WTO period and compared with pre-WTO period. In order to find out the effects of internal and external shocks on the growth of spices exports, the instability and the trend of the growth is also analysed.

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 value 0.0160868. Out of the thirteen major spices and its products, ten shows a break in the year in which WTO came in to being (1995). The items showing no break are cardamom (P value 0.0518), mint products (P value 0.2256) and nutmeg/mace (P value 0.3342). For mint products only the data of three years and for nutmeg/mace only the data for two years prior to WTO were available.

In order to study the growth of spices exports, both the simple and compound growth rate for five years, ten years and WTO period (18 years) are taken. For the study, the export value in terms of Indian rupee is considered. Simple growth rate for each year is also taken for analysis of trend and instability. In order to study the instability, in the growth, Standard Deviation (STDV) is used. Trend of growth is obtained by using Ordinary Least Square (OLS) method. The analysis is presented in three major sections viz., Section A: Growth of Exports of Major Spices. Section B: Instability in the Growth of Exports of Spices. Section C: Trends in the Growth of Spices Exports.

Section A

Growth in the Export of Major Spices

India's total spices exports have increased much both in terms of quantity and value during the WTO regime. This increase in the growth of export is not uniform for all spices and in all periods. Growth in the export is also an indication of domestic supply and foreign demand for the commodity and there by export performance. In this section, the growth in the India's major spices during the WTO regime is analysed and compared to the pre-WTO period using Simple and Compound Growth Rates (CGR). A comparison is also made between Average Annual Growth Rate and

Component Annual Growth Rate of spices and Aggregate Export of India. Recent trends, especially the trends in the export growth of last ten years (2003-04 to 2012-13) were also analysed and compared with the growth rate of ten years just preceding the WTO for understanding the differences.

Table 1: Average Annual Growth Rate (AAGR) and Compound Annual Growth Rate (CAGR) of Major Spices in the WTO regime (1995-96 to 2012-13)

Items	AAGR	CAGR
Pepper	5.51	6.77
Cardamom (S)	18.48	16.8
Chilli	20.72	14.9
Ginger	13.42	9.12
Turmeric	13.93	14.81
Coriander seed	13.45	12.98
Cumin seed	21.4	26.24
Fenugreek	11.93	10.06
Nutmeg & Mace	46.04	56.89
Tamarind	11.47	9.58
Mint products	25.03	27.82
Spice oil and oleoresin	16.05	15.58
Curry powder / Mixture / Paste	16.38	15.58
Aggregate Export	16.58	16.39

Sources: Calculated from Spices Statistics 2004, RBI Hand Book 2013-14

Table 1 revealed that India's aggregate export grew at an average of 16.58 percent per year during the WTO period and Compound Annual Growth Rate during this period was 16.39percent. During the same period out of 13 major spices, the Average Annual Growth Rates of five items were above that rate and five were close to that level. Only pepper showed a single digit growth during the WTO regime. If one takes the Compound Annual Growth Rate, out of 13 items of spices five showed a growth rate higher than the Compound Annual Growth Rate of India's aggregate exports and four are close to that rate. Only pepper, ginger and tamarind have a CAGR less than ten, of this ginger and tamarind has a CAGR close to ten. It shows that the growth rates for the export of many spices are significant during the WTO regime.

Export Growth Rate during the Pre-WTO and WTO Period

In order to understand the changes in the rate of growth of spices exports during the WTO period, a comparison is needed with the growth rate of export of Pre-WTO period.

Table 2: Ten Years Average Annual Growth Rate (AAGR) of Major Spices during the Pre-WTO and WTO period

Items	1985-86 – 1994-95 Period I	1995-96 – 2004-05 Period II	2003-04 – 2012-13 Period III
Pepper	13.63	-6.67	12.72
Cardamom	-21.398	11.42	15.05
Chilli	17.76	21.67	20.22
Ginger	-1.13	12.69	20.56
Turmeric	9.68	12.42	16.80
Coriander	15.04	15.28	12.88
Cumin	15.16	14.25	25.15
Fenugreek	14.96	7.76	14.14
Nutmeg/mace	8.43*	59.73	20.71
Tamarind	13.33**	2.96	15.53
Mint product	NA	22.36	19.41
Spice oil and Oleoresin	21.91	16.76	13.83
Curry powder/ Mixture/paste	13.09	15.21	13.84
Aggregate export	19.65	15.13	18.57

Note: NA: Data not Available.

*Growth of one year 1994-95. ** Growth of 6 years 1989-90 to 1994-95.

Source: Calculated from the obtained from Spices Board.

Table 2 reveals that during the Pre-WTO period (from 1985-86 to 1994-95) Average Annual Growth Rate of India's aggregate export was 19.65 percent. In the same period out of 13 spices only spice oil and oleoresins (21.9 percent) export had a growth rate higher than the growth rate of aggregate export. Cardamom small (-21.4 percent) and ginger (-1.13 percent) showed a negative growth rate during that period.

During the initial ten years period of WTO (Period II), the AAGR of aggregate export declined to 15.13 percent. During the same period, the growth rate of six items of spices became significant. The growth rate of chilli (21.67 percent), coriander (15.28 percent), nutmeg and mace (59.73 percent), mint products (22.36 percent), spice oil and oleoresins (16.76 percent) and curry products (15.21 percent) were above the growth rate of aggregate exports (15.13 percent). During period II only pepper export showed a negative growth (-6.67 percent).

During Period III (from 2003-04 to 2012-13), the rate of growth of aggregate export increased to 18.57 percent. During the same period five items of spices such as chilli (20.22 percent), ginger (20.56 percent), cumin (25.15 percent), nutmeg and mace (20.71 percent) and mint products (19.41 percent) showed a growth rate higher than the growth rate of aggregate export and growth rate of turmeric (16.80 percent) was close to that rate. The rate of all the items became positive and the rate of growth of seven items is higher than the growth rate of Period II.

Compound Annual Growth Rate in Ten Years

The CAGR is the most commonly used measure of rate of growth for the study of growth performance and thereby the export performance. Comparing the CAGR of Indian spices exports during the pre-WTO and WTO period, one has obtained more or less the same result as that was obtained from AAGR.

Table 3: Ten Years Compound Annual Growth Rate of Major Spices during the Pre-WTO and WTO Period

Items	1985-86 – 1994-95 Period I	1995-96 – 2004-05 Period II	2003-04 – 2012-13 Period III
Pepper	3.21	-4.69	16.15
Cardamom	-17.69	6.30	19.10
Chilli	39.68	9.83	20.56
Ginger	4.38	4.34	23.46
Turmeric	14.09	12.97	15.52
Coriander	27.33	13.93	10.86
Cumin	30.91	19.34	34.65
Fenugreek	28.61	3.6	21.03
Nutmeg/mace	NA	78.49	23.95
Tamarind	12.10*	-1.21	19.23
Mint product	NA	23.98	25.88
Spice oil and Oleoresin	19.39	14.96	15.16
Curry powder/ Mixture/paste	14.69	14.17	14.99
Aggregate Export	19.50	13.44	18.73

Note: *Seven years CAGR (1988-89 to 1994-95), NA: Data not Available.

Source: Calculated from data obtained from Spices Board, Cochin, Reserve Bank of India Hand Book 2014.

From table 3, it is clear that the CAGR of Indian aggregate export during the Period I (Pre-WTO period) was 19.5percent. Out of 13 items of spices only four items such as Chilli (39.68 percent), coriander (27.33 percent), cumin (30.91percent) and Fenugreek (28.61 percent) showed a growth rate higher than the CAGR of aggregate export. Cardamom (S) had a negative growth rate (-17.69 percent) during the period. The growth rate of spice oil and oleoresin was very close to the growth rate of aggregate export.

During Period II (1995-96 to 2004-05), the CAGR of aggregate export had declined to 13.44 percent. During that period the growth rate (CAGR) of six items such as coriander (13.93 percent), cumin (19.34 percent), nutmeg and mace (78.49 percent), mint products (23.98 percent), spice oil and oleoresin (14.96 percent) and curry products (14.17 percent) was above the growth rate of aggregate exports. Pepper (-4.69 percent) and tamarind (-1.21 percent) showed a negative growth during that period.

During the period III (2003-04 to 2012-13) all the items of spices have a positive growth rate. The growth rate (CAGR)

of aggregate export increased to 18.73%. At the same time, the number of items of spices having a growth rate higher than the aggregate export increased to eight. The CAGR of cardamom small (19.1 percent), chilli (20.56 percent), ginger (23.46 percent), cumin (34.65 percent), tamarind (19.23 percent), fenugreek (21.03 percent), nutmeg/mace (23.95 percent) and mint products (25.88 percent) are above the growth rate of aggregate export (18.73 percent). During this period, the growth rates of nine items have increased as compared to Period. The export growth of spices are not uniform during the WTO period. Growth of spices export is positive and satisfactory during the first five years of WTO period, after that the export growth of majority of spices either declined or became negative. Since 2005-06 the growth rate of all items of spices except the AAGR of ginger and CAGR of coriander are positive. During the study period, the number of items of spices having the growth rate greater than the growth rate of aggregate export of India also changed.

Table 4: Number of items of Spices Greater than the Growth Rate of India's Aggregate Export from 1985-86 to 2012-13 (five year windows)

Type of Growth	Periods					
	1985-86 to 1989-90	1990-91 to 1994-95	1995-96 to 1999-00	2000-01 to 2004-05	2005-06 to 2009-10	2008-09 to 2012-13
AAGR	3	2	8	3	10	9
CAGR	5	6	8	4	8	8

Source: Ibid

From the table 4, it is clear that during the WTO regime, the number of commodities having a growth rate higher than the aggregate export of our country increased. During the pre-WTO period out of 13 items of spices only two (1985-90) and three (1991-95) were having an AAGR greater than aggregate exports and five (1986-90) and six (1991-95) were in terms of CAGR. In the immediate five years of WTO period (1996-2000) both increased to eight and continued to be high except during 2001-05. That shows that there was a temporary shock to India's spices export during the period 2001-05. It is also useful to know the number of items having a negative growth during the study period.

Section B

Instability in the growth rate of spices export

Indian spices exports suffered instability in its export growth during the study period. Some of the items of exports witnessed higher instability in export growth, while others experienced a relatively low instability. The growth rates in some years were very high and in some other years, it was very low. The ranges of growth rate of all products during this period were more than 100. In some cases it was greater than 200 or 300. This indicates high volatility in the rate of growth of export.

To examine instability in the growth rate of major spices exports from India, standard deviation technique was used. Standard deviation in the export growth rate for five years and ten years was estimated for comparisons.

Table 5: Instability in the Growth Rate of Major Spices Exports (Ten Year Periods)

Items	1985-86 to 1994-95 (Period I)	1995-96 to 2004-05 (Period II)	2003-04 to 2012-13 (Period III)
Pepper	49.42	46.47	43.46
Cardamom	101.67	50.8	61.55
Chilli	77.62	40.87	31.91
Ginger	47.24	48.82	47.72
Turmeric	50.04	20.80	32.68
Coriander	74.95	30.62	26.15
Cumin	69.76	67.84	42.29
Fenugreek	50.95	42.11	37.63
Nutmug& Mace	NA	119.67	41.11
Tamarind	3.124*	26.14	27.06
Mint products	NA	50.07	106.45
Oils & Oleoresin	20.3	14.90	13.01
Curry products	17.24	12.63	12.31

Note: NA: Data Not Available, *Data on 89-90 to 94-95.

Sources: Calculated from data obtained from Spices Board, Cochin

From table 5, it is clear that the volatility in the growth rate of all spices decreased during the period II (first ten years of WTO period). For nutmeg and mace, the instability was very high (119.67) during this period, but comparison is not possible because of the non-availability of data for period I. During Period III, instability of cardamom, turmeric, tamarind and mint products, have increased as compared to period II, but compared with pre-WTO period, only the volatility of ginger has increased slightly. During WTO period, items having a comparative stable growth are

turmeric, coriander, tamarind, spice oils and oleoresins and curry products. Of the thirteen items of spices, spices oils and oleoresins and curry products have shown more or less high stability in growth during the pre-WTO and WTO period. The items having high instability in the growth rate of export during the WTO period are, cardamom, pepper, chilli, ginger, cumin, fenugreek, nutmeg & mace and mint products. During this period, items like turmeric and tamarind have shown a moderate stability in growth rate.

Table 6: Instability in the Growth Rate of Export of Major Spices (Five Year Interval Period)

Items	1985-90	1991-95	1996-2000	2001-05	2006-10	2009-13
Pepper	53.12	51.12	33.08	31.92	44	48.71
Cardamom	110.35	85.15	41.89	57.16	56.61	77.96
Chilli	100.31	59.07	57.87	15.49	34.46	34.05
Ginger	55.19	43.14	55.45	47.82	29.41	38.73
Turmeric	60.32	41.20	20.84	19.78	20.49	45.47
Coriander	93.22	52.12	45.15	7.11	29.92	33.56
Cumin	79.71	65.86	65.74	77.65	34.64	41.61
Fenugreek	65.30	38.51	44.77	44.21	38.91	34.84
Nutmug& Mace	NA	NA	139.97	112.30	41.69	41.91
Tamarind	NA	33.44	29.87	19.77	21.78	26.39
Mint products	NA	NA	50.83	55.28	155.63	99.84
Oil	17.69	23.6	11.01	11.76	10.42	13.90
Curry products	11.87	21.64	10.45	13.92	11.64	12.12

Note: NA: Not Available

Sources: Calculated from data obtained from Spices Board, Cochin

From the table 6 one can easily understand that for all the items of spices, growth rate was more unstable during 1985-90 as compared to the five years period just preceding the

WTO (1991-95). But in the case of spice products like oil and oleoresins, curry products, the growth rate was more stable during the same period. During the WTO period, the

instability in the growth rate of ginger and fenugreek increased during the first five years and it decreased for all other products. During the next five years (from 2000-01 to 2004-05), the volatility of cardamom, cumin, mint products, spice oil and curry products were increased. But instability in the growth rate of coriander (7.11) was lowest among all commodities in all periods. In recent years, the instability in the export growth of some items such as pepper, cardamom, turmeric, coriander, tamarind, mint products and spice oil and oleoresins is increasing. The export of mint products have been shown a very high variation in growth rate with a SDV of 155.65 during 2005-10 and 99.84 during 2009-13. To sum up, from the Table 5 and 6 one can understand that the instability in the growth rate of Indian spices during the WTO period is lower than that of pre-WTO period. But as compared with the instability in the growth rate of aggregate export, instability is higher in spices export growth. Since all the national and international events which affect the demand and supply of spices in the global market have affected, the Indian spices export is more instable than many

other products. Yet, the result obtained from the study shows that instability in the growth rate of spices export during the WTO period is less than that of pre-WTO period.

Section C

Trends in the growth of spices export

The export of all the items of Indian spices has grown much both in terms of value and volume. These increases in the growth rate in different years are not uniform in all spices and all periods. The growth in the export is not stable in nature. They are highly instable for different commodities and in different periods. Since the growth and instability in the exports of spices are not uniform, to understand the long term movement of growth rate and for the prediction of future export growth, one has to obtain the trend of growth. In this section, the trend in the growth of exports of different spices are obtained using Ordinary Least Square (OLS) method for pre-WTO period and WTO period, and the result is presented in table 7

Table 7: Trend in the Growth Rate of Different Spices from 1985-86 to 2012-13.

Items	Over all Period (1985-86 to 2012-13)	WTO period (1995-96 to 2012-13)	Pre-WTO period (1985-86 to 1994-95)	Recent 10 years (2003-04 to 2012-13)
Pepper	Negative	Positive	Negative	Positive
Cardamom (S)	Positive	Negative	Positive	Positive
Chilli	Steady (slight decrease)	Negative	Positive	Negative
Ginger	Positive	Positive	Positive	Positive
Turmeric	Positive	Positive	Positive	Negative
Coriander	Positive	Positive	Positive	Positive
Cumin	Positive	Positive	Positive	Positive
Fenugreek	Positive	Positive	Positive	Positive
Nutmeg/ Mace	NA	Negative	NA	Positive
Tamarind	Positive	Positive	Positive	Positive
Mint product	Positive*	Positive	NA	Positive
Oil & Oleoresin	Negative	Negative	Positive	Positive
Curry products	Positive	Negative	Positive	Positive

Note: NA: Data not available, * From 1993-94 to 2012-13.

Table 7 reveals the trend in growth rate of spices exports during the period of study. In order to compare the trend of different periods, separate growth rate trends for pre-WTO period, WTO period and recent ten years are done separately. It is clear that, items such as ginger, cardamom, cumin, fenugreek and tamarind have positive trends in growth during the entire periods. Even though the trend in the growth rate of cardamom (S), nutmeg/mace, spice oil and oleoresin and curry powder are negative during the whole period of WTO region, they are positive in recent ten years (2003-04 to 2012-13).

Conclusion

From the aforesaid discussion one can understand that the growths of exports of many items of spices during the WTO period are more encouraging. Even though the instability in the growth rate of export is low during the WTO regime, comparing with the instability of aggregate export one can understand that, spices export growth is more unstable in nature and instability is increasing in recent years. Positive trends in the growth rate of many spices are encouraging. Unlike many of the other agricultural products, spices export is affected much by many factors which not only affect the domestic demand at supply level but also the

international demand. The new world trade scenario with the establishment of WTO, has affected Indian spices export considerably. Considering the growth of export, trend and instability in growth one can conclude that the overall performance of spices exports during the WTO regime is satisfactory. But there is a decrease in market share of spices export during the WTO period. It reflects that, the favourable conditions in the international market are not exploited by India. Hence, the country should find out ways by which we can make use of the international trade situation more favourably with respect to the spices exports.

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