Instability in India's Exports: A Case of Traditional and Non-Traditional Commodities

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Abstract

One of the major factors that have considerably undermined the attempts towards economic development of many underdeveloped countries is the instability in their export earnings resulting from price, value and volume fluctuations. Over several decades there have been debates on the export import performance and export import instability. The purpose here is to examine the export of traditional and non-traditional commodities and further indicate the directions in which the instability has moved. In the present research paper instability indices in terms of volume, value and per unit value have been computed and an attempt has been made to find out the source of instability. For the purpose of calculation, Coppock's instability index has been used to find out the instability in export earnings in India. This study has covered the time period of seventeen years in three phases i.e., from 1990-91 to 1999-00, 2000-01 to 2007-08 and the overall period of 1990-91 to 2007-08. The study concludes that non-traditional commodities have shown higher degree of instability than traditional commodities during all the three phase of time period.

Keywords: Coppock Instability, Export Price, Export Value, Export Volume, Traditional Commodities and Non-Traditional Commodities.

Introduction

The issue of export instability exerts an enduring fascination for economists with an interest in the area of economic development. Among the many problems besetting international economic relations, the instability of exports of developing countries has always been a major topic of analysis and discussion. The problem of instability in the trade and financial relation among nations has gained great importance. International trade theory argues that developing countries benefit from primary specialization because of the existence of comparative advantages and the utilization of the countries' relative abundant factors. Moreover, the latter specialization promotes foreign direct investments flows.

International economic instability is important because of its effects on the level of living, on internal economic stability, on the rate of economic growth and on the distribution of income and wealth. It is also important because of its effects on the internal and external policies of many countries. The major composite variables which can explain International economic instability is the export proceed from the sale of goods and services by a country to other countries. Export

proceeds can be broken down on a commodity basis, value for particular product and price components. Export proceeds can also be divided by the country of destination.

The newly developing countries, in particular, many of whom are heavily dependent on earnings from the sale of primary commodities to finance much-needed capital goods' imports have evidenced substantial concern with the instability of their proceeds. In large part, this concern derives from the fact that commodity prices and consequently foreign exchange earnings have often exhibited a tendency towards secular decline, but in part it stems from the short-run fluctuations around the trend.

The international economic instability falls under the broad category of economic relation among nations which can be classified as under:

1) Trade in goods and services
2) Financial relation
3) Permanent or temporary migration of people, and
4) Interchange of knowledge that is connected with economic activities

The developing countries have been facing the problem of fluctuations in commodity markets. The impact of these fluctuations hampers the production of primary products. The source of fluctuations in export proceeds is often believed to be concentration on an unnecessarily narrow range of products for exports to a considerable extent. It is some time argued that if these economies were to diversify the exports; their export earnings would exhibit a greater degree of stability over time.

Review of Literature

Econimists have written quite extensively on the subject of exports and economic development. The following studies have been undertaken in the literature review to study the instability of Indian exports.

Dawson (2005) examined India's export-income relationship during the period of 1950 to 1999. Vector autoregressive models were used as the tools of analysis. Results showed no co-integrating long-run relationship. The research concluded that 1% increase in exports (income) led to a 0.06% increase in income (exports). These effects were for long term duration. In the opinion of the researcher the Export promotion policies of Indian Government appeared to be justified. Konya and Singh (2008), investigated empirically the presence of an equilibrium relationship between the logarithms of Indian exports and imports between the period of 1949-50 and 2004-2005. The results indicated no co-integration between exports and imports. The lack of co-integration meant that Indian macroeconomic policies were ineffective in bringing exports and imports into long-run equilibrium and India was in violation of her international budget constraint. Majeed (2010) explored the relationship between economic growth and income inequality. He used a panel data set for 18 Asian countries over the period 1970-2007. The study identified that the countries in the region with high financial intermediation tend to grew more as compared to low financial intermediation. Moreover, this study concluded that physical and human capital investments have statistically significant and positive effect on economic growth. Bansal (2012) studied India's foreign trade by analyzing Indian imports, exports and direction in detail after global financial crises. He concluded that global trade volume growth rate declined to 2.8% in 2008 which was 7.3% in 2007. India's foreign trade also dropped parallel to global trade volumes. In the year 2007-08, India's exports and imports growth rate was 28.87% and 35.38% respectively, which reduced to 12.21% and 18.85% respectively in year 2008-09. Veeramani (2012) analyzed the growth and pattern of India's merchandise exports during the post-reform period (1993-94 to 2010-11). The first decade after reforms (from 1993-94 to 2001-02) was characterized by a relatively low export growth rate of 8% a year, while the second decade (from 2002-03 to 2010-11) revealed strong growth of 21% a year. The results revealed a major shift in India's export destination from the traditional developed country markets to the emerging markets in Asia and Africa. Goldar (2013) examined the factors behind the significant increase in import intensity of India's manufactured exports that has taken place in the post-reform period. The industry-level analysis indicated that the increase in import intensity of manufactured exports was attributable partly to changes in product composition of exports and partly to growing export orientation of Indian manufacturing industries. Samuel and Basavara (2013) analyzed the growth, instability and determinants of cotton exports from India. The study revealed that volume of international exports prices and domestic production were the factors determining the exports from India. The major destinations of India's cotton exports were to China, Pakistan and Bangladesh. The study also revealed that India's decision to raise export tax of raw cotton would also influence the exports from India in the near future. Dhar and Rao (2014) analysed that India's current account de?cit has widened in recent years primarily because of the steep increase in the de?cit on the merchandise trade account. Between 2005-06 and 2012-13, India's external debt was more than $404.9 billion. Export performance has been indifferent despite the fact that India formalized several free trade agreements. They gave the opinion that Policymakers should not rely on adhoc solutions. Singla and Singh (2014) examined the various trends occurred in growth and structure of Indian exports to China during the last two decades. The analysis revealed the major changes in the composition and direction of Indian exports. China's share in India's global exports increased rapidly from just

0.10 per cent in 1990-91 to 6.47 per cent in 2009-10. The study found India's ability to compete with other nations was of great importance in determining its share in the world trade which would be a more critical factor in sustaining the higher rates of growth of the economy. Shi; Xu and Yin (2015) developed a small open economy model with sticky prices in their study. The basic motive was to reveal the answer of the question that why a flexible exchange rate policy was not desirable in East Asian emerging market economies. They argued that weak input substitution between local labour & import intermediates and extensive use of foreign currency in export pricing could help to explain this puzzle.

Need of the Study

A number of the studies have been undertaken to analyze India's export performance and export instability. Most of studies, some of them referred to above, have been conducted in this area. But they, mostly, concentrate on the possible impact of instability on economic growth and draw inferences in a cross-sectional framework. Thus, the present study is an attempt towards filling the gap in the available literature.

Objectives of the Study

The present study aims at finding out the Instability of India's exports among traditional and non-traditional commodities. For this purpose instability indices in terms of volume, value and per unit value have been computed to find out the source of instability.

Research Methodology

Research methodology is the specification of methods of acquiring the information needed to structure or solve the problems in hand. In the present study to curb the impact of inflation the analysis has been done at constant prices. For this purpose financial figures given at current prices have been deflated by using export unit value index.

Period of Study

The study covers the post liberalisation period of seventeen years i.e. from 1990-91 to 2007-08 for the analysis of export performance in India.

Data Collection

The study is primarily based on secondary data. A plethora of data has been collected from various sources namely Director General of Commercial Intelligence and Statistics (DGCIS), Export Promotion Councils and Commodity Boards, Various Statistical Abstracts of Government of India and Economic Survey.

Tools of Analysis

For finding out instability in exports Coppock's instability index has been used because it gives a close approximation of the average year-to-year percentage variation in the value of the variable. The Coppock Curve was developed by Edwin Sedgwick Coppock in 1962. All yearly changes over the past 12 months are averaged exponentially to arrive at a plotted value. This procedure is repeated for each point on the curve. Accordingly, the instability index is constructed using the following formula.

$$V\ log = \frac{1}{N-1}\sum\left[\log X_{t+1} - \log X_t - \frac{1}{N-1}\sum(\log X_{t+1} - \log X_t)\right]^2$$

or

$$V\ log = \frac{\left[\log\frac{X_{t+1}}{X_t} - m\right]^2}{N-1}$$

Where, N = Number of Years,

Xt = Value of a country's exports in year t,

m = arithmetic mean of the difference between the logs of xt and xt+1, xt+1 and xt+2 etc.

V log = the logarithmic variance of the series.

$$\text{Instability index} = \left(\text{antilog}\sqrt{V\log} - 1\right)\times 100$$

Results and Discussions

Instability in foreign exchange earnings of India has been shown in Table 1.1. This table shows that Instability in foreign exchange earnings (42.21) remained almost more than instability in total exports from India (7.52) during 1990-91 to 1999-2000. But the scenario has changed for the years 2000-01 to 2007-08 as well as during 1990-91 to 2007-08. The instability in foreign exchange earnings (7.93) remained less during 2000-01 to 2007-08 than the total exports instability (212.75). The analysis further reveals that instability in foreign exchange earnings (31.79) declined during the entire study period of 1990-91 to 2007-08 as compared to instability in total exports from India (114.31). This indicates that instability in export earnings is pivotal factor which is responsible for the economic development of the country.

Table 1.1
Instability in India's Foreign Exchange Earnings and Total Exports

Year Instability Value	1990-91 to 1999-00	2000-01 to 2007-08	1990-91 to 2007-08
Foreign Exchange Earnings	42.21	7.93	31.79
Total Exports Include Others	7.52	212.75	114.31

Source: Calculated from data of Economic Survey, Government of India.

Commodity Wise Export Instability

It may be argued that essential distinction in India is described between traditional and non-traditional exports. For the purpose of the study tea, spices, iron ore, cashew kernels and rice have been selected for the first category which belongs to the traditional commodities. From the second category of the non-traditional commodities items namely gems and jewellery, marine products, chemical and allied products, machinery instruments, transports equipment, engineering goods, electric goods, cotton fabrics, readymade garments and leather products have been selected. Hence the criterion applied is that if the overall instability index for all the commodities is lower than for the rest of the commodities, movements of the exports in a particular commodity would be having stabilizing effect on the overall export earnings. Stabilization is defined as smoothing out price fluctuations around the trend set by the market forces.

Traditional Commodities

Tables 2.1, 2.2 and 2.3 show instability indices for India's exports of traditional commodities in terms of volume, value and per unit value. Instability in export earnings could be attributed either to instability in the volume of commodities exported or their per unit values. These tables show that the traditional exports do not exhibit uniform picture during the study period.

Table 2.1 presents the instability of the volume of exports of five traditional commodities namely cashew kernels, spices, rice, tea and iron ore during 1990-91 to 2007-08. During the first phase i.e. from 1990-91 to 1999-00 rice has maximum instability 104.42 and tea has the minimum instability 13.37. During 2000-01 to 2007-08 iron ore has maximum instability 112.82 and spices have the minimum instability 9.97. During the entire study period ranging from 1990-91 to 2007-08 rice has maximum instability 102.66 and tea has the minimum instability 12.35. In 1990s spices, iron ore and cashew kernels have the instability to the tune of 33.18, 21.43 and 22.66 respectively. During the second phase of time period i.e. in 2000-01 to 2007-08 tea, cashew kernels and rice have the instability to the tune of 10.84, 15.58 and 66.82 respectively. From the third phase covering the time period of 1990-91 to 2007-08 spices, iron ore and cashew kernels have the instability to the tune of 25.11, 71.36 and 19.95 respectively.

Table 2.1
Instability Indices of volume of India's Traditional Exports, 1990 -91 to 2007-08

Year / Commodities	1990-91 to 1999-00	2000-01 to 2007-08	1990-91 to 2007-08
Tea	13.37	10.84	12.35
Spices	33.19	9.97	25.11
Iron ore	21.43	112.82	71.36
Cashew Kernels	22.66	15.58	19.95
Rice	104.42	66.82	102.66

Source: Tea Board of India, Tea Statistics; The Cashew Export Promotion Council, Cashew Statistics; and DGCIS, Calcutta.

Table 2.2 presents the instability of the value of exports of five traditional commodities cashew kernels, spices, rice, tea and iron ore with rest of the commodities during 1990-91 to 2007-08. During the first phase i.e. from 1990-91 to 1999-00 rice has maximum instability 70.19 and cashew kernels have the minimum instability 15.50. During 2000-01 to 2007-08 rice has maximum instability 30.53 and tea has the minimum instability 6.62. During the entire study period ranging from 1990-91 to 2007-08 rice has maximum instability 55.11 and tea has the minimum instability 17.39. In 1990s tea, spices and iron ore have the instability to the tune of 23.01, 17.09 and 22.77 respectively. During the second phase of time period i.e. in 2000-01 to 2007-08 spices, iron ore and cashew kernel have the instability to the tune of 15.80, 28.01 and 16.61 respectively. From the third phase covering the time period of 1990-91 to 2007-08 spices, iron ore and cashew kernels have the instability to the tune of 18.57, 33.12 and 7.16 respectively. The average instability indices of all traditional commodities in value are 7.52 in 1990s, 6.63 in 2000-01 to 2007-08 and 7.36 in 1990-91 to 2007-08. The table 2.2 also reveals that in case of tea, spices and cashew kernels the overall average instability indices for all commodities are minimum than the instability indices for rest of the commodities. It implies a stabilizing effect on the overall export earnings.

Table 2.2
Instability Indices of value of India's Traditional Exports, 1990-91 to 2007-08

Year / Commodities	1990-91 to 1999-00	2000-01 to 2007-08	1990-91 to 2007-08
Tea	23.01	6.62	17.39

Rest of commodities	7.77	6.64	7.51
Spices	17.09	15.8	18.57
Rest of commodities	7.53	6.61	7.37
Iron ore	22.77	28.01	33.12
Rest of commodities	7.47	6.51	7.36
Cashew kernels	15.5	16.61	20.12
Rest of commodities	7.56	6.58	7.38
Rice	70.19	30.53	55.11
Rest of commodities	7.13	6.61	7.16
All Commodities	7.52	6.63	7.36

Source: Tea Board of India, Tea Statistics; The Cashew Export Promotion Council, Cashew Statistics; and DGCIS, Calcutta; F.A.O., Trade commerce.

Table 2.3 presents the instability of the unit value of exports of five traditional commodities namely cashew kernels, spices, rice, tea and iron ore during 1990-91 to 2007-08. During the first phase i.e. from 1990-91 to 1999-00 rice has maximum instability 27.62 and tea has the minimum instability 10.54. During 2000-01 to 2007-08 iron ore has maximum instability 83.58 and tea has the minimum instability 6.69. During the entire study period rice has maximum instability 75.67 and tea has the minimum instability 9.51. In 1990s spices, iron ore and cashew kernels have the instability to the tune of 21.18, 12.19 and 18.97 respectively. During the second phase of time period i.e. in 2000-01 to 2007-08 spices, cashew kernels and rice have the instability to the tune of 8.92, 13.55 and 77.05 respectively. From the third phase covering the time period of 1990-91 to 2007-08 spices, iron ore and cashew kernels have the instability to the tune of 18.73, 51.83 and 19.11 respectively.

Table 2.3
Instability Indices of Unit Price of India's Traditional Exports, 1990-91 to 2007-08

Year / Commodities	1990-91 to 1999-00	2000-01 to 2007-08	1990-91 to 2007-08
Tea	10.54	6.69	9.51
Spices	21.18	8.92	18.73
Iron ore	12.19	83.58	51.83
Cashew Kernels	18.97	13.55	19.11
Rice	27.62	77.05	75.67

Source: Tea Board of India, Tea Statistics; The Cashew Export Promotion Council, Cashew Statistics; and DGCIS, Calcutta.

Non-Traditional Commodities

Table 3.1 gives the instability indices for India's non-traditional exports. This table gives instability indices in terms of value. The above table reveals that electric goods have maximum and readymade garments have minimum instability during 1990-91 to 1999-2000. During the second phase of period i.e. from 2000-01 to 2007-08 the maximum instability indices belonged to electric goods and minimum instability indices belonged to chemical and allied products. During the third phase of time period i.e. from 1990-91 to 2007-08 electric goods have maximum and leather products have minimum instability indices.

Phase wise analysis reveals that during the first phase of time period i.e. 1990-91 to 1999-00 electric goods have maximum instability to the tune of 31.82. Marine products with 15.52 instability index value captured the second place. Cotton fabrics stood at third place with 13.44 instability index value. Readymade garments have the minimum instability to the tune of 7.41. Machinery instruments captured the second lowest rank by getting instability to the tune of 7.55. The analysis further reveals that the average instability of all commodities is also lower than the instabilities of rest of the commodities in case of gems and jewellery, marine products, chemical and allied products, readymade garments and leather products. This implies stabilizing effect on the overall export earnings.

During the second phase of time period i.e. from 2000-01 to 2007-08 electric goods have maximum instability to the tune of 13.18. Marine products have captured second place with 12.52 instability index value. Transport equipments stood at third place with 12.26 instability index value. On the other hand chemical and allied products have minimum instability to the tune of 6.26. Leather products have also captured the second lowest rank with instability index value of 6.54. The average instability of all commodities during this phase is 6.63 and except marine products and engineering goods. It has stabilizing effect on all the non-traditional commodities of exports.

During the third phase of time period i.e. from 1990-91 to 2007-08 electric goods have maximum instability to the tune of 26.61. Marine products have captured second place with 17.17 instability index value. Cotton fabrics stood at third place with 15.29 instability index value. On the other hand leather products have minimum instability to the tune of 8.99. Machinery instruments have also captured the second lowest rank with 10.47 instability index value. The average instability of all commodities is 7.36 during this period. This instability index value is equal to or less than the instability index value for rest of the commodities in five cases namely gems and jewellery, chemical and allied products, cotton fabrics, readymade garments and leather products. It has stabilizing effect on the overall export earnings.

Table 3.1
Instability Indices of Value of India's Non – traditional Exports 1990-91 to 2007-08

Year / Commodities	1990-91 to 1999-00	2000-01 to 2007-08	1990-91 to 2007-08
Gems and Jewellery	10.77	7.14	10.67
Rest of commodities	8.23	7.19	8.29
Marine Products	15.52	12.52	17.17
Rest of commodities	7.55	6.62	7.35
Chemical and allied products	12.97	6.26	10.71
Rest of commodities	7.62	6.79	7.49
Machinery instruments	7.55	10.48	10.47
Rest of commodities	6.56	6.81	6.95
Transports equipment	12.19	12.26	14.03
Rest of commodities	6.35	6.69	6.81
Engineering Goods	10.87	9.43	10.86
Rest of commodities	7.34	6.28	7.12
Electric Goods	31.82	13.18	26.61
Rest of commodities	7.31	6.88	7.31
Cotton Fabrics	13.44	9.14	15.29
Rest of commodities	7.48	6.68	7.36
Readymade Garments	7.41	10.17	10.9
Rest of commodities	8.09	6.7	7.76
Leather Products	8.45	6.54	8.99
Rest of commodities	7.78	6.84	7.57
All commodities	7.52	6.63	7.36

Source: Engineering Export promotion Council, Calcutta; R.B.I., Report on Currency and finance Calcutta.

Conclusion

The export performance of a country is determined by the growth in world demand. Export promotion being one of the main factors for economic growth. It is prerequisite for adequate foreign exchange earnings to maintain the economic development. From the ongoing analysis it is clear that the commodity-wise picture is composite. Some commodities witnessed higher instability while others experienced a relatively low instability. Among the commodities studied, non-traditional exports have shown higher degree of instability than traditional exports during all the three phase of time period. The commodity-wise details also reveal that instability was caused by fluctuations both in export prices and volume exported. The degree of fluctuations in these two components, however, varied from commodity to commodity.

Thus the study suggests that in the category of traditional commodities, iron ore and rice have a destabilizing effect while cashew kernels, spices, and tea have a stabilizing effect during all the three phases of time period i.e. 1990-91 to 1999-00, 2000-01 to 2007-08 and the overall period 1990-91 to 2007-08. Moreover, India's trade in case of non-traditional commodities indicates that gems and jewellery, chemical and allied products, readymade garments and leather products have a stabilizing effect during all the three phases of time period. On the other hand machinery instruments, transport equipments, engineering goods, electric goods and cotton fabrics have destabilizing effect during the first phase while marine products and engineering goods have destabilizing effect during the second phase. In the third phase of time period marine products, machinery instruments, transport equipments, engineering goods and

electric goods have destabilizing effect. Cotton fabric has a neutral effect because during this period the average instability index value of all the commodities was equal to the instability index value for rest of the commodities.

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