

# Impact of Trade Liberalization on Indian Agri-Export

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## Abstract

**Background/objectives:** The agricultural sector has been playing a key role in the composition of Indian exports. Unfortunately the share of Indian agricultural exports has been slowly declining in recent years. The changing scenario of Global agricultural trade in the post liberalization era is as much challenging for India as for any other developing nation trying to put its feet firmly in the fast emerging economic scenario, post liberalization. India, thus could not gain much from trade liberalization even though the increasing economic integration of the Indian economy with global processes, has brought larger scope at the door of its agricultural sector. With this background, the present paper tries to study the scenario of Agricultural-Export in India under the post liberalization era focusing mainly on its growth and terms of trade.

**Methods/Statistical analysis:** Kinked Exponential models that impose linear restrictions, so as to eliminate discontinuity between sub-periods, provide a superior basis for comparisons of sub-periods growth rates, are used in the present study. Terms of trade is calculated considering the value of a country's exports relative to that of its imports.

**Findings:** The main findings of the study is that the exponential export growth rate, calculated from the kinked exponential model, was 13.8% per annum during the pre liberalized period and slightly decreased to 12.3% during post liberalized era. The terms of trade were quite favourable during the period of study.

**Improvements/Applications:** With the favourable terms of trade and increased agricultural production to enhance the agri export India needs to emphasis on more supply of agricultural products, diversification of agricultural produce and exports, quality improvement, improvement of the infrastructure for the highly perishable agricultural products, timely delivery of goods etc. and above all govt initiation to a greater extent.

**Key words:** Agri-Export, Liberalization, Kinked Model, terms of trade, growth.

## 1. Introduction

In 1991, as a result of severe balance of payments crisis India approached towards trade liberalization and India ushered into the era of competitiveness after trade liberalization. Agricultural trade in the country, both domestic and international, had been highly regulated until the early 1990s. Trade liberalization or free trade brought the exclusion or diminution of restrictions on the free exchange of goods between nations which includes the removal or reduction of both tariff like duties and surcharges and non-tariff obstacles like licensing rules, quotas and other requirements. Even if domestic trade has taken some longer time and still continues to remain regulated in various dimensions, international trade in agricultural product has seen relatively fast liberalization [1]. The Agreement on Agriculture (AOA), under World Trade Organization WTO, places emphasis on export as an instrument of growth [2]. Restrictions on imports are being phased out and exports are also being liberalized under WTO era [3, 4]. Overall it can be said that the global economic scenario is under drastic change, resulting in an increased competition and relative competitiveness of different countries. This leads to a significant change in country's pattern of production, marketing and trade flows [5]. Some studies [6, 7, 8] showed the positive relationship among the trade liberalization, trade openness and economic growth. Agricultural exports can play a role similar to that of other drivers of growth, particularly in the low-income countries [9]. [1] Observed positive impact of trade liberalization on the export growth

of South Africa. [9] Found that in the long-run, the agricultural export Granger-causes growth in the GDP of agriculture in India.

More specifically three changes have been taken place in Agriculture sector after trade liberalization, viz 1. Except few product no govt. intervention to determine the value of Import and Export, 2. Most of the qualitative restriction has been dismantled, 3. Some reduction in tariff also. The supporters of Trade liberalization in the agriculture sector justify their views saying that India has strong competitive advantages in case of high value crops like fruits, floriculture, Basmati rice, cotton etc. and opening up trade will promote export of agri products. However, the opposition group object that the liberalization will create volatile export market for Indian agriculture. These trade policies also change the cropping pattern from food crop to non food crop and thus endanger the food security of the country. Agriculture export had been occupying the place of pride in the export basket of India. Even though, there is an increase in the absolute quantum of agricultural exports, there is consistent decline in the percentage share of primary products in total export during post reform era [10]. Trade liberalization also led to a shift in cropping pattern in favour of export-oriented agricultural products such as basmati rice, soybeans, cotton, maize, and some fruits and vegetables such as grapes, onion, etc. Because of trade liberalization the domestic food processing and fast food sectors got an impetus [11].

Explaining the favourable condition of agri export in the post liberalized era, [12] pointed out that in the new world trade regime more emphasis must be given on the improvement of quality, packaging and value addition in export commodities in order to grasp higher share in world agricultural trade. Some researchers felt that as economic reforms of 1991 focused mainly on price factor and ignored infrastructure and institutional changes. The overall impact on growth of agricultural sector has not been favourable after reform which was reflected through the deceleration in output of agriculture sector during that period [13, 14].

[15] Observed that the focus which was on increasing the production of agricultural commodity by the institutional, technological and infrastructural changes during pre liberalized age has been shifted towards creating comparative advantage in the post-liberalized era.

Study by [16] showed that, government liberalization policy had positive effect both on imports and exports. However, the gap between imports and exports has shown widening trend during post liberalized era. The matter of concerned is that the gap is increased due to increase of import and reduction in export. [17] in their study said that the empirical relationship between agricultural exports and economic growth has been somewhat neglected in the literature despite its role in the development process being long recognised.

Developing countries face threats from developed markets in the form of non-trade barriers like Sanitary and Phyto-Sanitary Measures (SPS) and Technical Barriers to Trade (TBT) [18, 19]. The biggest problem of the developing countries in the post liberalization period was unforeseen decline in international agricultural prices of some important product which consequently causes adverse impact on farmers' income, employment and economic security. Unfair competition from cheap imports, is increasingly posing enormous threat to the livelihoods of the farming communities. Among the domestic factors that continue to hamper the export growth of India are infrastructural constrains, high transaction cost, erratic climatic conditions, policies relating to production, distribution etc.

With this back ground, the present paper tries to study the scenario of Agricultural-Export in India under the post liberalization era focusing on its growth and instability.

The Specific objectives of the present study are as follows:

- O1. To study the agri trade reform measures during liberalized era.
- O2. To study the change in the growth rate of export during liberalized era.
- O3. To study the terms of Trade during pre and post reform period

After the introduction, Materials and Methods of study were discussed that was followed by Results and discussions in the subsequent sections. Lastly the paper concludes the main findings of the study

## 2. Materials and Methods

### 2.1. Measurement of Growth

Kinked *Exponential* models that impose linear restrictions [20], so as to eliminate discontinuity between sub-periods, provide a superior basis for comparisons of sub-periods growth rates, are used in the present study.

*Kink Exponential Model:*

$$\ln Y_t = a + b_1 D_{1t} + b_2 D_{2t} + u_t, \text{-----}1$$

where  $Y_t$  = Agri Export.  $a$ ,  $b_i$ ,  $c_i$  are the parameters estimated on the basis of observed data,  $t$  is the time period,  $D_j$ s are the dummy variables and

$$D_j = 1 \text{ for the } j\text{th sub-period, } i, j = 1, 2 \\ = 0 \text{ otherwise.}$$

The coefficients  $b_1$  and  $b_2$  in equation 1, multiplied by 100 will give the relative growth rates for the two sub-periods of the study. Sub period I is from 1990-91 to 2000-01 and sub period II from 2001-02 to 2010-11

### 2.2. Terms of Trade

The common method of calculating terms of trade is the the value of a country's exports relative to that of its imports. It is calculated by dividing the value of exports by the value of imports, then multiplying the result by 100. If a country's terms of trade (TOT) is less than 100%, there is more capital going out (to buy imports) than there is coming in. A result greater than 100% means the country is accumulating capital.

$$\text{Terms of Trade} = (\text{Index of Prices received} / \text{Index of prices paid}) * 100$$

### 2.3. Data and its sources

Secondary data has been used in the present study. The variables considered in the present study are agri export for the period of 1990-91 to 2010-11, prices indices. The whole period is subdivided into two sub-periods, one from 1990-91 to 2000-01 and another 2001-02 to 2010-11.

The main source of data is Agricultural statistics at a glance, Govt. of India. SPSS is used for analysing the data.

## 3. Results and Discussion

### 3.1. Reform measures

During 1950s and 1960s institutional reforms like land reforms and development of irrigation and other infrastructure played a major role in output growth. Technological breakthrough has been the prime mover during 1970s. Spread of technological changes to wider areas and crops has been the main factor during 1980s. 1991 has been marked by reforms involving, liberalization of trade which was further intensified since 1995 following implementation of WTO and Agreement on Agriculture (AOA). Some of the important features of 1991 trade reforms are

1. devaluation of exchange rate
2. export control was reduced except few commodities
3. Extension of the horizon of import

WTO brought some significant changes in the agriculture trade policy during 1995 under the Uruguay round Agreement on Agriculture (AOA) viz, Market Access, Domestic Support, Export Competition and sanitary and phytosanitary measure [21]. Under Market access it is said that all countries are obliged to eliminate all their non-tariff barriers like import ban, import quota or quantitative restrictions on imports, etc. and convert these to tariffs. This is called, in the WTO, "tariffication". Secondly, reduction of the levels of tariffs under a time bound programme. These levels are to be reduced by 24 per cent in case of developing countries and by 36 percent in case of developed. The period during which these reductions are to be taken up varies from six years in case of developed countries to 10 years in case of developing countries.

### 3.2. Growth of Export

Despite being an agrarian economy, where the agricultural sector provides employment to approximately 60 per cent of the population and contributes 25 per cent to the GDP of the country, India has remained a marginal player in world agricultural trade. Currently, it has a share of less than 1 per cent of the world trade in agriculture. The kinked exponential growth rates have been calculated in the present study for the period of 1990-91 to 2010-11, sub-dividing it into two sub-periods one from 1990-91 to 2000-01 and another 2001-02 to 2010-11.

Trends in export show that India has not been able to maintain steady flow of export of commodities like non-basmati rice, wheat, cotton, sugar. In the post WTO period export of oil, groundnut, spices, tea, coffee has been affected adversely. Total agricultural export has increased 6012.76 in 1990-91 to 120185.48 ₹ Crores in 2010-11 (Table-1). However, its percentage share to total export of the country decreased in the post reform era. Among the items shown in Table 1 the significant improvement in export is observed in case of basmati rice, oil meals, sugar, molasses, cereals other than rice wheat and pulses etc.

Table 1. Export of certain Important Commodities

	Quantity (000 tones)			Value (Rs. crore)		
	1990-91	2001-02	2010-11	1990-91	2001-02	2010-11
Pulses		161.64	205.69		369.13	852.79
Rice Basmati	527.47	667.07	2186.45	439.95	1842.77	10581.51
Rice(Other than Basmati)		1541.49	96.08		1331.37	220.25
Wheat	134.41	2649.38	0.44	29.25	1330.21	0.74
Other Cereals	7.32	144.73	3187.86	2.77	115.92	3596.10
Tea	202	180.10	233.40	1074.72	1719.22	3174.50
Coffee	85	176.26	222.86	253.32	1094.92	2912.07
Spices	100	239.29	749.03	233.21	1496.97	7870.14
Cashewnut Shell Liquid	5.47	1.99	11.36	5.34	5.25	31.85
Cashew	49.88	98.20	91.56	441.46	1788.68	2598.15
Sesamum Seed	59.77	218.97	343.03	91.31	562.23	2194.44
Nigerseed		22.22	11.82		47.85	41.14
Groundnut	33.02	112.81	418.56	58	250.94	2099.77
Guargum Meal		117.89	403.00		403.09	2805.75
Oil Meals	2411.20	2781.72	6797.86	624.90	2262.93	10845.91
Castor Oil		213.68	411.21		625.94	2851.67
Shellac		5.70	3.88		72.99	112.95
Sugar		1456.45	3241.34		1728.29	10339.01
Molasses		221.12	1822.88		53.56	996.46
Fruits/Vegetable Seeds		4.93	11.14		62.19	170.63
Marine Products	158.45	468.03	800.95	959.68	5898.34	11547.97
Cotton Raw including Waste	497.14	8.23	1258.09	854.72	42.69	12981.04
Total Agricultural Exports				6012.76	29728.61	120185.48
Total National Exports				32527.28	209017.97	1148169.56
% Share of Agricultural Exports in				18.89	14.22	10.47

Source: Agricultural statistic at a glance

As already mentioned, the growth rate is estimated by the kinked exponential model. Exponential model is the most popular model of growth estimation. For sub period study kinked model gives better results [20] as compared to separate or single dummy model. However, in case of independent estimation the trend line are likely to be discontinuous and because of that sometime disparity may arise in between the sub-period and whole period growth rates.

The estimated Kinked Exponential model for agri export is shown below:

$$\ln Y_t = 10.32 + .138 D_1t + .123 D_2t \quad \text{Adj } R^2 = .97$$

Both the coefficients are observed significant at 1% level and thus shows that time has significant impact on export of agro product in India (Table 2).

As already mentioned first sub-period starts from 1990-91 and continues up to 2000-01, the second from 2001-02 to 2010-11. The sub-period-wise exponential growth rates of food grains export estimated from the selected trend lines are presented in Table 2. As shown in Table-2, the exponential export growth rate, calculated from the kinked exponential model, was 13.8% per annum during the first sub period and slightly decreased to 12.3% during second sub-period against the nation export growth rate 15.9% to 17.1%.

Table 2. Sub-period-wise exponential growth rates of Agri Export and Total Export In India

Growth rate	1990-91 to 2000-01 Sub Period I	2001-02 to 2010-11 Sub period II
Agri Export	13.8%*	12.3%*
Total Export	15.9%*	17.1%*

Notes: (1) \* indicate significant at 1% and 5% levels respectively by one-tailed t test.

Table 3. Terms of Trade Index

Year	Index of Prices received	Index of prices paid	Terms of Trade= (Index of Prices received/ Index of prices paid)*100
1981-82	54.9	61.9	88.7
1982-83	60.3	66.0	91.4
1983-84	64.2	70.1	91.6
1984-85	68.0	72.4	93.9
1985-86	70.4	75.2	93.6
1986-87	76.7	80.2	95.7
1987-88	86.0	88.3	97.4
1988-89	90.3	91.8	98.3
1989-90	97.5	98.1	99.4
1990-91	112.3	110.2	101.9
1991-92	130.8	123.8	105.6
1992-93	138.7	133.5	103.9
1993-94	151.4	146.1	103.6
1994-95	171.1	160.5	106.6
1995-96	182.9	173.7	105.3
1996-97	190.6	184.8	103.1
1997-98	205.9	194.9	105.6
1998-99	220.8	209.9	105.2
1999-00	219.8	214.0	102.7
2000-01	225.0	223.0	100.9
2001-02	235.3	229.0	102.8
2002-03	247.9	239.3	103.6
2003-04	251.2	248.7	101.0
2004-05	258.2	257.5	100.3
2005-06	275.8	270.6	101.9
2006-07	291.2	285.8	101.9
2007-08*	324.3	320.1	101.3
2008-09*	350.9	348.3	100.7
2009-10*	411.6	401.1	102.6

Source: Agriculture Statistics at a Glance, calculated by the author

### 3.3. Terms of Trade

Indian agriculture witnessed favourable Terms of Trade during 1990s. As shown in Table 3, all the calculated indices are above 100 since 1990-91. The reasons behind were hiking level of cereal prices through government support, trade liberalization, exchange rate devaluation and dis-protection to industry. Liberalized exchange rate, opening economy are some of the important reason behind the favourable terms of Trade in agriculture. Private investment in agriculture also registered a steep rise in the post-reform period.

## 4. Conclusion

The agricultural sector has been playing a key role in the composition of Indian exports. However, improvement is not observed in the growth rate of agri export in India after trade liberalization. Despite being an agrarian economy, with around 60 per employment, India has remained a marginal player in World Agricultural Trade. The reason may be the goal of food security of the nation. The increased production is consumed to meet the domestic demand though it is observed from the present work that Indian agriculture witnessed favourable Terms of Trade during 1990s. In this direction, it is suggested that the increase in the supply of agricultural products, diversification of agricultural exports, quality improvement, improvement of the cold storage facilities for the highly perishable agricultural exports, timely delivery of goods etc., are very crucial for the maximization of agricultural exports. Above all, the government has to take some timely measures through some reforms in its EXIM policy, to fulfil the needs of the exporters of agricultural products.

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