

## INDIA'S COMPARATIVE ADVANTAGE IN FRUITS AND VEGETABLES

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**Abstract:** India ranks second in production of fruits and vegetable in the world, after China. Nearly 15 and 11 per cent of the world's fruits and vegetables respectively were produced by India. Indian agricultural commodities occupied considerable share in the world market. The present study ascertained the comparative advantage of fruits and vegetables for a period of 2000-01 to 2020-21. Comparative advantage is calculated through the Balassa Index. Secondary data on fruits and vegetables exports of India and world, total merchandise export of India and world were collected for the above period. The secondary data was collected from FAO trade year books, APEDA, DGCIS, and www.fao.org. The results revealed that fruits namely mango and grapes and vegetables namely onion during the above period showed comparative advantage. Therefore, emphasis should be laid on increasing the production, productivity and export quality of those fruits and vegetables.

**Keywords:** Balassa index, Comparative advantage, Fruits, Vegetables, India

## INTRODUCTION

Export is a vehicle of progress and development. It helps not only in obtaining the modern machinery, technology and equipment but also the goods and services, which are not available indigenously. Therefore, it occupies a very prominent place in the priorities list of the developing countries economic set up because they contribute mostly to foreign exchange pool. Export shows a key role in the country's economy. Healthy balance of trade is maintained by foreign exchange reserve, it is required to have a sustained and high rate of export growth.

Varied climate of India ensures all varieties of fresh fruits & vegetables availability. It occupies second place in fruits and vegetables production in the world, after China. Nearly 15 and 11 per cent of the world's fruits and vegetables, respectively were produced by India. During 2014-15, 86.60 million metric tonnes of fruits from 6.11 million hectares and 169.48 million metric tonnes of vegetables from 9.54 million hectares were produced by India (NHB, 2016). During 2020-21, India exported fresh fruits and vegetables value Rs. 9,940.95 crores which comprised of fruits value Rs. 4,971.22 crores and vegetables value Rs. 4,969.73 crores (APEDA).

Mango, banana, papaya and guava are majorly produced by India. Among vegetables, India is the major producer of ginger and okra and occupies second place in potato, onion, cauliflower, brinjal, cabbage etc., production. The huge production base leads to India's wonderful export opportunities. Newly, the fruits and vegetable export from India is slowly gaining pace. This has happened due to simultaneous developments in the areas of cold chain infrastructure, increase in quality and productivity through research, recent post-harvest technologies,

favourable government policies (APEDA) and various initiatives are taken by APEDA such as forming B2B exhibitions in various countries, new potential markets are explored through product specific and general marketing campaigns by active participation of Indian Embassies (newsonair.com). Major challenges in export of fruits and vegetables from India are lack of exportable varieties, lack of post-harvest treatment facilities such as vapour heat treatment, lack of pack houses from farm to seaport and high certification cost for exports etc. The present study was undertaken to assess the comparative advantage of fruits and vegetables exported from India.

## MATERIALS AND METHODS

Comparative advantage implies country's specialization in the production and sale of commodities over time and across countries / regions.

According to Balassa (1965), the EPR for a commodity is the share of that commodity in the country's total exports relative to the commodities share in the total world exports.

$$EPR = \frac{X_K/X_T}{W_K/W_T}$$

Where,

$X_K$  = Export of selected commodity from a country in a year

$X_T$  = Total merchandise export of that country in a year

$W_K$  = Export of selected commodity of the world in a year

$W_T$  = Total merchandise export of the world in a year

If EPR of commodity is  $> 1$  then the export of that commodity is said to have comparative advantage.

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**RESULTS AND DISCUSSION****Fruits****Table 1.** Export performance ratios (EPR's) of Fruits (2000-01 to 2020-21)

Year/fruits	Mango	Grapes	Apple	Banana
2000-01	6.05	1.04	0.06	0.13
2001-02	6.33	0.74	0.17	0.12
2002-03	5.95	1.00	0.13	0.07
2003-04	18.03	0.85	0.10	0.06
2004-05	18.36	0.83	0.17	0.07
2005-06	19.76	1.23	0.22	0.09
2006-07	19.95	1.59	0.15	0.06
2007-08	17.03	1.48	0.14	0.09
2008-09	18.71	1.25	0.16	0.14
2009-10	16.08	1.20	0.09	0.25
2010-11	13.34	1.11	0.14	0.21
2011-12	8.87	0.67	0.13	0.12
2012-13	7.07	1.13	0.09	0.17
2013-14	7.26	1.48	0.10	0.16
2014-15	5.74	1.66	0.04	0.19
2015-16	5.67	0.98	0.06	0.33
2016-17	5.63	1.70	0.04	0.35
2017-18	3.82	1.90	0.03	0.25
2018-19	3.31	1.89	0.05	0.27
2019-20	2.72	2.02	0.08	0.33
2020-21	2.75	1.92	0.12	0.48
<b>Average</b>	<b>10.12</b>	<b>1.32</b>	<b>0.11</b>	<b>0.19</b>

The EPRs for the fruits from 2000-01 to 2020-21 i.e., 21 years period were estimated and the results were presented in Table 1.

**Mango**

Increasing trend in EPRs, indicating that the share of mango in India's export basket is increasing as compared to its share in the world market. The

results revealed that EPRs were greater than one and average EPR is 10.12, indicating that the Mango had comparative advantage (Table1).

**Table 2.** Top 10 Mango Exports from India to other countries (2020-21)

Sr. No.	Country	Value in lakhs	% to total	Rank
1	United Arab Emirates	15,104.24	57.20	1
2	U K	5,128.25	19.42	2
3	Qatar	1,916.17	7.26	3
4	Oman	1,684.36	6.38	4
5	Kuwait	962.30	3.64	5

6	Singapore	593.38	2.25	6
7	Baharain	421.26	1.60	7
8	Germany	207.68	0.79	8
9	Canada	204.99	0.78	9
10	Saudi Arab	183.40	0.69	10
	<b>Total</b>	<b>26,406.0</b>	<b>100.00</b>	

The major exports of fresh mango from India to other countries were given in Table 2. The results showed United Arab Emirates ranked first with 57.20% share followed by UK (19.42%) and Qatar (7.26%).

### Grapes

Increasing trend was observed in EPRs (almost  $\frac{3}{4}$  of the selected years), indicating that the share of grapes in India's export basket is increasing as compared to its share in the world market. The years 2000-01 to 2010-11 showed greater than one EPR values,

indicating that the export of this commodity is having comparative advantage except during 2001-02 and 2003-05. Similar results were observed during period 2011-12 to 2020-21 except during 2011-12 and 2015-16. Average EPR is 1.32 indicated that the commodity had the comparative advantage.

**Table 3.** Top 10 Grape Exports from India to other countries (2020-21)

Sr. No.	Country	Value in lakhs	% to total	Rank
1	Netherland	82,516.51	40.94	1
2	U K	25,264.55	12.53	2
3	Bangladesh	23,677.45	11.75	3
4	Russia	23,670.85	11.74	4
5	United Arab Emirates	14,409.66	7.15	5
6	Saudi Arab	10,182.64	5.05	6
7	Germany	8,558.21	4.25	7
8	Hong Kong	4,547.32	2.26	8
9	Canada	4,433.37	2.20	9
10	Malaysia	4,299.57	2.13	10
	<b>Total</b>	<b>201,560.13</b>	<b>100.00</b>	

The major exports of grapes from India to other countries were given in Table 3. The results showed that in case of fresh grapes, Netherlands ranked first with 40.94% share followed by UK (12.53%) and Bangladesh (11.75%).

### Apples and Banana

Decreasing trend was observed in EPRs (all the selected years), indicating that the share of apples

and bananas, in India's export basket decreased as compared to its share in the world market. The years 2000-01 to 2010-11 showed less than one EPR values, indicating that the export of these commodities had no comparative advantage. Similar results were observed during period 2011-12 to 2020-21.

### Vegetables

**Table 4.** Export performance ratios (EPR's) of vegetables (2000-01 to 2020-21)

Year/vegetables	Onion	Potato	Tomato	Cauliflower	Cabbage	peas
2000-01	11.11	0.32	0.01	0.00	0.01	0.09
2001-02	11.75	0.10	0.01	0.00	0.01	0.07
2002-03	9.25	0.21	0.09	0.00	0.00	0.22
2003-04	14.22	0.43	0.04	0.00	0.02	0.23

2004-05	11.47	0.38	0.03	0.01	0.04	0.13
2005-06	11.35	0.52	0.05	0.00	0.04	0.34
2006-07	14.71	0.48	0.13	0.00	0.02	0.09
2007-08	11.47	0.31	0.51	0.00	0.03	0.02
2008-09	15.88	0.71	0.33	0.00	0.03	0.01
2009-10	16.13	0.41	0.23	0.01	0.05	0.03
2010-11	10.54	0.53	0.20	0.01	0.07	0.03
2011-12	7.74	0.49	0.61	0.01	0.11	0.01
2012-13	7.56	0.34	0.41	0.00	0.08	0.01
2013-14	11.10	0.45	0.48	0.00	0.07	0.01
2014-15	6.63	1.52	0.60	0.00	0.06	0.03
2015-16	8.68	0.93	0.50	0.01	0.06	0.12
2016-17	7.74	0.94	0.54	0.01	0.05	0.12
2017-18	8.29	0.82	0.09	0.01	0.06	0.05
2018-19	7.62	0.79	0.15	0.01	0.04	0.05
2019-20	5.54	0.87	0.18	0.01	0.05	0.03
2020-21	6.13	1.06	0.23	0.01	0.05	0.12
<b>Average</b>	<b>10.23</b>	<b>0.60</b>	<b>0.26</b>	<b>0.00</b>	<b>0.05</b>	<b>0.09</b>

EPRs for vegetables for a period from 2000-01 to 2010-11, 2011-12 to 2020-21 and for 2000-01 to 2020-21 were estimated and the results were presented in Table 4.

### Onion

Increasing trend was observed in EPRs (all the selected years), indicating that the share of onions in India's export basket is increased as compared to its share in the world market. The years 2000-01 to 2010-11 showed greater than one EPR values,

indicating that the export of this commodity had comparative advantage. Similar results were observed during period 2011-12 to 2020-21. Average EPR is 10.23 indicated that the commodity had the comparative advantage (Table 4).

**Table 5.** Top 10 Onion Exports from India to other countries (2020-21)

Sr. No.	Country	Value in lakhs	% to total	Rank
1	Bangladesh	75,548.08	30.26	1
2	Malaysia	46,146.99	18.48	2
3	United Arab Emirates	33,050.16	13.24	3
4	Sri Lanka	31,322.23	12.55	4
5	Nepal	16,477.00	6.60	5
6	Indonesia	11,269.31	4.51	6
7	Saudi Arab	10,025.78	4.02	7
8	Qatar	9,335.93	3.74	8
9	Kuwait	8,369.06	3.35	9
10	Oman	8,123.81	3.25	10
	<b>Total</b>	<b>249,668.35</b>	<b>100.00</b>	

The major exports of onions from India to other countries were given in Table 5. It showed Bangladesh ranked first with 30.26% share followed by Malaysia (18.48%) and United Arab Emirates (13.24%).

Decreasing trend in EPRs (90% of the selected years) for Potato and for other vegetables namely Tomato, cauliflower, Cabbage, and Peas (100% of the selected years) indicating that the share of all the above vegetables in India's export basket decreased as compared to its share in the world market. The years 2000-01 to 2010-11 showed less than one EPR values, indicating that the export of these commodities had no comparative advantage. Similar results were observed during period 2011-12 to 2020-21.

Increasing trend in EPRs for fruits namely mango and grapes (2000-01 to 2010-11) and (2011-12 to 2020-21) in India's export basket is increasing as compared to its share in the world market and all EPRs are greater than one in case of mango and  $\frac{3}{4}$  of EPRs are greater than one in case of grapes indicated that these commodities had the comparative advantage. These results were similar to the following findings obtained by Chaudary and Saleem (2003), Bardan (2007). Similar results were observed in case of vegetables namely onion.

Decreasing trend in EPR's and most of the EPR's are nearer to zero values indicating this commodity share in the India's export basket was almost negligible for the following fruits namely apple and banana and vegetables namely potato, tomato, cauliflower, cabbage and peas. These results are similar to the following study conducted by Brajesh Jha (2002). India ranks second in onion production. Amongst fruits, India ranks first in Mango production (mangos, guavas and guavas are included) (45.89%). The enormous production base offers the country's tremendous opportunities for export (APEDA).

The results also indicated that major exports of mango, grapes and onions from India to other countries are United Arab Emirates (57.20%), Netherlands (40.94%) and Bangladesh (30.26%).

## CONCLUSION

India has comparative advantage in export of fruits namely mango and grapes and vegetables namely onion (2000-01 to 2020-21). More emphasis should be laid on export of fruits like mango and grapes and vegetables onion as these commodities were found to have comparative advantage.

The vast production base offers India tremendous opportunities for export so we have to focus to increase the production and productivity by using by using advanced techniques.

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