Trade Balance and Growth of Indian Agriculture Exports

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ABSTRACT
Throughout its history, India has been viewed as an agricultural country. 54.6 percent of India's population (census 2011) is employed in agriculture and related sectors, which accounted for 17.4 percent of GDP in 2016-17. (Current prices). Agriculture accounted for 10.5% of India's total exports in 2017 with a value of $33.87 billion. The parts of the article that are included are the introduction, study goal. review literature, methodology, agricultural commodity trade, government agriculture foreign trade policy, objectives, trading in agriculture in India, conclusion, and suggestions.Trade in agricultural commodities in India was studied using abteu = Yt is a type of exponential modeling. The co-relation co-efficient test developed by Carl Pearson was used to investigate and judge the information from primary bases like the fiscal analysis yearly reporting from the agriculture ministry, and so on..After a thorough review of the data, a researcher has come up with a set of recommendations to help the Indian economy grow.

Keywords: import, agriculture, export, trade

I. INTRODUCTION

As one of the world's fastest-growing economies, India has established itself as a major player in every social and economic arena. India's economy relies heavily on its agricultural, industrial, and service sectors. The service industry has grown at a faster rate than agriculture and industry. Even though agriculture's share of national income has declined, the sector's contribution to economic growth cannot be understated. For India's long-term development, agriculture and its related industries are still vitally important. Immediately following its independence, India was beset by famine and a lack of food. Achieving self-sufficiency and efficiency in food production have been top priorities for the country ever since. Economic growth and liberalisation have made it a major distributor of a wide range of products, including rice and cotton, of which it is a leading producer. When it comes to commerce, India and China began liberalising their markets in the 1970s, but China progressed more slowly.

By the end of 2015, India's trade balance was 42.22 percent of GDP compared to 15.24 percent in 1990. Figure 1 depicts the development of the trade balance as a percentage of GDP (appendix). In 1990-91, India exported 31.59 billion dollars (USD) and imported 33.49 billion dollars (USD). In 2015-16, India exported 501.52 billion dollars (USD) and imported 514 billion dollars (USD), respectively. 1990 saw an increase in the percentage of GDP from 7.13 to 8.55 percent for exports and a rise in the percentage of GDP from 8.55 to 19.94 percent for imports; this trend continued through 2016 and 2017. As a member of several bilateral trade organisations, India exported 16.9 percent of its total goods to the United States, 15.2 percent to the United Arab Emirates and 11.3 percent to China in 2015. China, Saudi Arabia, and Switzerland are the top three countries from which India imports the most. It is estimated that the European Union accounts for 52% of India's export and 62% of its imports, making the EU the country's largest trading partner.

For a long time, India has been considered an agricultural powerhouse. According to the 2011 census, agriculture employs 54.6 percent of India's population and accounts for 17.4 percent of the country's GDP in 2016-17. Prices at the time of this writing. In the mid-1960s, there was a shortage of agricultural goods in India, where green revolution to be led, which revolutionised the farming industry. This enabled India to provide food and other necessities for its citizens who are also cost-effectively exporting farming products to the other countries. In 2017, agricultural exports from India amounted to $33.87 billion, or 10.5% of total exports.

With an average annual growth rate of 2.7% over the last 50 years, India's government has made significant efforts to improve agriculture and agricultural exports over the past seven decades. Allowing to the Financial Study, agriculture will grow at a 2.1 percent annual rate in 2017.

It has been stated by India's Prime Minister that the government is working to ensure that farmers' incomes double by 2022. Agriculture exports are an important part of this effort.

II.   STUDY GOALS

Agriculture is the foundation of the Indian economy. For economic growth, success in agriculture is essential. The following goals of agricultural trade in India are stated in a report:
Researching the Indian agriculture trade
- Investigating the rates of agricultural commodity trade growth.
- Analyzing India's agricultural trade exports and imports.
- Make recommendations for different ways to enhance India's agricultural trade.
- Examining agricultural trade patterns.

III.   REVIEW LITERATURE

The current study examined a number of literature reviews of previous studies on India's agricultural trade. Researchers must thoroughly review prior studies in order to understand the current state of research and identify any gaps in these studies. This is essential in all types of research. In addition, these investigations will aid the researcher in determining the best course of action for the study.. Research on agricultural trade in India is scarce, but the following literature review was used as a starting point.

Kabra (2004) found in his research that the lack of foreign aid, the limited affordability of semi-manufactured and manufactured goods in worldwide bazaars, and limited non-resident foreign investment flow Indian foreign employment have all contributed to the importance of agricultural export earnings. A long-term reliance on these exports could lead to cropping patterns that shift from basic food crops to commercial commodities, according to his research. It was thus imperative for him to emphasise that local production and exports must be balanced.

Mukhopadhyay and Sen (2010), used a linear trend equation to identify the structural connections between GDP, exports, and imports from 2006-07 to 2008-09 as a result of the liberalisation process. According to the findings, India's export volume grew during the period of liberalisation.

India's agricultural exports were examined by Bhattacharyya (2013a). The focus of his study was on India's agricultural trade after the year 2000 in order to better understand the structural changes that have taken place. The evolution of agricultural trade policy was also examined in detail by him.

There should be an Indian Trade Organization with boxes for home farming assistance based on the World Trade Organization's Green, Blue, and Amber Boxes (Swamithan, 2011), the Chairman of NCF's National Commission on Farmers. According to him, India's Trade Body (ITO) could be a fictitious organisation that only deals with WTO-related matters. By keeping an eye on trade, the government may be able to make educated and Important agricultural products could have too much or not enough of them, or there could be too few of them.

A review of empirical findings from agricultural commodities futures studies conducted between 2000 and 2008 was recently published by Bimal and Harwinder (2009). Commodity futures market growth and performance, farming product futures market connection with advertisement market, and value danger managing via agricultural commodity futures are the three areas of focus of the research. Commodity futures markets in India are examined in this study, similar to those that affect how agricultural commodities futures perform in India.

IV.   METHODOLOGY

Based on secondary data from various sources, the current study is titled "An assessment of India's agricultural trade export and import," and it examines the country's exports and imports in agriculture. For ten different commodities, Pearson's correlation coefficient, statistical techniques such as the average, and so on were used to examine secondary trade data (export and import).

V.   AGRICULTURAL COMMODITY TRADE

India's agricultural commodities business growth was studied using an exponential model of the type Yt = abteu. Governments prefer exponential growth over other models because growth rates are easier to predict than absolute changes.

$$Y^t = ab^t e^u$$

Where,
 Yt indicates the dependant variable to be used in the calculation of the growth rate (trade value).

      b - Naperian Base
      u - Naperian Base
      e - Time Variable
      t - Intercept
      a - Regression Coefficient

The above equation's linearly converted estimating form is
$$\text{Ln } Y_t = \text{Ln } a + t \ln b + u$$
Then,
The regression coefficient is used to figure out the average annual percentage rate of growth over time for the trade series. Multiply the regression factor (ln b) over the time retro (t), minus one (1), by 100, to
find the growth rate for each product and dependent variable.

$$\text{Growth rate (G)} = (e\,[\ln b]\,-1) \times 100$$

      Separate progress rates for the first and second quarters as well as overall growth were derived. The 1990s to 1998 period is known as the pre-WTO era. It was during the post-WTO period, which lasted from 2005-06 to 2013-14, that the country implemented numerous measures aimed at strengthening its agricultural commodities trading sector.
      We used Chow testing to see if the predicted growth rates of two periods differed significantly, indicating that the connection is shifting between samples. An F* test is the format of the exam.
The formula is as follows:

$$F^* = \frac{(\Sigma e_{p^2} - (\Sigma e_1{}^2 + \Sigma e_2{}^2)) / K}{(\Sigma e_1{}^2 + \Sigma e_2{}^2) / (n_1 + n_2 - 2K)}$$

The F table value at may be compared to the formula above (K, $(n_1 + n_2 - 2K)$ freedom of degrees.
Where,
      $\Sigma e_p{}^2$ = Residual square of sum for (Whole period) whole sample.
      $\Sigma e_1{}^2$ = Residual square of sum for the set first data
      $\Sigma e_2{}^2$ = Residual square of sum for the set second data
      K = Number of parameters estimated (constant term including)
      n1 = Observations of number of the first period
      n2 = Observations of number of the second period

5.1 Agriculture Trade in India
      Some crops, such as cotton, rice, cashew nuts, sugarcane and groundnut, have made India a major global agro-exporter in recent years. Indian agricultural exports and imports made up 2.26 percent and 1.74 percent of global agricultural trade in 2015, conferring to the World Trade Organization's Trade Data. In 2012-13, agricultural exports accounted for 13.56 percent of agricultural GDP; in 2015-16, they accounted for 9.90 percent. From 5.71 to 6.45 percent of agricultural GDP, compared to agricultural GDP, agricultural imports increased.

5.2 Exports and Imports of Agricultural Produce
      Farmers have been able to tap into a larger global market by exporting agricultural goods, which has increased local output. Three major export crops, cotton, rice, and maize, have all seen significant increases in the amount of land they occupy and the rate at which they are produced.
      From 2012-13 to 2016-17, agricultural exports increased by about 0.15 percent, from Rs. 2, 27,193 crore to Rs. 2, 27,554 crore. Increased agricultural exports in 2016-17 were attributed to an increase in the export value of spices, rice basmati, rice (non-basmati), sugar, and cotton raw.
      In 2012-13, agriculture accounted for 13.90% of India's total exports; by 2016-17, that figure had fallen to 12.27%. Table 1 shows India's top ten agricultural exports from 2012-13 to 2016-17 in terms of volume and value:

Table 1: India's top ten agricultural exports from 2012-13 and 2016-17 (Value in Rs. Crore)

Sr.	Commodity	(2012 to 2013)	(2014 to 2015)	(2015 to 2016)	(2016 to 2017)
1	Basmati -Rice	19409	27599	22719	21604
2	Cotton raw	20277	11643	12821	10982
3	Spices	15177	14842	16630	19442
4	Rice (other basmati)	14449	20336	15483	17145
5	Sugar	8576	5327	9825	8678
6	Coffee	4711	4973	5125	5668
7	Groundnut	4065	4675	4075	5454
8	Fresh vegetables	3407	4612	5237	5772
9	Cashew nut	4067	5566	5028	5303
10	Oil meals	16519	8128	3599	5371
Total agro & exports allied		**227193**	**239471**	**215396**	**227554**

Source: Central Statistics Office, Indian Government

Farm products imported from 2012-13 to 2016-17 grew by almost 72 percent, rising from Rs. 95,719 crore to Rs. 1,646,680 crore. It was during this period that agricultural goods ranging from pulses and vegetable oils to fresh fruits and spices to cashew nuts and sugar became more expensive. Agriculture accounted for 6.42 percent of total imports in 2016-17, up from a 2012-13 level of 3.59 percent.

Pearson's Coefficient of Correlation Test
        For the years 2012-13 to 2016-17, Pearson's correlation coefficient test was used to examine India's top ten agricultural products exported.
Inference
        The inference yields a value of R of 0.6872. It's possible that significant X flexible scores are related to significant Y variable values, based on this correlation (and vice versa).
Because of this, Exports of agricultural products such as basmati rice, spices, raw cotton, and rice (other than basmati) other than basmati increased between 2012–13 and 2016–17.

Table-2: Import of agricultural goods into India (in crores of rupees)

Sr. No	Commodity	2012-13	2014-15	2015-16	2016-17
1	Pulses	13345	17063	25619	28523
2	Vegetable Oils	53562	64894	68677	73047
3	Cashew Nut	5434	6600	8701	9027
4	Fresh Fruits	6180	9544	11072	11241
5	Spices	2716	4392	5400	5758
6	Cotton Raw	2467	3101	2566	6337
7	Sugar	3094	3668	4038	6868
8	Misc Processed Goods	1268	1749	1811	2116
9	Wheat	6	61	873	8509
10	Oil Meals	210	283	432	975
Total		**88282**	**111345**	**129187**	**152401**

Source: Central Statistics Office, Indian Government

Inference

R has a value of 0.9877 The correlation between the X and Y variables is strong, so high values for X correspond to high values for Y (and vice versa). Agricultural commodities such as pulses, vegetable oils, cashew nuts and fresh fruits, spices and cotton raw have increased in trade (import) from 2012-13 to 2016-17.

An agricultural trade specialisation metric is based on the following:

$$S_T = \frac{E - I}{E + I}$$

Where,

ST: Agricultural trade of specialization:

E: Amount of agricultural exports

I: Amount of agricultural imports

Agriculture exports totaled Rs. 227554 in 2016-17, while imports totaled Rs. 152401. Agriculture commerce can be specialised because the difference is Rs. 75153.

VI.   CONCLUSION

An examination of the trade in a few agricultural products in India was the focus of the current research. Agricultural production is critical to India's economic growth and development, as it is one of the country's most important economic sectors. Agriculture is a major contributor to the nation's economic well-being. The study's objectives have been met by the researcher's analysis and interpretation of the data. Foreign currency can be earned by exporting a wide variety of agro-based products from India. It's possible to specialize in farming business because the gap between exports and imports is Rs. 75153. Exports of agriculture make up more than $33.87 billion of India's total exports, accounting for 10.5% of the country's total exports. The importance of export and import duties cannot be overstated. The government, for example, raises export duties when necessary, and prohibits the import of certain agricultural products when necessary. The growth of agricultural commodities trade in India was examined using an exponential model of the type Yt = abteu. The exports of the top 10 agricultural commodities from India between 2012–2013 and 2016–2017 were examined using Pearson's correlation coefficient test. R has the value of 0.6872 as a positive integer. High scores for the X variable are positively correlated with high scores for the Y variable (and vice versa). From 2012–13 to 2016–17, there was a sharp increase in the commerce (export) of agricultural products such as sugar, rice basmati, rice (other than basmati), raw cotton, spices, coffee, and oil meals, fresh vegetables. R is one of the most powerful programming languages on the market, with a score of 0.9877. This type of relationship between two variables makes it likely that great X modifiable scores will correlate with great Y modifiable scores (and vice versa).Trade in agricultural products like fresh fruits, pulses , spices, cashew nuts , sugar , vegetable oils, and raw cotton, and a variety of other processed goods, wheat and oil meals increased between 2012-13 and 2016-17. (import). Despite the fact that India is a village-based society, the country's agricultural trade dominance would allow it to show the rest of the world its strength. Trade policies and incentives that favour India's agricultural sector can generate foreign currency while also helping the country maintain its global leadership position.

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