Export of Banana from India: Growth and Stability Issues

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ABSTRACT
The study was conducted to know the export performance of fresh banana fruits from India for a period of 15 years (2006-07 to 2020-21). Compound annual growth rate and instability index analysis were used for the analysis and interpretation of the results. The export quantity and export value of fresh banana showed positive growth rates of 19.32 per cent and 27.28 per cent, respectively and were found to be significant at 1 per cent. The export value of fresh banana showed more instability compared to export quantity.

INTRODUCTION
India has witnessed an increase in horticulture production over the last few years. Significant progress in terms of area and production of fruits has been made. Over the last decade, the area under horticultural crops grew by 2.60 per cent per annum and annual production increased by 4.80 per cent. The production of horticultural crops was to 311.71 million tonnes from an area of 25.43 million hectares during 2017-18. The production of fruits has increased from 50.90 million tonnes (2004-05) to 97.35 million tonnes during 2017-18 (Horticulture statistics at a glance, 2018). We are the 2nd largest producer of fruits after China and our presence in global market is significant. Among different fruits of India, banana production ranks 1st in the production. The vast production of these fruits as fresh fruits base offers India tremendous opportunities for export. With this backdrop the present study was conducted to estimate the growth rate in export of fresh banana fruits from India and to assess the instability in their export.

Methodology:
Data: The study was based on secondary data on export of banana fruits of India over the period of 15 years (2006-07 to 2020-21).
Analytical techniques:

Growth rate analysis

For computing compound annual growth rate of export of banana fruits from India, the exponential function of the following form was used.

\[ Y = a \cdot b^t \] \hspace{1cm} (1)

Where,

\[ Y = \text{Export (tonnes/000' tonnes/Crore Rs.)} \]
\[ a = \text{Intercept} \]
\[ b = \text{Regression coefficient} \]
\[ 'a' \text{ and 'b' are the parameters to be estimated} \]
\[ t = \text{time period} \]
\[ U_t = \text{Disturbance term in year 't'} \]

The equation (1) was transformed into log linear form and was written as:

\[ \log Y = \log a + t \log b + U_t \] \hspace{1cm} (2)

Equation (2) was estimated by using Ordinary Least Squares (OLS) technique.

Compound annual growth rate (g) was computed by using the below formula;

\[ g = (b - 1)*100 \] \hspace{1cm} (3)

Where,

\[ g: \text{Compound growth rate in per cent per annum} \]
\[ b: \text{Antilog of log b} \]

The standard error of the growth rate was estimated and tested for its significance with student’s t test.

Instability analysis:

- The coefficient of variation or index of instability was computed by using the following formula;

\[ \text{Standard Deviation (σ)} \]
\[ CV = \frac{\sigma}{\bar{X}} \times 100 \] \hspace{1cm} (4)

\[ \text{Mean (\bar{X})} \]

- Linear trend was fitted to the original data of export of major fresh fruits from the country for a period of 15 years (2006-07 to 2020-21). The trend coefficients were tested for their significance. Whenever the trend of series found to be significant; the variation around the trend rather than the variation around mean was used as an index of instability. The formula suggested by Cuddy and Della was used to compute the degree of instability around the trend. The Coefficient of variation was multiplied by the square root of the difference between the unity and coefficient of multiple determinations (R²) to obtain the Instability Index.

\[ \text{Instability index (I_o)} = CV \times \sqrt{(1 - R^2)} \] \hspace{1cm} (5)

Results and Discussion:

Compound annual growth rate and stability of export of banana from India

The compound annual growth rate and instability index of export of banana from India have been presented in Table 1. It is evident from the Table that the export quantity as well as the export value of fresh banana from India showed the positive annual growth rates of 19.32 per cent and 27.28 per cent, respectively and found to be significant at 1 per cent. The average quantity of export of fresh banana was 82358.10 tonnes and in terms of value it was around Rs. 257.37 crores. The instability indices of export quantity and export value of fresh banana were found to be 27.40 per cent and 25.03 per cent, respectively. The current findings are in line with the findings of Siddaayya (2010) and Mahesh (2012).
CONCLUSIONS:

The compound annual growth rate of export value of fresh banana was greater than that of export quantity and both were found to be significant at 1 per cent and at the same time the export value of fresh banana showed more instability compared to export quantity.

REFERENCES:


**Table 1. Compound annual growth rate and stability of export of banana from India**

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Year</th>
<th>Fresh banana</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Quantity (Tonnes)</td>
<td>Value (Rs. Crore)</td>
<td></td>
</tr>
<tr>
<td>Average</td>
<td>82358.10</td>
<td>257.37</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAGR</td>
<td>19.32***</td>
<td>27.28***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Instability Index</td>
<td>27.40</td>
<td>25.03</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: www.indiastat.com

www.apeda.com

Note: *** Significance at 1% level