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Growth and Trend of Agricultural and Processed food Exports of India

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Abstract: **Agriculture sector is supporting 50 per cent of workforce and spread around one third of country's geographical area. The sector contributes 17 percent of Indian GDP at current prices during 2016-17. Among the various commodities in agriculture, the agriculture and allied products exports were contributing a major share for total exports. The sector was booming since liberalisation and registered a share of 9 per cent during 2013-14 worth Rs 2575.59 lakhs to total export of India. Thereafter, for the next four consecutive years, the contribution was declining. In order to know its current status, the growth and trend of APEDA products export for a period of 25 years is analysed. The results revealed that the growth was negative for all the product groups except Fresh Fruits and vegetables and Animal products in terms of quantity; and floriculture and seeds and fresh fruits and vegetables in terms of value during 2013-14 to 2017-18. In respect of Animal products, a magnificent growth of 47.76 percent was noticed in quantity terms, which was inverse in value terms. The trend analysis shows that animal product export alone influences the total exports than other five items.**

Keywords: **Agriculture, APEDA products, export, growth and trend.**

I. INTRODUCTION

Indian economy classifies Agriculture and allied sector as a primary sector followed by Industry and service sector. Among the three, agriculture sector contributes 17 per cent of Indian GDP at current prices. This sector is supporting 50 per cent of workforce and spread around one third of country's geographical area. Over 58 per cent of rural household rely on agriculture as their principal livelihood as reported by India Brand Equity Foundation, 2013. Later, the Green revolution has transformed the country from land of shortage to surpluses. The surplus production served the world markets through export. This exponential growth and express development of the economy changed the fundamental needs and scales of satisfaction of Indian consumers. The shift in the consumption pattern and life style resulted in the emergence of new fields in the food industry. Hence, the government of India set up a separate ministry during 1988 for food processing. The sector was diversified into various forms namely fruits and vegetables, milk, fish, meat and poultry products for a focused development towards each product group both in domestic and foreign market. The agriculture and allied products exports were booming since liberalisation and registered a share of 9 per cent during 2013-14 worth Rs 2575.59 lakhs and thereafter for the next four consecutive years the contribution was declining. Thus, this sector needs an appraisal to measure its future prospects that shall aid the potential traders.

II. AGRICULTURE SECTOR

Agriculture sector is a predominant root in the active supply chain of any manufacturing sector. India ranks second in food production next to China over the world. To meet the potential global demand the surplus production is converted into value added products. The value-added food products occupied wide range of market destinations and hence, the

industry itself found significant and the sufficiency in food production rendered a guaranteed supply to the buyer both in domestic and international market. In spite of growing importance, sector is found drowning due to improper management of post-harvest products which goes waste. It shows that the country lacks in framing the strategies related to proper economic return and long-term storage of perishable nature of Agricultural outputs (Selva kumar et al., 2012)[1].

The total Agriculture and allied products include a category of products monitored by APEDA, a government owned organisation. This APEDA products have occupied more than 50 per cent of share on total Agri and allied exports whereas its share to total exports are decelerating over the recent decade. The authorities of APEDA states various root cause for this decline like frequent changes in agriculture policy, upgraded standard for the products exported by India, inadequate infrastructure etc. Though the structural barriers affect the trade, it is one of the specially focused sectors by the government due to its extended demand in selected markets that shall earn more revenue to the country.

III. PROBLEM FOCUS

Since independence, agriculture had been the predominant sector of India contributing to its total export with 24.6 per cent till 1985; but thereafter, the share had fallen drastically to 14.15 per cent in 2001-02 and it is only 12.37 per cent in 2017-18. Even though agriculture export as a proportion of GDP for 2017-18 is the lowest (17.6 per cent) since 2003-04[10] (20.74 per cent), it is the mainstay of the Indian economy. Over time, the Agricultural and Processed food Export has added strength to the primary agriculture sector by the untiring efforts of APEDA, the apex body of specified group of products. It is also witnessed that, the share of product groups monitored by APEDA was declining consistently from 9.07 per cent in 2012-13 to 6.93 in 2017-18, which is to be addressed immediately. Therefore, the researcher attempted to study the growth and trend of the APEDA products export from India to unveil the actual picture of exports.

IV. MATERIALS AND METHODS

The primary motive of the study is to assess the growth and trend of the Agricultural and Processed food export of India. For this purpose, time series data in terms of volume and value for a period of 25 years is extracted from the export statistics of APEDA. The study period was from 1993-94 to 2017-18. In order to study the growth, Compounded Annual Growth Rate is applied. The Linear regression model is used to estimate the trend in export. The Agriculture and Processed food products are divided into six major division as per APEDA guidelines.

V. GROWTH OF AGRICULTURAL AND PROCESSED FOOD EXPORT- QUANTITY & VALUE

According to the total Agricultural and Processed Food (APF) exports analysis, exports are shrinking especially during the recent past. The product-wise growth statistics can explore the growth extensively. Therefore, the growth is assessed by calculating Compounded Annual Growth Rate (CAGR) for every five years (considered as one Phase) for the total twenty-five years taken for the study. Therefore, the growth rates for five phases are furnished in Table 1 and the same is explained diagrammatically by Quantity and by value in Figure 1 and 2 respectively.

As seen in the table, the total export of Agricultural and Processed Food products had grown at an annual rate of 12.05 per cent by quantity and 16.14 per cent by value during 1993-94 to 2017-18. Among the six groups the largest CAGR in terms of both quantity and value is accounted by animal products (with 21.33 per cent and 19.12 per cent respectively), followed by cereals (with 11.44 and 15.81 per cent respectively).

It was also observed that in terms of quantity, only two products viz., Fresh Fruits and Vegetables and Animal products are showing a positive CAGR of 0.24 and 47.76 percent respectively during the latest period in phase V. However, animal products export registered a prenominal growth during Phase V (compared to earlier Phases too) indicating an increasing acceptability of the products in the developed world.

With regard to Floriculture and seeds and Fresh Fruits & Vegetables export there is a steady decline in growth from Phase III (2003-04 to 2007-08) to phase V (2013-14 to 2017-18) revealing that these products are losing its market.

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Table 1: Phase-wise Compounded Annual Growth Rate of Agricultural and Processed Food Export from India (Quantity& Value) (in %)

Commodity/Year	PHASE I (1993-94 to 1997-98)		PHASE II (1998-99 to 2002-03)		PHASE III (2003-04 to 2007-08)		PHASE IV (2008-09 to 2012-13)		PHASE V (2013-14 to 2017-18)		Overall Growth 1993-94 to 2017-18	
	Q	V	Q	V	Q	V	Q	V	Q	V	Q	V
Floriculture & Seeds	-8.53	25.91	8.54	10.36	5.31	9.73	2.40	9.55	-2.68	6.24	5.54	14.10
Fresh Fruits & Vegetables	3.56	8.56	19.19	15.09	5.95	10.72	2.06	10.24	0.24	2.15	7.57	13.74
Processed Fruits & Vegetables	21.31	24.68	12.45	11.71	12.51	16.85	1.86	10.04	-2.32	-35.12	9.15	4.75
Cereals	21.28	20.70	12.15	4.23	3.64	16.23	27.78	28.36	-8.20	-3.98	11.44	15.81
Animal Products	10.84	19.42	15.14	14.39	19.49	20.43	2.04	23.36	47.76	-1.65	21.33	19.12
Other Processed Foods	6.90	26.80	34.27	8.65	-0.28	13.93	9.53	41.73	-7.47	-5.45	6.68	16.08
TOTAL	14.74	20.69	13.92	7.16	5.28	15.93	18.05	27.23	6.83	2.80	12.05	16.14

Source: Computed Data

Note: Q- Quantity; V- Value

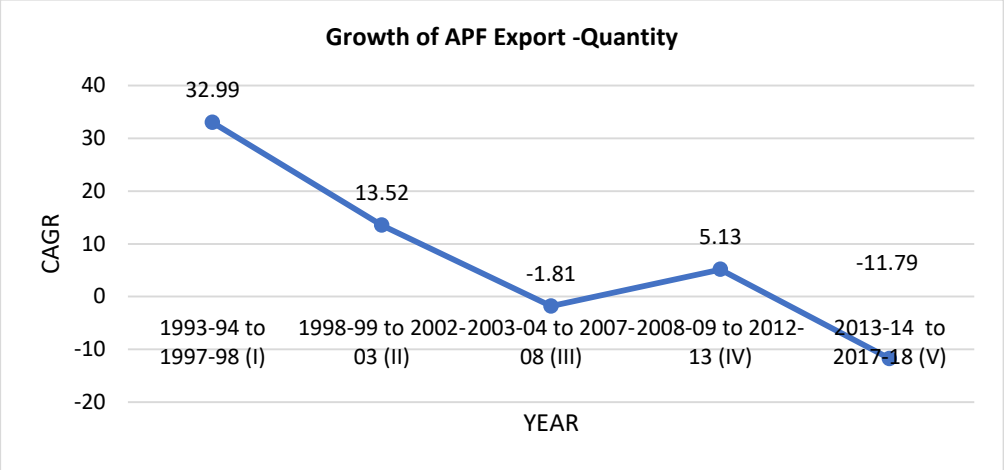

Fig. 5.1 Growth of APF Export during Five Phases (Quantity)

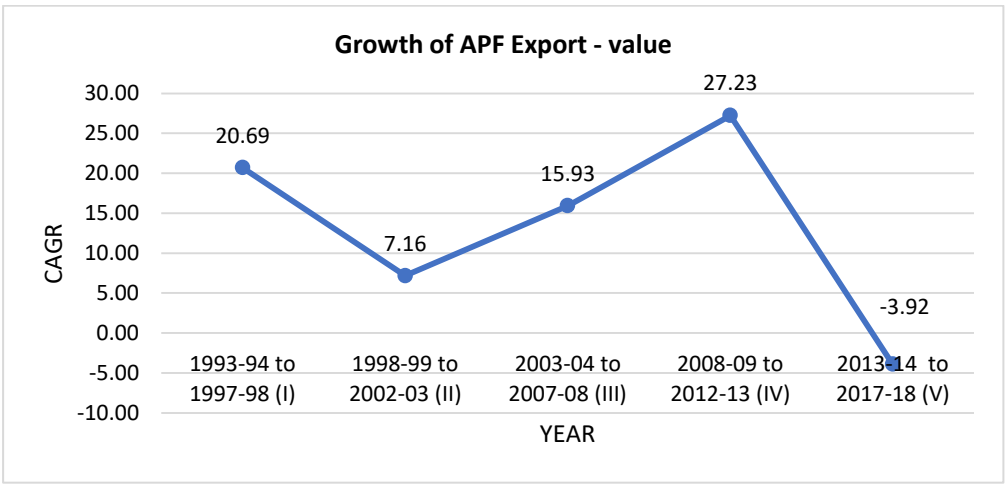

Fig. 5.2 Growth of APF Export during Five Phases (Value)

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VI. ESTIMATED LINEAR TREND

Simple linear trend analysis is applied to bring out the export trend of each products over a period of twenty-five years. Linear trend equations assess the long-term trend and significant contribution of each product group to total APF exports in terms of value and volume.

A. Estimated Linear Trend Equations for Total APF Export- Quantity & Value

The growth analysis reveals the variations in quantity and value due to short term disparities whereas the trend analysis indicates the long-term movement of the exports. In order to study the trend, the Simple Linear Regression was applied. The Table 2 shows the trend of total APF exports in terms of quantity and value.

Table 2: Estimated Linear Trend Equation for Export of Agricultural and Processed Food from India

Variables	Constant	Trend coefficient	Std. error	t -value	R^2	F Value	sig
Quantity	-443476.561	0.858	114220.395	8.197	.737	67.19	.000*
Value	-2730522.87	0.856	62356.322	8.114	.733	65.83	.000*

Source: Computed Data
Note: * Significant @ 5 percent level

The above table reveals that both the equations are statistically significant with high R^2 of above 0.7. Moreover, the co-efficient of trend variables are positive and statistically significant at 5 per cent level. It indicates that there has been a significant increase in APF exports at the rate of 0.858 tonnes by quantity and Rs 0.856 lakhs per annuum by value which indicate that there is an uptrend.

B. Estimated Linear Trend Equation for Product-wise Share of APF Export (Quantity)

The linear trend equations estimate the statistical fitness that confirms the influence of the share of a particular product to the total Agricultural and Processed food products export. The attempt is to understand the trend by the contribution of each product to the total APF exports over 25 years. The Table 3 explains the percentage share of each product group in terms of Quantity.

Table 3: Estimated Linear Trend Equation for Product-wise Share of APF Export – Quantity

Variables	Constant	Trend coefficient	Std. error	t -value	R^2	F Value	ANOVA sig
% share of Floriculture to total APF	35.125	-.01	.013	-1.341	.07	1.799	.19
% share of Fresh fruits & Vegetables to total APF exports	490.49	-.23	.170	-1.396	.07	1.950	.17
% share of Processed fruits and foods to total APF exports	95.308	-.04	.05	-.778	.02	.605	.44
%share of Cereals to total APF exports	-270.88	.16	.28	0.587	.01	.344	.56
%share of Animal products to Total APF exports	475.77	.24	.09	2.697	.23	7.27	.013*
%share of Other processed foods to total exports	226.51	-.10	-.19	0.99	.04	.99	.33

Source: Computed Data
Note: * Significant @ 5 percent level

Out of the six equations, the share of animal products is only statistically significant but the explanatory power is very small explaining only 23 percent variations in the total APF exports. In other words, the share of animal products has increased by 0.24 MT per annum revealing that this product group is the major contributor of APF exports of India by

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quantity. However, Floriculture, fresh fruits and processed fruits, vegetables and other processed foods are showing a negative trend, depicting a decline in exports. Due to the decreasing trend of all products share except animal products, the growth of APF sector is predicted to be under risk in near future.

C. Estimated Linear Trend Equations for Product-wise Share of APF- Value

Table 4: Estimated Linear Trend Equation for Product -wise Share of APF- Value

Variables	Constant	Trend coefficient	Std. error	t -value	R^2	F Value	ANOVA Sig
% share of Floriculture to total APF	93.32	-.046	.016	-2.922	.26	8.539	.007*
% share of Fresh fruits & Vegetables to total APF exports	377.40	-.184	-.06	-2.644	.22	6.988	.014*
% share of Processed fruits and foods to total APF exports	275.68	-.133	.06	-1.957	.13	3.830	.062
%share of Cereals to total APF exports	1001.28	-.477	.18	-2.612	.22	6.820	.015*
%share of Animal products to Total APF exports	-1252.82	.634	.08	7.930	.72	62.88	.000*
%share of Other processed foods to total exports	-395.62	.206	.12	1.674	.10	2.803	.107

Source: Computed Data
Note: * Significant @ 5 percent level

It could be inferred from the table that, out of six equations, only four equations are significant and valid to draw inferences even though the explanatory power of the three equations viz., floriculture and seeds, fresh fruits and vegetables and cereals are very small except in case of animal products. The trend co-efficient of the four products are significant but negative except in case of animal products. It reveals that only the animal products show an upward trend in APF exports by value. However, the per centage share of floriculture, fresh fruits and vegetables and cereals are declining at the rate of 0.46, 0.184 and 0.477 per cent per annum respectively. International prices for Cereals are low compared to domestic prices and in case of Floriculture and Fresh fruits and vegetables, the lack of sufficient infrastructure to preserve these products, increasing cost of production might have stifled the exports.

VII. RESULTS AND DISCUSSION

The growth rate analysis, over a time period studied under five phases, revealed that there was a phenomenal growth from Phase I to Phase IV, in particular, Phase IV which is showing the highest CAGR of 18.05 per cent in terms of volume and 27.23 per cent in terms of value. However, during phase V, the growth was negative for all the product groups except Fresh Fruits and vegetables and Animal products in terms of quantity; and floriculture and seeds and fresh fruits and vegetables in terms of value.

In respect of Animal products, a magnificent growth of 47.76 percent during Phase V was noticed in quantity terms, but in value terms, it was showing a negative growth revealing that the price of APF products is not competitive in the world market.

Moreover, an uptrend was noticed in APF export in both quantity and value terms. However, the share of animal product export alone influences the total exports than other five items. The declining trend of all other products in terms of the quantity, especially in Phase V, highly impact the overall growth rate. In terms of value, the share of Floriculture, Fresh Fruits and Vegetables, Processed foods and vegetables and Animal products are contributing positively and their shares play a significant role in the export trend of APF products.

VIII. SUGGESTIONS AND CONCLUSION

To sustain the trend of APF exports of India, the negative growth observed for four APF products (by value) viz., floriculture and seeds, processed foods and vegetables, cereals and other processed foods during Phase V (2013-14 to 2017-18), need to be reversed. A sustained export market requires a reliable supplier. Developing of commodity specific

clusters and insisting farmers of each district to cultivate a focused crop sensing the global demand signals may help the exporters in assuring an uninterrupted supply to global market. The development authorities may establish a forum to integrate farmers of the region in each district. End to end assistance to farmers or manufactures such as creating awareness on updates in international markets and to estimate schedule for exports, would in turn, gain consistent price and demand for the products. Therefore, introduction of posturing measures of such nature shall groom India's export and help to offer sustainable food product to world nations. Adoption of Sustainable production techniques and distribution measures would aid the farmers to meet the long-term requirements of world consumers.

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