

DIRECTION OF AGRICULTURAL EXPORTS IN INDIA - AN ECONOMIC ANALYSIS

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ABSTRACT

Exports of a nation assume an indispensable part in the development of an economy. The improvement of this area is a sector of the economic strength of a country. It helps in raising usefulness, creating business and furthermore upholds different areas of the Indian economy. Following is the main objective of the present study (i) To analyze the trends and growth rate of direction of India's agricultural exports during 1991-92 to 2016-17. (ii) To study the growth performance of India's Export to Various major agricultural commodities. This study had been carried out with the help of the secondary data only. Secondary data collected from various published sources of Government Agencies. Secondary data and information have been collected from various sources like Handbook of Statistics on Indian economy, Reserve Bank of India (RBI), Govt. of India. The data were analyzed using descriptive statistics such as tables. Linear Model has been applied to analyze the trends and growth rate of direction of India's agricultural exports during 1991-92 to 2016-17. Semi Log Model and Compound Growth Rate have been applied to study the growth performance of India's Export to Various major agricultural commodities. The analysis is based on the 26 years starting from 1991-92 to 2016-17. The analysis was done by the use of SPSS and Excel.

Keywords: Agricultural exports, Semi Log Model, Compound Growth Rate.

INTRODUCTION

External trade assumed a conspicuous part India's monetary development. Truth be told, the development of exports earns valuable foreign exchange for the country. Exports are the primary assets for a non-industrial nation to accomplish a quick development. Trades help in developing the size of the market expanding the global division of work and specialization and size of creation. Agriculture assumes a fundamental part in India's economy. Over 58 per cent of the rural households depend on agriculture as their principal means of livelihood. Agriculture, alongside fisheries and ranger service, is probably the biggest supporter of the Gross Domestic Product (Hari Babu 2017). Exports are a noticeable job of a country's public economy, and contribute considerably to the financial government assistance of individuals and the advancement of assets. Economies of scale and worldwide specialization as likewise the products of logical and innovative advancement on the planet become all the more effectively open through the unfamiliar exchange. Agricultural exports of India had come to involve a crown position in the worldwide market throughout the long term (Agarwal 1975). Today, India is a significant provider of a few

agrarian items like tea, coffee, rice, flavors, cashew, oil meals, fresh fruits, fresh vegetables, meat and its preparations and Miscellaneous products to the worldwide market. Nonetheless, the nation faces vicious contest from other key part in the field, both the current and new contestants in the field. Incidentally, the significant test is from inside Asia itself where nations like China, Malaysia, Philippines, Thailand, and Singapore, United provinces of America, United Kingdom and Indonesia among others represent a major danger to Indian agricultural products (RajKumar and Varsha Dadhich, 2013). This paper tries to analyze the growth performance of India's export to Commodity-wise direction of direction of India's agricultural exports during 1991-92 to 2016-17.

SIGNIFICANCE OF THE STUDY

Foreign Trade is the driving force of monetary development in any country. Following the liberalization of Indian economy in 1991, exports and imports of India have been developing massively. Be that as it may, the worth of imports is as yet bigger than the worth of exports. Thus there is a need to help the development pace of India. The effect of trade reforms on exports upgrades the degree of exports of India. In 1991, Export performance is one of the

critical goals of liberalization reforms in India. At present, global trade is a vital part of development approach and it can be valuable instrument of poverty reduction create more employment, increases output, earns foreign currency, financial development, and mobilizes of domestic resources and saving optimally so that the economic benefits reach to the wider group of people (Mathanraj.T 2019).The review brings into light the growth rate of direction of India's agricultural exports. It would be useful for the policymaker to establish appropriate strategies for empowering exchange. This study will likewise be useful for the upcoming researcher and social scientist in the field of International economics.

OBJECTIVE OF THE STUDY

Following is the main objective of the present study

- ✚ To analyze the trends and growth rate of direction of India's agricultural exports during 1991-92 to 2016-17.
- ✚ To study the growth performance of India's Export to Various major agricultural commodities.

RESEARCH METHODOLOGY

This study had been carried out with the help of the secondary data only. Secondary data collected from various published sources of Government Agencies. Secondary data and information have been collected from various sources like Handbook of Statistics on Indian economy, Reserve Bank of India (RBI), Govt. of India. The data were analyzed using descriptive statistics such as tables. Linear Model has been applied to analyze the trends and growth rate of direction of India's agricultural exports during 1991-92 to 2016-17. Semi Log Model and Compound Growth Rate have been applied to study the growth performance of India's Export to Various major agricultural commodities. The analysis is based on the 26 years starting from 1991-92 to 2016-17. The analysis was done by the use of SPSS and Excel.

TOOLS OF ANALYSIS

The following statistical tools had been used to analyze the collected data to enable a meaningful interpretation of the results obtained. The researcher had analyzed the collected data with the basic objectives of the study in mind. Some of the tools involved in the study include

1. The Time Series Analysis
2. Linear Trend model
3. The Semi-log Model
4. 't' test

LINEAR MODEL

Further the researcher has used percentage and the simple linear growth rate model. The linear growth rate model

$$Y = a + b_t$$

Where, Y - Dependent variable, T - Time, 'a' and 'b' are the parameters. The linear growth rate is obtained from the 'b' value.

SEMI LOG MODEL AND COMPOUND GROWTH RATE

Further the researcher has used the Semi log model, in order to compute the Instantaneous Growth Rate and the Compounded Annual Growth Rate (CAGR) the Semi-log is used and was computed using the following models.

If Y_t = Variable at time t and Y_i = initial year value of the variable, simple compounding is explained as

$$\log Y = a + b_t$$

$$CGR = (\text{Anti log } b - 1) 100$$

'T' TEST

$$b_1 - b_2$$

$$t = \frac{b_1 - b_2}{\sqrt{(S.E. b_1)^2 + (S.E. b_2)^2}}$$

Here b₁ represented the slope coefficient obtained in the regression model, which was estimated for the study period and b₂ was the slope coefficient obtained in the regression model estimated for the study period S.E. is the standard error.

DIRECTION OF AGRICULTURAL EXPORTS IN INDIA- AN ECONOMIC ANALYSIS

The Direction of exports of some of the important primary, ores and minerals, manufacturing goods was examined. Exports to countries which had the major values were considered for this analysis. The major export commodities included Tea, Coffee, Rice Products, Tobacco, Spices, Cashew Oil, Meals, Marine Products and Iron Ore Products. The Table No. 1.1 shows that the Direction of agricultural Exports in India during 1991-92 to 2016-17.

TABLE NO.1.1 TREND AND GROWTH RATE OF TEA PRODUCTS IN 1991-92 TO 2016-17(US\$ MILLION)

Variables	Linear Model				Semi Log Model				CGR
	a	b	t	R ²	a	b	t	R ²	
Germany	16.309 (2.075)	0.845 (0.134)	6.290	0.622	2.896 (0.072)	0.029 (0.005)	6.144	0.611	2.0
Iran	-12.860 (8.422)	3.570 (0.545)	6.547	0.641	1.346 (0.390)	0.117 (0.025)	4.649	0.474	12.5
Iraq	10.626	-0.097	-0.285	0.103	-	-	-	-	-

	(5.239)	(0.339)							
Japan	5.899 (1.241)	0.720 (0.080)	8.958	0.770	2.036 (0.075)	0.047 (0.005)	9.683	0.796	4.8
Kazakhstan	-4.198 (4.145)	2.060 (0.268)	7.674	0.710	-	-	-	-	-
Poland	22.414 (2.373)	-0.586 (0.154)	-3.811	0.377	3.038 (0.175)	-0.036 (0.011)	-3.173	0.296	9.6
Russia	134.519 (18.201)	-1.976 (1.179)	-1.677	0.105	4.773 (0.162)	-0.013 (0.010)	-1.225	0.059	9.8
U.A.E.	27.980 (5.977)	1.947 (0.387)	5.031	0.513	3.335 (0.128)	0.043 (0.008)	5.132	0.523	4.3
U.K.	39.745 (6.231)	1.213 (0.403)	3.006	0.274	3.720 (0.098)	0.020 (0.006)	3.124	0.289	2.0
U.S.A	-1.564 (2.518)	2.773 (0.163)	17.008	0.923	2.191 (0.060)	0.088 (0.004)	22.346	0.954	9.1
Others	18.882 (15.197)	8.521 (0.984)	8.659	0.758	3.891 (0.115)	0.063 (0.007)	8.541	0.752	6.5
Total	257.790 (45.020)	18.989 (2.915)	6.514	0.639	5.702 (0.085)	0.036 (0.005)	6.526	0.640	3.6

Source: Calculated by the researcher (Figures in bracket indicate Standard Error)

From the above Table No. 1.1 it could be known that the t values of the trend co-efficient were found to be statistically significant at one per cent level. The R^2 values were also found to be satisfactory. Among the India's export to tea exporting countries, Iran had the highest annual average export value of US \$3.57 million per year. USA had the second largest annual average export value of US \$2.77 million per annum. The third rank was secured by Kazakhstan which had the average annual export value of US \$2.06 million per year followed by UAE (US \$1.94 million), UK (US \$1.21 million), Germany (US \$0.84 million), Japan (US \$0.72 million), Poland (US \$-0.58 million) and Russia (US \$-1.97 million) per annum. Iraq had the lowest annual average export value of US -0.09

million per year. As far as the growth rate of the exports of tea exporting countries concerned, Iran had the top most growth rate of 11.7 per cent per year, USA had the second largest export growth rate of 8.8 per cent per year Japan secured third place in export with the growth rate of 4.7 per cent per year followed by UAE (4.3 Per cent) Germany (2.9 Per cent) UK (2.0 Per cent) and Russia (-1.3 Per cent) per year. The lowest export growth rate was witnessed in Poland which had -3.6 per cent per annum. Regarding the Compound growth rate of exports, Iran had the highest compound growth rate of 12.5 per cent per annum Germany and UK had the lowest compound growth rate of 2.0 per cent per annum.

**TABLE NO.1.2 TREND AND GROWTH RATE OF COFFEE PRODUCTS
IN 1991-92 TO 2016-17 (US\$ MILLION)**

Variables	Linear Model				Semi Log Model				CGR
	a	b	t	R ²	a	b	t	R ²	
Belgium	-5.924 (3.876)	2.207 (0.251)	8.793	0.763	0.662 (0.295)	0.148 (0.019)	7.717	0.713	15.9
Germany	26.722 (8.759)	1.777 (0.567)	3.133	0.290	3.284 (0.192)	0.038 (0.012)	3.040	0.278	3.8
Italy	-7.516 (11.941)	7.215 (0.773)	9.331	0.784	2.962 (0.161)	0.093 (0.010)	8.972	0.770	9.8
Latvia	1.194 (0.854)	0.169 (0.055)	3.053	0.280	-	-	-	-	-
Netherlands	6.072 (1.375)	-0.011 (0.089)	-0.124	0.121	4.447 (1.064)	1.010 (0.016)	64.572	0.017	
Russia	56.075 (7.948)	0.233 (0.515)	0.454	0.109	51.039 (6.894)	1.007 (0.009)	114.32	0.027	
Spain	4.248 (2.124)	0.589 (0.138)	4.284	0.433	-	-	-	-	-

Switzerland	2.747 (2.747)	0.210 (0.051)	4.095	0.411	0.558 (0.318)	0.070 (0.021)	3.377	0.322	
U.K.	1.413 (0.789)	0.221 (0.051)	4.318	0.437	0.645 (0.186)	0.050 (0.012)	4.123	0.415	1.3
U.S.A	22.138 (5.894)	-0.079 (0.382)	-0.208	0.002	2.713 (0.314)	0.006 (0.020)	0.293	0.004	2.0
Others	-7.436 (27.222)	13.919 (1.763)	7.897	0.722	3.891 (0.159)	0.079 (0.010)	7.673	0.710	8.2
Total	99.718 (58.955)	26.451 (3.817)	6.929	0.667	5.152 (0.142)	0.061 (0.009)	6.596	0.644	6.3

Source: Calculated by the researcher (Figures in bracket indicate Standard Error)

From the above Table No. 1.2 it could be known that the t values of the trend co-efficient were found to be statistically significant at one per cent level. The R^2 values were also found to be satisfactory. Among the India's export to coffee exporting countries, Italy had the highest annual average export value of US \$7.21 million per year. Belgium had the second largest annual average export value of US\$2.20 million per annum. The third rank was secured by Germany which had the average annual export value of US \$1.77 million per year. Spain (US \$0.589 million), Russia (US \$0.233 million), U.K (US \$0.22 million), Switzerland (US \$0.21 million), Latvia (US \$0.16 million) and Netherlands (US \$-0.01 million) USA had the lowest annual average export value of US \$ -0.07 per year.

As far as the growth rate of the exports of coffee manufacturing exporting countries concerned, Belgium had the top most growth rate of 14.8 per cent per year. Italy had the second largest export growth rate of 9.3 per cent per year. Switzerland secured third place in export growth rate 7.0 per cent per year followed by U.K (5.0 per cent), Germany (3.8 per cent), Netherlands (1.0 per cent) and Russia (0.7 per cent) per year. The lowest export growth rate was witnessed in USA which had 0.6 per cent per annum. Regarding the Compound growth rate of coffee exports, Belgium had the highest compound growth rate of 15.9 per cent per annum. U.K had the lowest compound growth rate of 1.3 per cent per annum.

**TABLE NO.1.3 TREND AND GROWTH RATE OF RICE PRODUCTS
IN 1991-92 TO 2016-17(US\$ MILLION)**

Variables	Linear Model				Semi Log Model				CGR
	a	b	t	R^2	a	b	t	R^2	
Bangladesh	87.161 (70.142)	4.105 (4.542)	.904	0.033	-	-	-	-	-
France	1.562 (1.906)	0.524 (0.123)	4.248	0.429	1.240 (0.382)	0.043 (0.025)	1.753	0.114	4.4
Kuwait	-38.320 (19.742)	10.859 (1.278)	8.495	0.750	2.630 (0.161)	0.120 (0.010)	11.522	0.847	12.7
Saudi Arabia	-19.099 (63.471)	37.164 (4.110)	9.043	0.773	4.857 (0.098)	0.082 (0.006)	12.889	0.874	8.6
Singapore	-15.484 (7.263)	2.797 (0.470)	5.948	0.596	0.418 (0.236)	0.147 (0.015)	9.627	0.794	15.8
South Africa	17.447 (19.879)	3.959 (1.287)	3.076	0.283	-	-	-	-	-
U.A.E.	-138.349 (65.617)	27.981 (4.249)	6.585	0.644	2.651 (0.272)	0.152 (0.018)	8.631	0.756	16.4
U.K.	3.204 (10.263)	5.028 (0.665)	7.566	0.705	3.153 (.109)	0.069 (0.007)	9.764	0.799	7.2
U.S.A	-14.313 (13.531)	5.329 (0.876)	6.082	0.607	2.370 (0.233)	0.096 (0.015)	6.349	0.627	10.0
Others	-959.98 (405.94)	158.57 (26.286)	6.033	0.603	4.065 (0.265)	0.159 (0.017)	9.279	0.782	17.3
Total	-1124.72 (520.01)	264.12 (33.672)	7.844	0.719	5.704 (0.148)	0.121 (0.010)	12.649	0.870	12.9

Source: Calculated by the researcher (Figures in bracket indicate Standard Error)

The Table No. 1.3 gives that the t values of the trend co-efficient were found to be statistically significant at one per cent level. The R^2 values were also found to be satisfactory. Among the India's export to rice exporting countries, Saudi Arabia had the highest annual average export value of US \$37.16 million per year. U.A.E had the second largest annual average export value of US \$27.981 million per annum. The third rank was secured by Kuwait which had the average annual export value of US \$10.859million per year followed by U.S.A (5.329 million), U.K (5.028 million), Bangladesh (4.10 million), South Africa (3.95 million) and Singapore (2.79 million) per annum. France had the lowest annual average export value of US\$ 0.52 million per

year. As far as the growth rate of the exports of rice exporting countries concerned, U.A.E had the top most growth rate of 15.2 per cent per year. Singapore had the second largest export growth rate of 14.7 per cent per year. Kuwait secured the third place in export growth rate 12.0 per cent per year followed by U.S.A (9.6 Per cent), Saudi Arabia (8.2 Per cent) and U.K (6.9 Per cent) per annum. The lowest export growth rate was witnessed in France which had 4.3 per cent per annum. Regarding the Compound growth rate of rice exports, UAE had the highest compound growth rate of 16.4 per cent per annum and France had the lowest compound growth rate of 4.4 per cent per annum.

**TABLE NO.1.4 TREND AND GROWTH RATE OF TOBACCO PRODUCTS
IN 1991-92 TO 2016-17(US\$ MILLION)**

Variables	Linear Model				Semi Log Model				CGR
	a	b	t	R ²	a	b	t	R ²	
Belgium	-37.688 (13.850)	8.114 (0.897)	9.047	0.773	1.786 (0.213)	0.141 (0.014)	10.200	0.813	15.1
Germany	7.557 (3.776)	0.939 (0.244)	3.841	0.381	1.987 (0.231)	0.061 (0.015)	4.083	0.410	6.3
Netherlands	-5.462 (3.241)	1.707 (0.210)	8.135	0.734	0.764 (0.189)	0.122 (0.012)	10.014	0.807	13.0
Russia	29.421 (4.858)	0.368 (0.315)	1.169	0.054	3.177 (0.183)	0.021 (0.012)	1.739	0.112	2.1
Saudi Arabia	-3.409 (4.255)	1.619 (0.276)	5.878	0.590	1.629 (0.168)	0.075 (0.011)	1.739	0.112	7.8
Singapore	-1.395 (1.309)	0.942 (0.085)	11.107	0.837	.633 (0.155)	0.109 (0.109)	10.847	0.831	11.5
U.A.E.	-18.906 (5.807)	4.118 (0.376)	10.952	0.833	1.275 (0.077)	0.137 (0.005)	27.528	0.969	14.6
U.K.	26.528 (3.434)	-0.501 (0.222)	-2.251	0.174	3.246 (0.184)	-.028 (0.012)	-2.307	0.182	2.7
U.S.A	-1.614 (1.603)	1.328 (0.104)	12.797	0.872	0.776 (0.178)	0.012 (0.012)	10.599	0.824	13.0
Yemen Republic	-7.015 (15.129)	2.775 (0.980)	2.833	0.251	-	-	-	-	-
Others	-85.759 (32.588)	32.588 (2.110)	10.356	0.817	3.235 (0.143)	0.123 (0.009)	13.312	0.881	13.1
Total	-92.076 (58.947)	41.177 (3.817)	10.788	0.829	4.544 (0.119)	0.097 (0.008)	12.505	0.867	10.1

Source: Calculated by the researcher (Figures in bracket indicate Standard Error)

Table No. 1.4 depicts that it could be known that the t values of the trend co-efficient were found to be statistically significant at one per cent level. The R^2 values were also found to be satisfactory. Among the India's export to tobacco exporting countries, Belgium had the highest annual average export value of US \$8.11million per year. U.A.E had the second largest annual average export value of US

\$4.11 million per annum. The third rank was secured by Yemen (Republic) which had the average annual export value of US \$2.77 million per year followed by Netherlands (1.70 million), U.S.A (1.32 million), Saudi Arabia (1.61 million), Singapore (0.94 million), Germany (0.93 million), Russia (0.36 million) and U.K. -0.50 million per annum. U.K had the lowest annual average export value of US \$ -0.50 million

per year. As far as the growth rate of the exports of tobacco exporting countries concerned, Belgium had the top most growth rate of 14.1 per cent per year. U.A.E had the second largest export growth rate of 13.7 per cent per year. Netherlands secured the third place in export growth rate with 12.2 per cent per annum followed by Singapore (10.9 per cent), Saudi Arabia (7.5 per cent), Germany (6.1 per cent), Russia

(2.1 per cent) and U.S.A (1.2 per cent) per year. The lowest export growth rate was witnessed in U.K which had -2.8 per cent per annum. Regarding the Compound growth rate of exports, Belgium had the highest compound growth rate of 15.1 per cent per annum and Russia had the lowest compound growth rate of 2.1 per cent per annum.

**TABLE NO.1.5 TREND AND GROWTH RATE OF SPICES PRODUCTS
IN 1991-92 TO 2016-17(US\$ MILLION)**

Variables	Linear Model				Semi Log Model				CGR
	A	b	t	R ²	a	b	t	R ²	
Bangladesh	-10.745 (5.829)	2.891 (0.377)	7.659	0.710	1.101 (0.254)	0.128 (0.016)	7.743	0.714	13.6
Germany	-14.776 (6.663)	3.859 (0.431)	8.946	0.769	1.522 (0.122)	0.123 (0.008)	15.615	0.910	13.1
Japan	1.466 (2.608)	2.112 (0.169)	12.504	0.867	2.065 (0.098)	0.084 (0.006)	13.291	0.880	8.8
Saudi Arabia	-20.606 (6.786)	3.817 (0.439)	8.686	0.759	0.958 (0.124)	0.140 (0.008)	17.383	0.926	15.0
Singapore	-8.950 (8.311)	2.938 (0.538)	5.459	0.554	1.567 (0.191)	0.106 (0.012)	8.583	0.754	11.2
Spain	-6.525 (2.820)	1.543 (0.183)	8.451	0.748	0.365 (0.182)	0.133 (0.012)	11.335	0.843	14.3
Sri Lanka	-14.776 (5.145)	3.533 (0.333)	10.604	0.824	1.298 (0.146)	0.128 (0.009)	13.592	0.885	13.7
U.A.E.	-18.857 (8.694)	4.955 (0.563)	118.234	0.886	1.891 (0.131)	0.116 (0.008)	13.691	0.886	12.3
U.K.	-15.354 (6.413)	4.872 (0.415)	11.732	0.852	2.063 (0.089)	0.112 (0.006)	19.336	0.940	11.8
U.S.A	-46.494 (30.687)	17.435 (1.987)	8.774	0.762	3.560 (0.139)	0.100 (0.009)	11.144	0.838	10.6
Yemen Republic	1.739 (1.992)	0.330 (0.129)	2.562	0.215	-	-	-	-	-
Others	-378.869 117.082	68.020 (7.581)	8.972	0.770	3.573 (0.136)	0.152 (0.009)	17.331	0.926	16.4
Total	-534.500 187.242	115.975 12.124	9.565	0.792	4.723 (0.118)	0.128 (0.008)	16.767	0.921	13.7

Source: Calculated by the researcher (Figures in bracket indicate Standard Error)

From the above Table No. 1.5 it could be known that the t values of the trend co-efficient were found to be statistically significant at one per cent level. The R² values were also found to be satisfactory. Among the India's export to spices exporting countries, U.S.A had the highest annual average export value of US \$17.43million per year. U.A.E had the second largest annual average export value of US \$4.95million per annum. The third rank was secured by U.K which had the average annual export value of US \$4.87million per year followed by Saudi Arabia (3.81 million) Sri Lanka (3.53 million) Singapore (2.93 million) Bangladesh (2.89 million) Japan (2.11 million) and Spain (1.54 million) per annum. Yemen (Republic) had the lowest annual average export value of US \$-0.63 and US 0.3

million per year. As far as the growth rate of the exports of spices exporting countries concerned, Saudi Arabia had the top most growth rate of 14.0 per cent per year, Spain had the second largest export growth rate of 13.3 per cent per year, Bangladesh secured the third place in export growth rate 12.8 per cent per year followed by Sri Lanka (12.8 per cent), Germany (12.3 per cent), U.A.E (11.6 per cent), U.K (11.2 per cent), Singapore (10.6 per cent) and U.S.A (10.0 per cent) per year. The lowest export growth rate was witnessed in Japan which had 8.4 per cent per annum. Regarding the Compound growth rate of spices exports, Saudi Arabia had the highest compound growth rate of 15.0 per cent per annum and Japan had the lowest compound growth rate of 8.8 per cent per annum.

**TABLE NO.1.6 TREND AND GROWTH RATE OF CASHEW PRODUCTS
IN 1991-92 TO 2016-17(US\$ MILLION)**

Variables	Linear Model				Semi Log Model				CGR
	a	b	t	R ²	a	b	t	R ²	
Canada	3.741 (0.842)	0.061 (0.055)	1.125	0.050	1.100 (0.203)	0.022 (0.013)	1.704	0.108	2.3
France	0.744 (0.966)	0.916 (0.063)	14.641	0.899	0.556 (0.270)	0.123 (0.017)	7.041	0.674	13.1
Israel	4.665 (0.607)	-0.004 (0.039)	-.108	0.100	1.381 (0.165)	0.006 (0.011)	.566	0.013	0.6
Italy	0.919 (0.701)	0.269 (0.045)	5.918	0.593	-0.219 (0.269)	0.104 (0.017)	5.983	0.599	11.0
Japan	15.100 (3.920)	1.304 (0.254)	5.136	0.524	2.956 (0.115)	0.034 (0.007)	4.532	0.461	3.4
Netherlands	76.890 (6.285)	-.586 (0.407)	-1.441	0.080	4.329 (0.091)	-0.009 (0.006)	-1.527	0.089	9.1
Saudi Arabia	-12.849 (3.881)	2.381 (0.251)	9.475	0.789	0.248 (0.091)	0.156 (0.006)	26.399	0.967	16.8
U.A.E.	-33.944 (9.713)	6.789 (0.629)	10.794	0.829	1.572 (0.102)	0.143 (0.007)	21.699	0.951	15.4
U.K.	24.497 (2.990)	-0.152 (0.194)	-.786	0.025	3.117 (0.132)	-0.004 (0.009)	-0.481	.010	9.6
U.S.A	131.243 (17.968)	4.316 (1.163)	3.709	.364	4.840 (0.098)	0.027 (0.006)	7.808	0.718	2.7
Others	12.808 (16.156)	8.168 (1.046)	7.808	.718	3.702 (0.155)	0.068 (0.010)	6.806	.659	7.1
Total	223.899 (32.690)	23.458 (2.117)	11.082	0.837	5.629 (0.055)	0.044 (0.004)	12.496	.867	4.5

Source: Calculated by the researcher (Figures in bracket indicate Standard Error)

From the above Table No. 1.7 it could be known that the t values of the trend co-efficient were found to be statistically significant at one per cent level. The R² values were also found to be satisfactory. Among the India's export to cashew exporting countries, U.A.E had the highest annual average export value of US \$6.78million per year. U.S.A had the second largest annual average export value of US \$4.31million per annum. The third rank was secured by Saudi Arabia which had the average annual export value of US \$2.38million per year followed by Japan (1.30 million), France (0.91 million), Italy (0.26 million), Canada (0.06 million), UK (-0.15 million), Netherlands (-0.58 million) and Israel (-0.004 million) per annum. Netherlands had the lowest annual average export

value of US \$ -0.58million per year. As far as the growth rate of the exports of cashew exporting countries concerned, Saudi Arabia had the top most growth rate of 15.6 per cent per year. U.A.E had the second largest export growth rate of 14.3per cent per year. France secured the third place in export growth rate 12.3per cent per year followed by Italy (10.4 Per cent), Japan (3.4Per cent), U.S.A (2.7 Per cent), Canada (2.2 Per cent), Netherlands(-0.9 Per cent) and Israel (0.6 Per cent) per year. The lowest export growth rate was witnessed in UK which had -0.4 per cent per annum. Regarding the Compound growth rate of cashew exports, Saudi Arabia had the highest compound growth rate of 16.8 per cent per annum. Israel had the lowest compound growth rate of 0.6 per cent per annum.

**TABLE NO.1.7TREND AND GROWTH RATE OF OIL MEALS PRODUCTS
IN1991-92 TO 2016-17(US\$ MILLION)**

Variables	Linear Model				Semi Log Model				CGR
	a	b	t	R ²	a	b	t	R ²	
Bangladesh	-44.583 (16.920)	8.935 (1.096)	8.155	0.735	-	-	-	-	-
Indonesia	76.455 (22.247)	1.390 (1.441)	0.965	0.037	4.334 (0.316)	0.005 (0.020)	0.025	0.033	1.0
Japan	-16.086 (47.968)	9.562 (3.106)	3.078	0.283	2.476 (0.395)	0.113 (0.026)	4.421	0.449	12.0

Pakistan	-21.093 (28.965)	6.356 (1.876)	3.389	0.324	2.406 (0.492)	0.074 (0.032)	2.332	0.185	7.7
Russia	11.157 (2.124)	-4.92 (0.138)	3.579	0.348	-	-	-	-	-
Singapore	127.763 (17.539)	-5.024 (1.136)	-4.423	0.449	5.293 (0.321)	-0.129 (0.021)	-6.214	0.617	8.7
Sri Lanka	1.085 (5.374)	1.777 (0.348)	5.106	0.521	1.834 (0.192)	0.082 (0.012)	6.581	0.643	8.5
Thailand	28.438 (24.656)	3.970 (1.597)	2.486	0.205	3.581 (0.365)	0.036 (0.024)	1.527	0.089	3.7
Vietnam	-22.280 (61.717)	12.714 (3.996)	3.181	0.297	-	-	-	-	-
Others	57.171 (123.077)	25.720 (7.970)	3.227	0.303	4.989 (0.273)	0.053 (0.018)	3.007	0.274	5.5
Total	256.153 (271.125)	66.463 (17.556)	3.786	0.374	6.067 (0.224)	0.056 (0.014)	3.839	0.380	5.7

Source: Calculated by the researcher (Figures in bracket indicate Standard Error)

The Table No.1.7 gives that the t values of the trend co-efficient were found to be statistically significant at one per cent level. The R^2 values were also found to be satisfactory. Among the oil meals exporting countries, Vietnam had the highest annual average export value of US \$12.71million per year. Japan had the second largest annual average export value of US \$9.56 million per annum. The third rank was secured by Bangladesh which had the average annual export value of US \$8.93million per year followed by Pakistan (6.35 million), Thailand (3.97 million), Sri Lanka (1.77 million), Indonesia (1.39 million) and Singapore (-5.02 million) per annum. Russia had the lowest annual average export value of US\$ -0.49million per

year. As far as the growth rate of the exports of oil meals exporting countries concerned, Japan had the top most growth rate of 11.3per cent per year. Sri Lanka had the second largest export growth rate of 8.2per cent per year. Pakistan secured the third place in export growth rate 7.4per cent per year followed by Thailand (3.6 Per cent), Indonesia (0.5 Per cent) per annum. The lowest export growth rate was witnessed in Singapore which had -12.9 per cent per annum. Regarding the Compound growth rate of oil meal exports, Japan had the highest compound growth rate of 12.0 per cent per annum and Indonesia had the lowest compound growth rate of 1.0 per cent per annum.

**TABLE NO.1.8 TREND AND GROWTH RATE OF MARINE PRODUCTS
IN 1991-92 TO 2016-17(US\$ MILLION)**

Variables	Linear Model				Semi Log Model				CGR
	A	b	t	R^2	a	b	t	R^2	
Hong Kong	0.338 (10.708)	4.055 (0.693)	5.848	0.588	2.725 (0.168)	0.077 (0.011)	7.073	0.676	8.0
Italy	-2.565 (8.867)	5.010 (0.574)	8.725	0.760	2.948 (0.144)	0.075 (0.009)	8.058	0.730	7.8
Japan	392.353 (40.552)	-1.815 (2.626)	-0.691	0.100	5.922 (0.113)	-0.004 (0.007)	-0.514	0.111	0.4
China	10.528 (7.573)	7.573 (1.109)	6.828	0.660	-	-	-	-	-
Spain	-5.942 (9.312)	8.035 (0.603)	13.326	0.881	3.233 (0.116)	0.087 (0.007)	11.559	0.848	9.0
South Korea	45.614 (28.907)	3.210 (1.872)	1.715	0.109	-	-	-	-	-
Thailand	-26.420 (12.567)	6.109 (0.814)	7.507	0.701	1.891 (0.177)	0.123 (0.011)	10.752	0.828	13.1
U.A.E.	42.792 (14.665)	2.817 (0.950)	2.966	0.268	3.770 (0.192)	0.036 (0.012)	2.916	0.262	3.7
U.K.	17.247 (7.249)	4.312 (.469)	9.187	0.779	3.430 (0.095)	0.058 (0.006)	9.337	0.784	5.9
U.S.A	-221.334	49.304	6.401	0.631	4.133	0.112	11.066	0.836	11.9

	(118.95)	(7.703)			(0.157)	(0.010)			
Others	-473.573 (167.72)	88.944 (10.861)	8.189	0.736	4.232 (0.097)	0.135 (0.006)	21.526	0.951	14.4
Total	-273.365 (327.99)	177.014 (21.238)	8.335	0.743	6.351 (0.085)	.081 (0.006)	14.573	0.898	8.4

Source: Calculated by the researcher (Figures in bracket indicate Standard Error)

Table No.1.8 depicts that it could be known that the t values of the trend co-efficient were found to be statistically significant at one per cent level. The R^2 values were also found to be satisfactory. Among marine exporting countries, USA had the highest annual average export value of US \$ 49.30million per year. Spain had the second largest annual average export value of US \$8.03million per annum. The third rank was secured by People's Republic of China which had the average annual export value of US \$7.57 million per year followed by Thailand (6.10 million), Italy (5.01 million), U.K. (4.31 million), Hong Kong (4.05 million), South Korea (3.21 million) and U.A.E. (2.81 million) per annum. Japan had the lowest annual average export value of US \$-1.81million per year. As far as the growth rate of the exports of marine exporting countries concerned, Thailand had the top most growth rate of 12.3 per cent per year. U.S.A had the second largest export growth rate of 11.2per cent per year. Spain secured the third place in export growth rate with 8.7 per cent Per annum followed by Hong Kong (7.7 per cent), Italy (7.5 per cent), and U.K. (5.8 per cent) and U.A.E (3.6 per cent) per year. The lowest export growth rate was witnessed in Japan which had -0.4 per cent per annum. Regarding the Compound growth rate of exports, Thailand had the highest compound growth rate of 13.1 per cent per annum and Japan had the lowest compound growth rate of 0.4 per cent per annum.

MAJOR FINDINGS

The study finding the growth performance of India's Export to Various major agricultural commodities was concerned,

ANNUAL AVERAGE EXPORT VALUE

- ✚ India's export to **tea exporting countries**, Iran had the highest annual average export value of US \$3.57 million per year. Iraq had the lowest annual average export value of US -0.09 million per year.
- ✚ India's export to **coffee exporting countries**, Italy had the highest annual average export value of US \$7.21 million per year. USA had the lowest annual average export value of US \$ -0.07 per year.
- ✚ India's export to **rice exporting countries**, Saudi Arabia had the highest annual average export value of US \$37.16 million per year. France had the lowest annual average export value of US\$ 0.52 million per year.

- ✚ India's export to **tobacco exporting countries**, Belgium had the highest annual average export value of US \$8.11million per year. U.K had the lowest annual average export value of US \$ -0.50 million per year.
- ✚ India's export to **spices exporting countries**, U.S.A had the highest annual average export value of US \$17.43million per year. Yemen (Republic) had the lowest annual average export value of US \$-0.63 and US 0.3 million per year.
- ✚ India's export to **cashew exporting countries**, U.A.E had the highest annual average export value of US \$6.78million per year. Netherlands had the lowest annual average export value of US \$ -0.58million per year.
- ✚ India's export to **oil meals products exporting countries**, Vietnam had the highest annual average export value of US \$12.71million per year. Russia had the lowest annual average export value of US\$ -0.49million per year.
- ✚ India's export to **marine exporting countries**, USA had the highest annual average export value of US \$ 49.30million per year. Japan had the lowest annual average export value of US \$-1.81million per year.

ANNUAL AVERAGE GROWTH RATE

- ✚ The growth rate of the exports of **tea exporting countries** concerned, Iran had the top most growth rate of 11.7 per cent per year The lowest export growth rate was witnessed in Poland which had -3.6 per cent per annum.
- ✚ The growth rate of the exports of **coffee exporting countries** concerned, Belgium had the top most growth rate of 14.8 per cent per year. The lowest export growth rate was witnessed in USA which had 0.6per cent per annum.
- ✚ The growth rate of the exports of **rice exporting countries** concerned, U.A.E had the top most growth rate of 15.2 per cent per year. The lowest export growth rate was witnessed in France which had 4.3 per cent per annum.
- ✚ The growth rate of the exports of **tobacco exporting countries** concerned, Belgium had the top most growth rate of 14.1per cent per year. The lowest export growth rate was

witnessed in U.K which had -.2.8 per cent per annum.

- ✚ The growth rate of the exports of **spices exporting countries** concerned, Saudi Arabia had the top most growth rate of 14.0 per cent per year; the lowest export growth rate was witnessed in Japan which had 8.4 per cent per annum.
- ✚ The growth rate of the exports of **cashew exporting countries** concerned, Saudi Arabia had the top most growth rate of 15.6 per cent per year. The lowest export growth rate was witnessed in UK which had -0.4 per cent per annum.
- ✚ The growth rate of the exports of **oil meals exporting countries** concerned, Japan had the top most growth rate of 11.3 per cent per year. The lowest export growth rate was witnessed in Singapore which had -12.9 per cent per annum.
- ✚ The growth rate of the exports of **marine exporting countries** concerned, Thailand had the top most growth rate of 12.3 per cent per year. The lowest export growth rate was witnessed in Japan which had -0.4 per cent per annum.

COMPOUND GROWTH RATE

- ✚ The Compound growth rate of **tea exports**, Iran had the highest compound growth rate of 12.5 per cent per annum Germany and UK had the lowest compound growth rate of 2.0 per cent per annum.
- ✚ The Compound growth rate of **coffee exports**, Belgium had the highest compound growth rate of 15.9 per cent per annum. U.K had the lowest compound growth rate of 1.3 per cent per annum.
- ✚ The Compound growth rate of **rice exports**, UAE had the highest compound growth rate of 16.4 per cent per annum and France had the lowest compound growth rate of 4.4 per cent per annum.
- ✚ The Compound growth rate of **tobacco exports**, Belgium had the highest compound growth rate of 15.1 per cent per annum and Russia had the lowest compound growth rate of 2.1 per cent per annum.
- ✚ The Compound growth rate of **spices exports**, Saudi Arabia had the highest compound growth rate of 15.0 per cent per annum and Japan had the lowest compound growth rate of 8.8 per cent per annum.
- ✚ The Compound growth rate of **cashew exports**, Saudi Arabia had the highest compound growth rate of 16.8 per cent per

annum. Israel had the lowest compound growth rate of 0.6 per cent per annum.

- ✚ The Compound growth rate of **oil meal exports**, Japan had the highest compound growth rate of 12.0 per cent per annum and Indonesia had the lowest compound growth rate of 1.0 per cent per annum.
- ✚ The Compound growth rate of **marine exports**, Thailand had the highest compound growth rate of 13.1 per cent per annum and Japan had the lowest compound growth rate of 0.4 per cent per annum.

REFERENCE

- ✚ Agarwal, A.N. (1975), Indian Economy: Problems of Development and Planning, Vikas Publishing House Pvt. Ltd., New Delhi. p. 577.
- ✚ Dr. C Paramasivan, 2 R Pasupathi (2017) "Study on growth and performance of Indian agro based exports", International Journal of Humanities and Social Science Research Volume 3; Issue 9; September 2017; Page No. 01-05 ISSN: 2455-2070, Impact Factor: RJIF 5.22 www.socialsciencejournal.in
- ✚ Dr.RajKumar and Varsha Dadhich (2013) "Growth and Performance of India's Agriculture Export" International Journal of 360o Management Review, Vol. 01, Issue 01, April 2013 ISSN: 2320-7132. IJ360MR, www.ij360mr.com.
- ✚ Mathanraj T and Dr. P. Jaya Prapakaran (2020) India's External Trade in the Post Liberalization Period Studies in Indian Place Names ISSN: 2394-3114 Vol-40-Issue-1-January-2020.
- ✚ Mathanraj.T, (2019), "Impact of trade liberalization on India's manufactured exports" Think India, ISSN: 0971-1260, UGC Approved CARE journal, Volume-22 Issue-4, Impact factor-6.2, October-December 2019.
- ✚ Nageshwara M R and S Srinivas Rao, (2009), Direction of Trade in Indian Agricultural Commodity Exports, Southern Economist, Vol47 (19) pp-23.
- ✚ P. Hari Babu (2017) "Export Performance of Spices in India: An Empirical Study" parikalpana - KIIT Journal of Management Page No. 66-74.
- ✚ Prakash Brahm, Sushila Shrivastava and S Lal, (1995), Impact of New Economic Policy on Export of Agricultural Commodities from India, Indian Journal of Agricultural Economics, Vol50(3), July-Sept.

-  Suresh And Mathur (2016) “Export of Agricultural Commodities from India: Performance and Prospects”*Indian Journal of Agricultural Sciences* 86 (7): 876–83, July 2016/Article.
-  Kumar, S. (2022). Strategic management of carbon footprint using carbon collectible non-fungible tokens (NFTS) on blockchain. *Academy of Strategic Management Journal*, 21(S3), 1-10
-  Kumar, S. (2021). Review of geothermal energy as an alternate energy source for Bitcoin mining. *Journal of Economics and Economic Education Research*, 23(1), 1-12
-  Ritika Malik, AarushiKataria and Naveen Nandal, Analysis of Digital Wallets for Sustainability: A Comparative Analysis between Retailers and Customers, *International Journal of Management*, 11(7), 2020, pp. 358-370.
-  Aarushi, Naveen Nandal, Parul Agrawal. AN EXPLORATORY RESEARCH IN PRODUCT INNOVATION IN AUTOMOBILE SECTOR. *JCR*. 2020; 7(2): 522-529. doi:10.31838/jcr.07.02.98
-  Directorate General of Commercial Intelligence and Statistics (DGCI&S)(Economic survey, 2017),
-  Handbook of Statistics on Indian Economy, Reserve Bank of India (RBI), Government of India.
-  World Trade Organization Trade Statistics 2017,
-  World Bank, United Nations Trade Data, Commodity Trade Statistics.