

*CHAPTER - IV**INDIA'S GEMS AND JEWELLERY EXPORT EXPERIENCE  
WITH ITS TRADE PARTNERS*

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The gems and jewellery industry has a global significance and enjoys a major industry status since the colonial period. India has achieved remarkable progress in the world of gems and jewellery over the last few decades, but it has not been smooth sailing all along. Whatever success India claimed so far, has been achieved by the hard and devoted work of its artisans, expertise of its designers and the business acumen of its entrepreneurs. During the past, the country had to face a lot of difficulties and adverse situations in economic sector but it went to the credit of India's gems and jewellery sector that it never looked back.

India exports gems and jewellery to nearly 160 countries. Among the first ten buyers of India's gems and jewellery the US mostly remained at the top. Other major buyers are Belgium, Hong Kong, Japan, Switzerland, Netherland, the U.K., France, Singapore and Germany. India has also succeeded in reaching some new markets like Turkey, Trinidad, Korea, Cyprus, Finland, Taiwan, Lebanon, Spain, Israel, Sweden and Denmark etc. The ten main overseas market taken together, account for more than 90 per cent exports of the gems and jewellery by India. Gems and jewellery exports of India contribute nearly 20 per cent to country's total foreign exchange earnings.

There is no doubt that during the period from 1990-91 to 2009-10 Indian gems and jewellery exports displayed an appreciable increase. The most noticeable feature is that during the prescribed study period India's gems and jewellery exports increased at a compound rate of 16.59 per cent while Indian total exports registered a growth rate of 17.82 per cent over the same period. However, growth itself is not a virtue, for there remains scope for immense improvement. The growth phenomenon has been accompanied by a high degree of instability caused to a great extent by high degree of product and

market concentration.

In this chapter, the study make an attempt to analyze country-wise as well as product-wise growth trend of gems and jewellery products exports, measurement of associated instability and market concentration. Effects of present reform process on exports of gems and jewellery exports have also been analyzed. In order to measure market concentration, six indices have been used. These are:

- (i) Index of Maximum Proportion ( $D_1$ );
- (ii) Hirschman Herfindhal Index ( $D_2$ );
- (iii) Entropy Index ( $D_3$ );
- (iv) Concentration Ratio of Four Major Countries  $CR_4$  ( $D_4$ );
- (v) Concentration Ratio of Eight Major Countries  $CR_8$  ( $D_5$ );
- (vi) Concentration Ratio of Sixteen Major Countries  $CR_{16}$  ( $D_6$ ).

To fulfill the objectives of the study, the relevant data on India's exports of gems and jewellery products have been collected from the authenticated sources (given in the chapter-I)

The data have been used to calculate the growth rates of the major importing countries from the year 1996-97 to 2009-10 which depicts the comparative analysis of exports to these countries. Further, the importing countries have been categorized into following three categories: Category-I includes countries having greater than 40 per cent growth rates (High Potential); Category-II includes countries having between 10 per cent and 40 per cent growth rates (Middle Potential) and Category-III includes countries having below 10 per cent growth rates (Low Potential). The use of the ranks has also been made in identifying the status of a country within a category that again clearly states the comparative analysis of India's gems and jewellery exports to these countries. In addition, descriptive statistics of gems and jewellery products exports during the study period have also been discussed. For example, coefficients of variations, which are considered as a relative measure of inequality in the gems and jewellery products exports from India show instability in the exports during the study period.

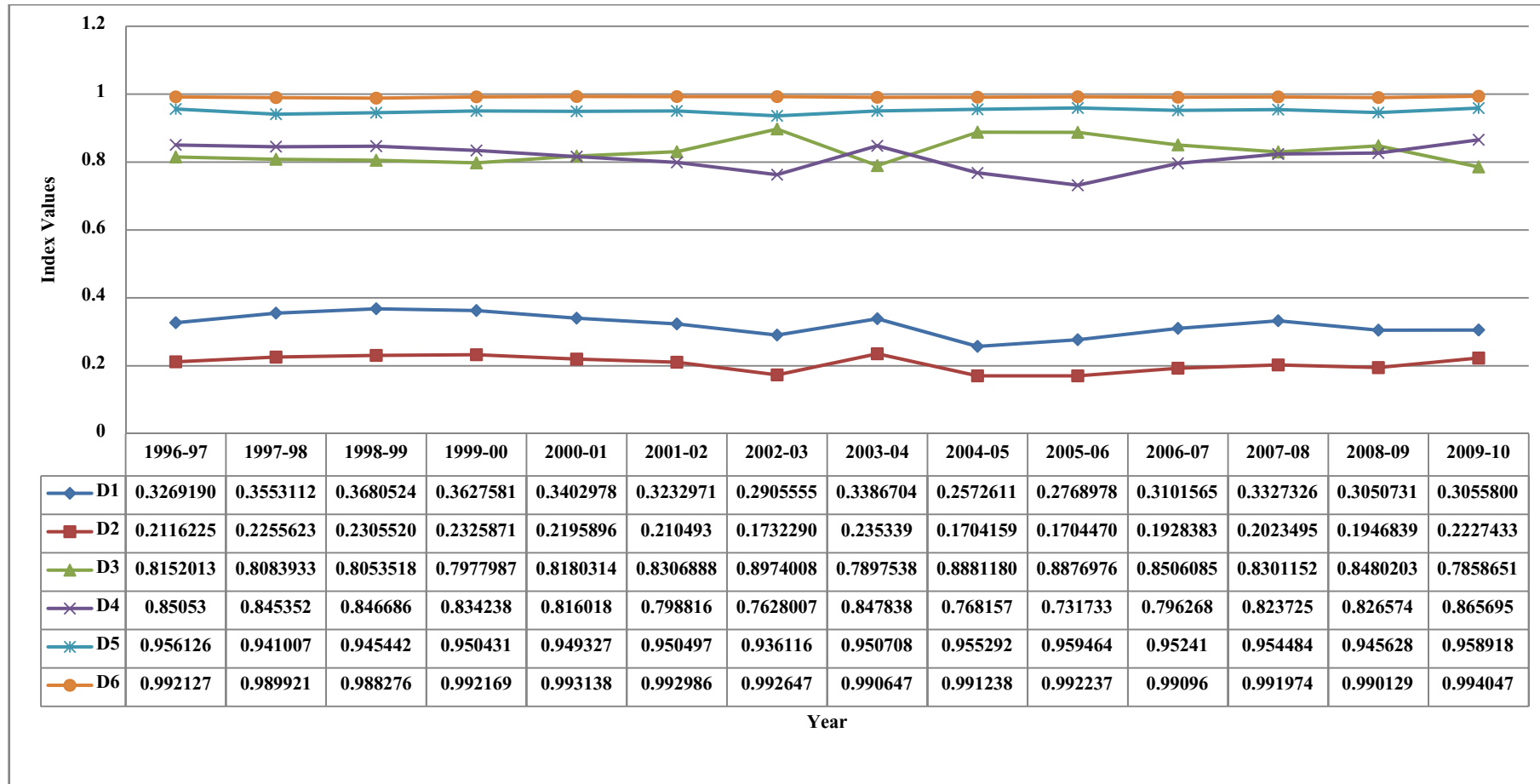
## ANALYTICAL FINDINGS

Figure-4.1 represents the country concentration indices of the exports of cut and polished diamonds among the fifty major importing countries during the period 1996-97 to 2009-10. The indicators below the figure denoted by  $D_1$ ,  $D_2$ ,  $D_3$ ,  $D_4$ ,  $D_5$  and  $D_6$  show Index of Maximum Proportion, Hirschman Herfindhal Index, Entropy Index, the Concentration ratio of four major importing countries, eight major importing countries and sixteen major importing countries, respectively. The figure shows the value of six different measures of concentration of cut and polished diamonds exports. These measures of concentration viz., Index of Maximum Proportion ( $D_1$ ) ranges from 0.257261 to 0.368052, Hirschman Herfindhal Index ( $D_2$ ) ranges from 0.170415 to 0.232587, Entropy Index ( $D_3$ ) ranges from 0.785865 to 0.897400, concentration ratio of four major importing countries  $CR_4$  ( $D_4$ ) ranges from 0.731733 to 0.865695, concentration ratio of eight major importing countries  $CR_8$  ( $D_5$ ) ranges from 0.936116 to 0.959464 and concentration ratio of sixteen major importing countries  $CR_{16}$  ( $D_6$ ) ranges from 0.988276 to 0.994047. Here, the Hirschman Herfindhal Index ( $D_2$ ) indicates the presence of diversification (Low Concentration) of cut and polished diamonds among the various importing countries. The Index  $D_3$  depicts the entropy index of cut and polished diamonds exports over the study period. The higher value of the entropy index indicates valuable information about the concentration of importing countries. Concentration index  $D_6$  represents that it has been almost constant for Germany, the UAE, the UK, France, Australia, Canada, Italy, Japan, Israel, the USA, Hong Kong, Belgium, Thailand, Singapore, Switzerland and Malaysia over the study period except in years 1997-98 and 1998-99. In these years it has been showing decreasing trend.

Table-4.1 exhibits the country wise growth rate for the exports of Indian cut and polished diamonds to the fifty major importing countries during the period 1996-97 to 2009-10. Further, the importing countries have been categorized into the following three categories: Category-I includes countries

Figure – 4.1

## Country Concentration Indices of Cut and Polished Diamonds during the Period 1996-97 to 2009-10



Source: Calculated on the basis of data given in Appendix-I

having greater than 40 per cent growth rates, Category-II includes countries having between 10 per cent and 40 per cent growth rates and Category-III includes countries having below 10 per cent growth rates. Such type of

**Table – 4.1**

**Country-wise Growth Rates of Gems and Jewellery Products of Exports  
(Cut and Polished Diamonds) during the Period from 1996-97 to 2009-10**

(Values in Rs. Lacs)

Category	Country	CAGR	t-value	R <sup>2</sup>	F-value	Ranks
High Potential Category	China P RP	97.80	3.775*	0.542	14.251	1
	Turkey	67.86	7.842*	0.836	61.509	2
	Honduras	46.77	2.481**	0.339	6.159	3
	U A E	45.74	9.177*	0.875	84.224	4
	South Africa	40.46	9.502*	0.882	90.300	5
Middle Potential Category	Chile	34.68	1.646	0.184	2.711	6
	Poland	30.55	1.942**	0.246	3.931	7
	Malaysia	22.71	7.280*	0.815	53.009	8
	Korea RP	19.43	4.548*	0.632	20.692	9
	Italy	18.99	2.058**	0.260	4.237	10
	Australia	18.66	22.877*	0.977	523.384	11
	Israel	17.57	9.812*	0.889	96.291	12
	Singapore	17.54	3.368*	0.485	11.345	13
	Lebanon	17.02	4.873*	0.664	23.753	14
	Greece	16.57	2.390**	0.568	5.716	15
	Hong Kong	15.51	22.670*	0.977	513.962	16
	New Zealand	13.87	11.860*	0.921	140.675	17
	Finland	11.18	2.360**	0.317	5.571	18
	Thailand	9.94	5.964*	0.747	35.575	19
	Belgium	9.55	16.962*	0.959	287.728	20
	U K	8.83	7.350*	0.818	54.026	21
	Canada	8.18	4.951*	0.671	24.518	22
	U S A	7.00	6.401*	0.773	40.983	23

<b>Low Potential Category</b>	Taiwan	6.19	1.401	0.140	1.965	24
	Ukrain	5.65	0.266	0.005	0.071	25
	Switzerland	3.23	1.739	0.201	3.025	26
	France	3.15	2.182**	0.284	4.765	27
	Germany	2.92	2.522*	0.346	6.361	28
	Spain	1.96	0.496	0.020	0.246	29
	Indonesia	0.001	0.000	0.000	0.000	30
	Japan	-1.17	-0.802	0.050	0.643	31
	Ireland	-2.07	-0.342	0.009	0.117	32
	Sri Lanka	-4.14	-0.604	0.029	0.365	33
	Bahrain Is	-4.53	-0.475	0.018	0.226	34
	Netherland	-7.24	-1.137	0.097	1.294	35
	Brazil	-8.30	-0.923	0.066	0.852	36
	Russia	-14.05	-3.037	0.434	9.227	37
	Kuwait	-14.56	-1.865	0.224	3.480	38
	Denmark	-14.88	-1.464	0.151	2.144	39
	Austria	-15.13	-1.511	0.159	2.284	40
	Mauritius	-15.26	-3.375	0.487	11.392	41
	Norway	-19.71	-1.701	0.195	2.915	42
	Qatar	-21.37	-1.431	0.145	2.048	43
	Bangladesh	-23.26	-3.81	0.547	14.528	44
	Portugal	-25.16	-3.444	0.497	11.866	45
	Saudi Arab	-25.96	-2.879	0.408	8.291	46
	Oman	-26.00	-2.230	0.293	4.974	47
Sweden	-26.88	-3.606	0.520	13.004	48	
Cyprus	-29.60	-9.334	0.878	87.133	49	
Maxico	-122.47	-1.811	0.214	3.281	50	

**Source:** Calculated on the basis of data collected from Export Import Data Bank, Director General of Commercial Intelligence and Statistics, Ministry of Commerce, Government of India, Kolkata, Gem and Jewellery Export Promotion Council (GJEPC), Ministry of Commerce and Industry, Government of India, New Delhi.

**Note** \* The coefficients are significant at  $\alpha = 0.01$ .

\*\* The coefficients are significant at  $\alpha = 0.10$ .

classification may be valuable in identifying the high, middle and low potential countries for the purpose of exports of the gems and jewellery products. On the basis of the ranks given for the growth rates, one can conclude that the first five countries like China P RP (97.80), Turkey (67.86), Honduras (46.77), the UAE (45.74) and South Africa (40.46) come in the high potential category, which shows the appreciable progress of India in the exports of cut and polished diamonds among these countries. In addition, next thirteen countries fall in the middle potential category and rest of the countries are of the low potential category. Obviously, the t-values of growth rates, it is found that some of countries are having its positive values while others having as negative values. The Table clearly displays that the most of growth rates are statistically significant at one per cent ( $\alpha = 0.01$ ) level of significance. However, the growth rates of Japan, Ireland, Sri Lanka, Brazil, Russia, Kuwait, Denmark and Norway etc. have been negative and statistically insignificant and all these values are confirmed by t-value, coefficient of determination  $R^2$  and ANOVA (F-value).

The coefficient of variations for the exports of cut and polished diamonds to various countries during the period from 1996-97 to 2009-10 are displayed in the Table 4.2. The column III of the Table shows the mean values of the total exports for the study period. Similarly, column IV depicts standard deviation of the year-wise exports to various countries, which highlights the dispersion among the importing countries. The last column of the Table provides coefficients of variations, which is considered as relative measures of inequality in cut and polished diamonds exports of India. The mean value of year-wise exports of cut and polished diamonds have increased from 2,883.354 to 1,69,823.951 which is almost fifty nine times increase from the year 1996-97 to 2009-10. Further, absolute dispersion measured by standard deviation has increased from 89,998.778 to 5,46,190.546 which is six folds increase in fourteen years (1996-97 to 2009-10) Likewise, the coefficients of variations during the study period have been of fluctuating nature. However, one may conclude that the stability over the study period in exports of cut and polished diamonds has improved. It is

**Table – 4.2**  
**Descriptive Statistics of Exports of Cut and Polished Diamonds during**  
**the Period from 1996-97 to 2009-10**

(Values in Rs. Lacs)

I	II	III	IV	V
Sr. No.	Year	Mean	Standard Deviation	Coefficient of Variations
1	1996-97	2883.354	89998.778	312.676
2	1997-98	32142.187	104092.445	323.849
3	1998-99	40251.458	131926.877	327.756
4	1999-00	56229.261	185123.723	329.336
5	2000-01	56478.895	180230.013	319.110
6	2001-02	56405.934	175847.514	311.753
7	2002-03	80955.316	226353.835	279.603
8	2003-04	68507.838	227077.223	331.461
9	2004-05	92472.353	256171.460	277.024
10	2005-06	102364.404	283604.268	277.053
11	2006-07	95498.257	283587.749	296.955
12	2007-08	113536.464	346305.695	305.017
13	2008-09	142723.193	426081.853	298.537
14	2009-10	169823.951	546190.546	321.621

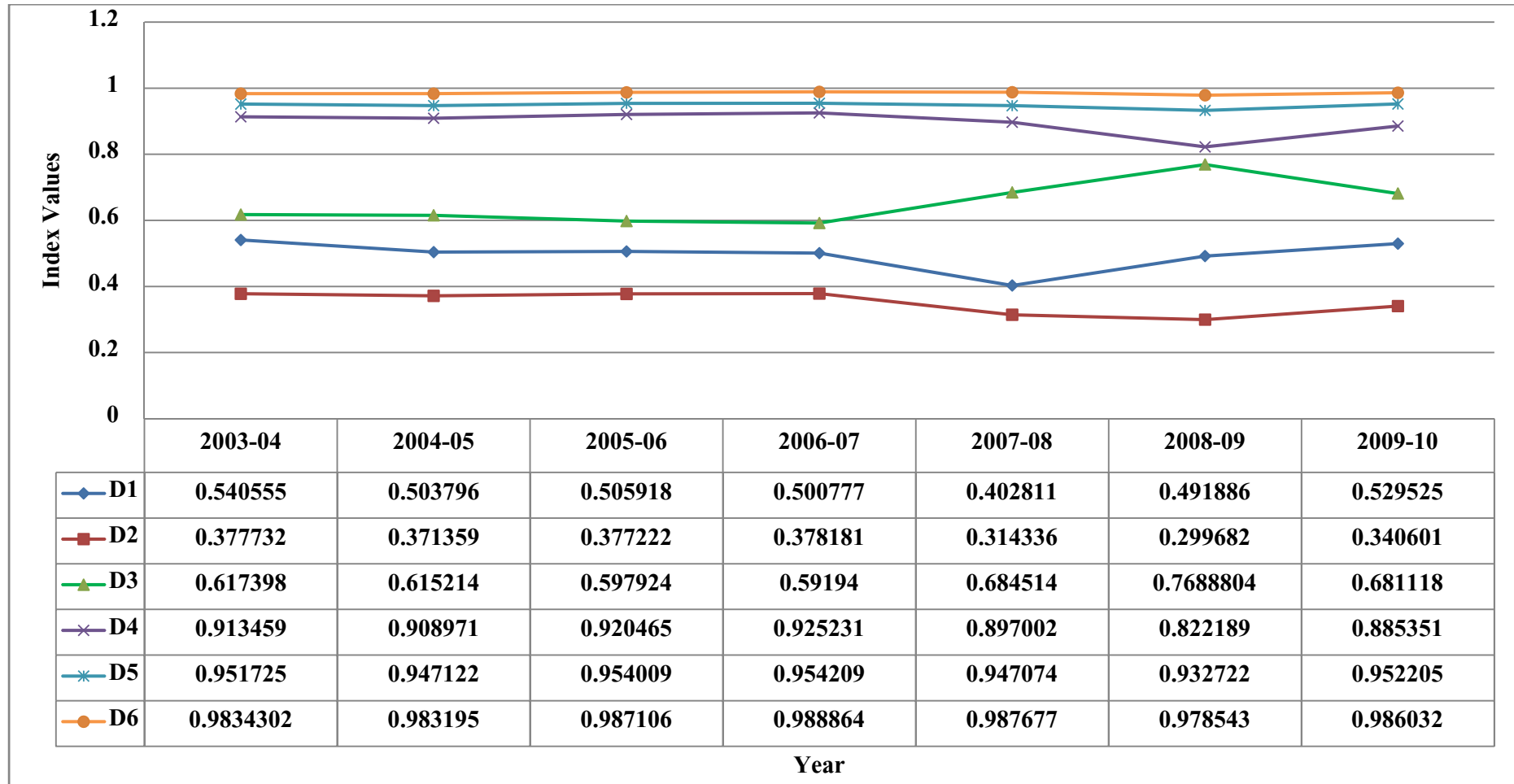
Source: *Ibid.*, Table-4.1

because in the year 1996-97, the figure was 312.676 and in the year 2009-10 the figure increased to 321.621. Obviously, it signifies the presence of diversification.

Figure-4.2 represents the country concentration indices of the exports of gold jewellery among fifty major importing countries during the period 2003-04 to 2009-10. These measure concentration namely, Index of Maximum Proportion ( $D_1$ ), Hirschman Herfindhal Index ( $D_2$ ), Entropy Index ( $D_3$ ),  $CR_4$  ( $D_4$ ),  $CR_8$  ( $D_5$ ) and  $CR_{16}$  ( $D_6$ ) ranges from value 0.402811 to 0.540555, 0.299682 to 0.378181, 0.591940 to 0.768880, 0.822189 to 0.925231,



**Figure – 4.2**  
**Country Concentration Indices of Gold Jewellery during the Period 2003-04 to 2009-10**



**Source:** Calculated on the basis of data given in Appendix-III

0.932722 to 0.952205 and 0.978543 to 0.988864, respectively. Further, index  $D_2$  that has been almost stable in first four years, starts declining after the year 2007-2008 and starts increasing again in 2009-10, which is also displayed in the figure-4.2. The index  $D_3$  that measures the information about the concentration of the group has been declining in first four years and of fluctuating nature during rest of the years. In addition, the concentration ratio  $CR_4$  ( $D_4$ ),  $CR_8$  ( $D_5$ ) and  $CR_{16}$  ( $D_6$ ) also indicate almost stable exports of gold jewellery for these countries in the International market.

The country-wise growth rates for the exports of gold jewellery among the fifty major importing countries during the period 2003-04 to 2009-10 are shown in Table-4.3. A careful examination of the Table reveals that the first eight countries like China P RP, Poland, Hong Kong, France, Korea RP, Saudi Arab, Australia and South Africa come in the high potential category, which demonstrate an enormous potential market for the India's exports of gold jewellery. Further, twenty seven countries fall in the middle potential category and last fifteen countries come in the low potential category. It is clear from the Table that t-values of growth rates of Ireland, Nepal, Lebanon, Cyprus, Fiji Is, Taiwan and Kenya have been negative and statistically insignificant and all these values are confirmed by t-value and  $R^2$ .

**Table – 4.3**

**Country-wise Growth Rates of Gems and Jewellery Products of Exports (Gold Jewellery) during the Period from 2003-04 to 2009-10**

(Values in Rs. Lacs)

Category	Country	CAGR	t-value	$R^2$	F-value	Ranks
High Potential Category	China P RP	256.90	4.574*	0.807	20.922	1
	Poland	212.13	5.088*	0.838	25.896	2
	Hong Kong	75.52	24.378*	0.991	594.321	3
	France	71.09	2.960**	0.636	8.763	4
	Korea RP	58.26	1.642	0.350	2.698	5
	Soudi Arab	46.28	3.969*	0.759	15.755	6
	Australia	42.07	10.351*	0.955	107.155	7

	South Africa	41.74	5.442*	0.855	29.621	8
Middle Potential Category	Singapore	37.12	3.922*	0.754	15.382	9
	Spain	36.94	4.263*	0.784	18.178	10
	U.A.E.	34.47	7.781*	0.923	60.557	11
	Italy	33.63	5.598*	0.862	31.348	12
	Qatar	31.50	2.610**	0.576	6.815	13
	Canada	29.93	4.490*	0.801	20.164	14
	Indonesia	28.02	0.880	0.134	0.774	15
	Maxico	26.84	0.825	0.120	0.681	16
	Greece	26.72	0.768	0.105	0.590	17
	Bahrain Is	25.01	1.491	0.307	2.225	18
	Israel	23.96	2.708**	0.594	7.336	19
	Austria	22.42	2.615**	0.577	6.840	20
	Thailand	21.98	4.601*	0.808	21.173	21
	Finland	21.85	1.266	0.242	1.603	22
	Sri Lanka	21.25	1.199	0.223	1.439	23
	New Zealand	21.02	3.334**	0.689	11.116	24
	Germany	20.54	3.343**	0.691	11.182	25
	Portugal	20.11	0.758	0.103	0.575	26
	Phillipines	19.67	0.392	0.029	0.154	27
	Belgium	19.05	2.713**	0.595	7.364	28
	Norway	18.90	1.963**	0.435	3.855	29
	Denmark	17.99	1.410	0.284	1.988	30
	Brazil	17.25	0.357	0.024	0.127	31
	Netherland	15.52	1.078	0.188	1.162	32
Georgia	14.63	0.923	0.145	0.852	33	
Oman	11.57	0.125	0.003	0.015	34	
Kuwait	10.55	0.568	0.060	0.323	35	
	U.K.	9.55	2.608**	0.576	6.802	36
	Malaysia	7.46	1.005	0.168	1.010	37
	Turkey	7.29	1.009	0.169	1.019	38

Low Potential Category	Switzerland	6.53	0.638	0.075	0.407	39
	Mauritius	6.51	0.560	0.059	0.314	40
	Sweden	5.81	0.451	0.039	0.203	41
	Japan	4.84	0.615	0.070	0.379	42
	U.S.A.	3.23	0.743	0.099	0.552	43
	Ireland	-0.00	-0.000	0.000	0.000	44
	Nepal	-1.59	-0.041	0.0003	0.001	45
	Lebanon	-3.32	-0.175	0.006	0.030	46
	Cyprus	-15.88	-1.047	0.179	1.096	47
	Fiji Is	-22.95	-3.602	0.721	12.975	48
	Taiwan	-42.02	-3.458	0.705	11.959	49
	Kenya	-63.09	-1.841	0.404	3.391	50

Source: *Ibid.*, Table-4.1

Note \* The coefficients are significant at  $\alpha = 0.01$ .

\*\* The coefficients are significant at  $\alpha = 0.10$ .

Table-4.4 demonstrates the descriptive statistics of the gold jewellery exports to various importing countries during the period from 2003-04 to 2009-10. The column III of the Table represents the mean values of exports of the study period. Further, column IV represents standard deviation of the exports to various importing countries for these years, which signifies the dispersion among the importing countries. The last column of the Table displays coefficients of variations, which is considered as relative measures of inequality in the exports of India's gold jewellery. The mean values of year-wise gold jewellery exports have increased from 16,893.034 to 55,143.391 which is three times increase from the year 2003-04 to 2009-10. Similarly, the absolute dispersion measured by standard deviation has increased from 72,170.397 to 2,23,022.136 which has almost four times increased over the study period. The coefficients of variations during the study period have been of fluctuating nature. The figure of coefficient of variations was 427.219 in 2003-04 and in 2009-10, the figure reduced 404.440, which means the reduction in the inequality of the exports of gold jewellery. It may be considered as a good sign for the Indian economy.

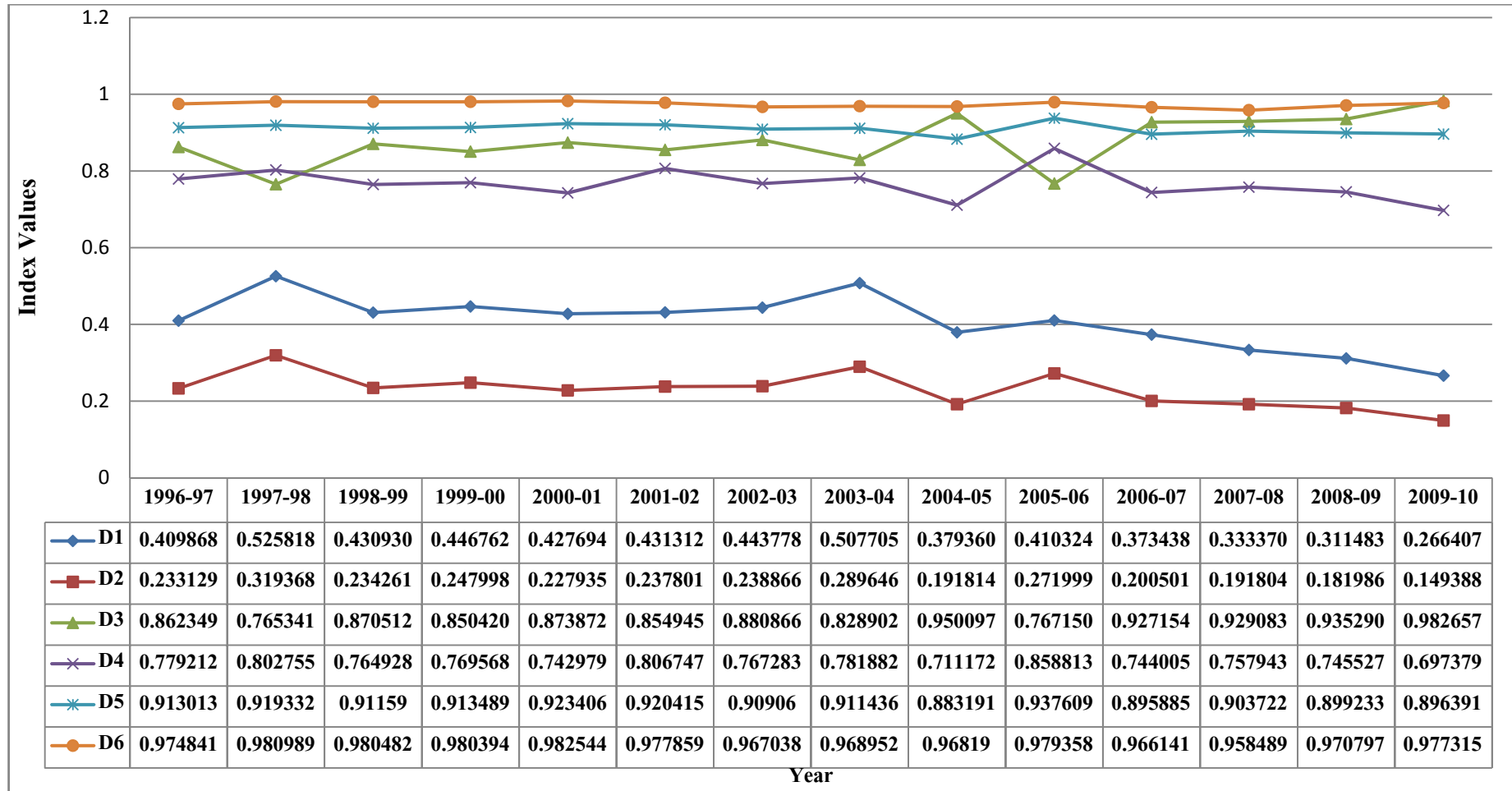
**Table – 4.4**  
**Descriptive Statistics of Exports of Gold Jewellery during the Period**  
**from 2003-04 to 2009-10**

(Values in Rs. Lacs)				
I	II	III	IV	V
Sr No.	Year	Mean	Standard Deviation	Coefficients of Variation
1	2003-04	16893.034	72170.397	427.219
2	2004-05	25779.879	10801.929	418.985
3	2005-06	27775.373	118577.145	426.914
4	2006-07	37869.094	161885.598	427.487
5	2007-08	34351.917	133120.630	387.520
6	2008-09	61918.147	233895.984	377.750
7	2009-10	55143.391	223022.136	404.440

Source: *Ibid.*, Table-4.1

Figure-4.3 exhibits the country concentration indices of the exports of coloured gemstones among the fifty major countries again during the period 1996-97 to 2009-10. In the figure, the different measures of concentration namely, Index of Maximum Proportion ( $D_1$ ) Hirschman Herfindhal Index ( $D_2$ ), Entropy Index ( $D_3$ ), concentration ratio of four major importing countries  $CR_4$  ( $D_4$ ), concentration ratio of eight major importing countries  $CR_8$  ( $D_5$ ) and concentration ratio of sixteen major importing countries  $CR_{16}$  ( $D_6$ ) ranges from 0.266407 to 0.525818, 0.149388 to 0.289646, 0.765341 to 0.982657, 0.697379 to 0.858813, 0.883191 to 0.937609 and 0.958489 to 0.982544, respectively. After analyzing the figure-4.3, it has been observed that the index  $D_2$  displays the presence of diversification (Low Concentration) of coloured gemstones exports among the various importing countries. Further, index  $D_3$  measures the information about the concentration of the group has been of fluctuating nature over the study period. The concentration ratio  $CR_4$  ( $D_4$ ) in the figure illustrates low concentration in the first four major importing countries of coloured gemstones. These countries are the USA, Hong Kong, Thailand and Japan.

**Figure – 4.3**  
**Country Concentration Indices of Coloured Gemstones during the Period 1996-97 to 2009-10**



Source: Calculated on the basis of data given in Appendix-V

Furthermore, the concentration ratio  $CR_8 (D_5)$  and  $CR_{16} (D_6)$  indicate high concentration for the exports of coloured gemstones in the first eight and then sixteen countries of the world.

On the pattern of earlier Tables, Table-4.5 illustrates the country-wise growth rates of the exports of coloured gemstones to fifty major importing countries during the period 1996-97 to 2009-10. The Table represents that the Turkey (68.75), China P RP (45.40), Indonesia (42.77), and Lebanon (40.25) are falling in the first high potential category.

Therefore, growth rate of the above countries signifies a lucrative market for the Indian coloured gemstones. Further, the next twenty-one countries come in the second potential category, which indicates the increasing exports trend of coloured gemstones in this group. The category of low potential countries consists of Qatar, the UK, Hong Kong, Japan, Netherland, Germany, Australia, Oman, Canada, Spain, the USA, Finland, Greece, New Zealand, Egypt, Mauritius, Belgium, Switzerland, France, Norway, Cyprus, Sweden, Kenya, Phillipines and Austria. After examining the t-values, most of the growth rates are statistically significant at one per cent ( $\alpha = 0.01$ ) level of significance. However, the growth rates of Egypt, Mauritius, Belgium, France, Norway, Cyprus, Sweden, Kenya and Austria are negative and statistically insignificant. All these values are confirmed by the t-values and  $R^2$ .

**Table – 4.5**

**Country-wise Growth Rates of Gems and Jewellery Products of Exports (Coloured Gemstones) during the Period from 1996-97 to 2009-10**

(Values in Rs. Lacs)

Category	Country	CAGR	t-value	$R^2$	F-value	Ranks
High Potential Category	Turkey	68.75	6.120*	0.757	37.465	1
	China P RP	45.40	6.603*	0.784	43.604	2
	Indonesia	42.77	4.500*	0.628	20.258	3
	Lebanon	40.25	6.202*	0.762	38.467	4
	Czech Republic	29.64	5.985*	0.749	35.820	5
	Nepal	29.14	3.063*	0.438	9.383	6

Middle Potential Category	Poland	25.65	5.434*	0.711	29.538	7
	Maxico	24.14	3.352*	0.483	11.240	8
	Ireland	24.09	2.797**	0.394	7.823	9
	South Africa	23.41	7.088*	0.807	50.245	10
	U.A.E.	21.52	5.199*	0.692	27.038	11
	Korea RP	21.29	6.866*	0.797	47.144	12
	Kuwait	19.94	2.040**	0.257	4.162	13
	Denmark	19.92	6.571*	0.782	43.186	14
	Taiwan	19.41	5.569*	0.721	31.019	15
	Portugal	18.61	2.130**	0.274	4.540	16
	Singapore	18.40	2.001*	0.250	4.004	17
	Sri Lanka	17.09	2.643*	0.368	6.988	18
	Malaysia	16.18	1.570	0.170	2.467	19
	Israel	15.45	8.463*	0.856	71.625	20
	Saudi Arab	15.04	1.683	0.190	2.832	21
	Thailand	14.74	3.900*	0.559	15.217	22
	Brazil	12.76	1.054	0.084	1.111	23
	Bahrain Is	12.14	2.053**	0.260	4.216	24
	Italy	11.02	3.586*	0.517	12.864	25
	Qatar	8.43	0.813	0.052	0.661	26
	U. K.	7.80	4.215*	596.00	17.769	27
	Hong Kong	7.65	4.573*	0.635	20.921	28
	Japan	6.30	2.309**	0.307	5.335	29
	Netherland	5.53	1.763	0.205	3.110	30
	Germany	5.45	3.596*	0.518	12.933	31
Australia	4.64	2.609**	0.362	6.811	32	
Oman	3.91	0.425	0.014	0.180	33	
Canada	3.42	1.709	0.195	2.922	34	
Spain	3.18	1.292	0.122	1.669	35	
U.S. A.	3.13	2.336**	0.312	5.460	36	
Finland	2.88	0.448	0.016	0.201	37	



	Greece	1.55	0.447	0.016	0.200	38
	New Zealand	1.50	0.310	0.007	0.096	39
	Egypt	-0.56	-0.036	0.001	0.001	40
	Mauritius	-0.86	-0.156	0.002	0.024	41
	Belgium	-1.60	-0.561	0.025	0.315	42
	Switzerland	-2.38	-0.840	0.055	0.706	43
	France	-3.11	-0.688	0.038	0.474	44
	Norway	-5.74	-1.462	0.151	2.139	45
	Cyprus	-8.48	0.107	0.053	0.674	46
	Sweden	-8.77	-2.641	0.367	6.979	47
	Kenya	-10.21	-0.779	0.048	0.607	48
	Phillipines	-10.99	-1.882	0.227	3.542	49
	Austria	-15.17	-4.159	0.590	17.301	50

Source: *Ibid.*, Table-4.1

Note \* The coefficients are significant at  $\alpha = 0.01$ .

\*\* The coefficients are significant at  $\alpha = 0.10$ .

The coefficient of variations for the exports of coloured gemstones to various countries during the period from 1996-97 to 2009-10 are displayed in the Table 4.6. The column III of the table demonstrates the mean values of exports for respective years. Similarly, column IV illustrates standard deviations of the exports of coloured gemstones to various importing countries for respective years, which shows the dispersion among the importing countries. The last column of the table shows coefficients of variations that are reflected as relative measures of inequality in the exports of India's coloured gemstones. The mean value of year-wise coloured gemstones exports has increased from 1,002.311 to 3,432.884 which is almost four times increase from the year 1996-97 to 2009-10. Further, the absolute dispersion measured by standard deviation has increased from 3305.189 to 8820.206 which is almost three times increase over the study period. The coefficients of variations in these years have been of fluctuating nature. However, one may conclude that the stability over the study period in the exports of coloured gemstones has to some degree, improved. It is because in the year 1996-97 the figure of coefficient of variations was 329.756 and in

the year 2009-10 the figure reduced to 256.932. It means the reduction in the inequality at the exports of coloured gemstones improved the stability of the gems and jewellery exports of the country.

**Table – 4.6**

**Descriptive Statistics of Exports of Coloured Gemstones during the  
Period from 1996-97 to 2009-10**

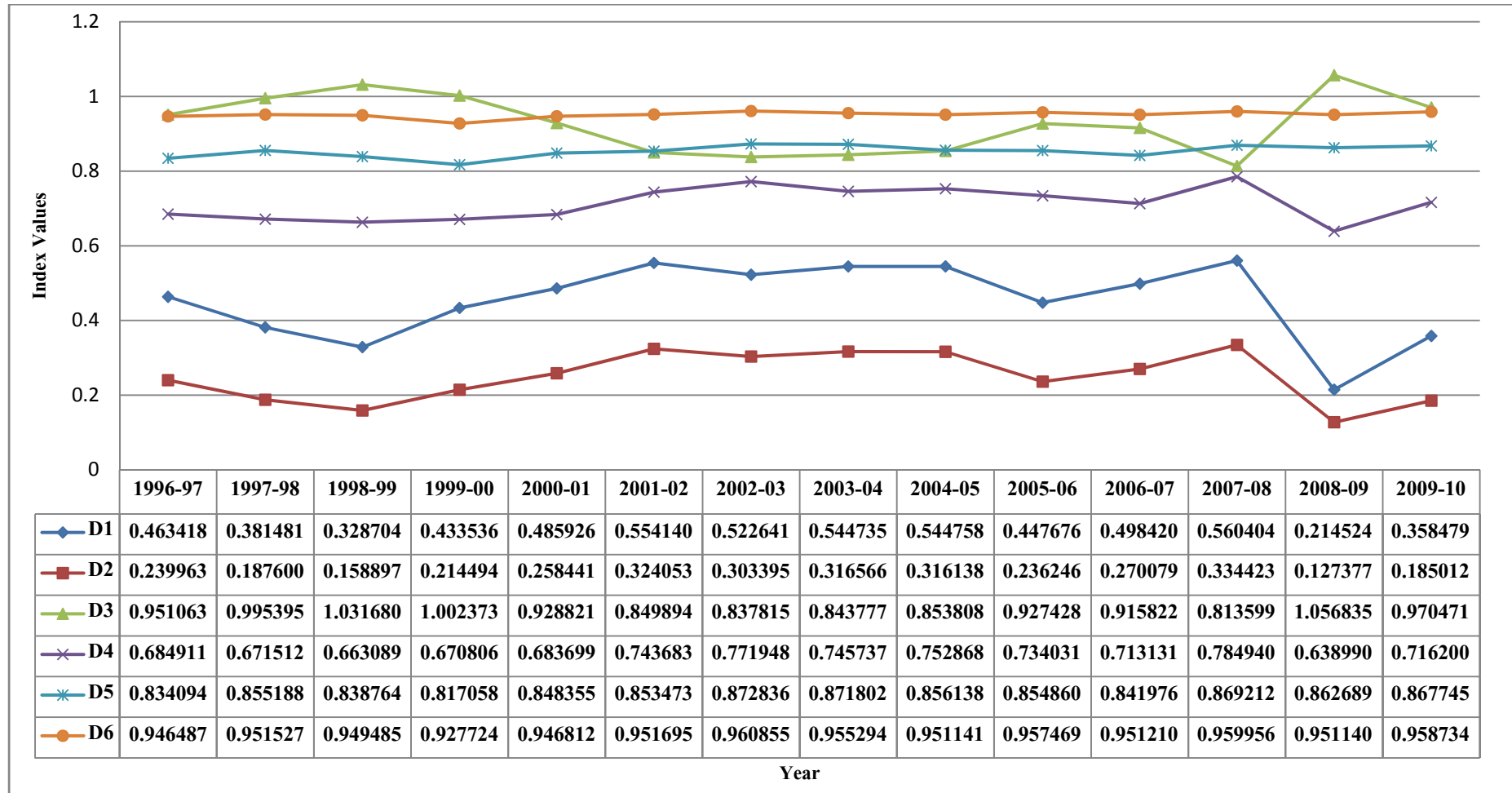
(Values in Rs. Lacs)

I	II	III	IV	V
Sr. No.	Year	Mean	Standard Deviation	Coefficient of Variations
1	1996-97	1002.311	3305.189	329.756
2	1997-98	1162.024	4541.408	390.818
3	1998-99	1751.892	5792.298	330.631
4	1999-00	1897.648	6472.222	341.065
5	2000-01	1963.966	6396.903	325.713
6	2001-02	1914.226	6381.097	333.351
7	2002-03	2145.453	7169.367	334.165
8	2003-04	1930.014	7158.630	370.910
9	2004-05	2139.258	6333.809	296.074
10	2005-06	3421.945	12270.010	358.568
11	2006-07	2356.141	7150.119	303.467
12	2007-08	2187.480	6476.396	296.066
13	2008-09	2516.695	7235.059	287.482
14	2009-10	3432.884	8820.206	256.932

Source: *Ibid.*, Table-4.1

Figure-4.4 represents the country concentration indices of the exports of non-gold jewellery among the fifty importing countries during the period 1996-97 to 2009-10. The figure shows the values of six different measures of concentration viz., Index of Maximum Proportion ( $D_1$ ) ranges from 0.214524 to 0.560404, Hirschman Herfindhal Index ( $D_2$ ) ranges from 0.127377 to 0.334423, Entropy Index ( $D_3$ ) concentration ratio of four major importing

**Figure – 4.4**  
**Country Concentration Indices of Non-Gold Jewellery during the Period 1996-97 to 2009-10**



**Source:** Calculated on the basis of data given in Appendix-VII

countries  $CR_4 (D_4)$  ranges from 0.663089 to 0.784940, concentration ratio of eight major importing countries  $CR_8 (D_8)$  ranges from 0.817058 to 0.872836 and concentration ratio of sixteen major importing countries  $CR_{16} (D_{16})$  ranges from 0.927724 to 0.960855. Subsequently, index  $D_2$  shows the low concentration of non-gold jewellery among the various importing countries of the world. Further, index  $D_3$  depicts the higher values of the entropy index that indicates high concentration of India's non-gold jewellery exports in the year 2009-08. Apparently, It is clear from the figure that the concentration measure  $CR_{16} (D_{16})$  shows high concentration figures in comparison to  $CR_4 (D_4)$  and  $CR_8 (D_8)$  index.

Table-4.7 explores the growth rates of the exports of Indian non-gold jewellery to the fifty major importing countries for the period 1996-97 to 2009-10. A close study leads us to believe that the growth rates of China P RP (65.61), Poland (53.32), Thailand (45.79), Bahrain Is (43.64), Mauritius (43.23), Finland (42.45), Lebanon (40.33) are falling in the high potential category. Thus, it shows the high demand for India's gold jewellery exports to above these countries. Further, next thirty three importing countries come in the middle potential category. In addition, growth rates of Argentina, Oman, Indonesia, Cyprus, Greece, Taiwan, Trinidad, Czech Republic, Austria and Kuwait come in the low potential category. From the Table it is clear that some of countries are having their positive values while others having as negative t-values. After examining the t-values, most of the growth rates are statistically significant at one per cent ( $\alpha = 0.01$ ) level of significance. Similarly, the growth rates for Japan, Croatia, Chile, Saudi Arab, Slovenia, Italy and Oman have been positive and significant at ten per cent ( $\alpha = 0.10$ ) level of significance. However, the growth rates of some countries have been negative and statistically insignificant and all these values are confirmed by t-value, ANOVA (F-value) and  $R^2$ . Subsequently, such kind of analytical study for an exporting product is very valuable for knowing the potential of commodity and for taking appropriate decisions.

**Table – 4.7**  
**Country-wise Growth Rates of Gems and Jewellery Products of Exports**  
**(Non-Gold Jewellery) during the Period from 1996-97 to 2009-10**

(Values in Rs. Lacs)

Category	Country	CAGR	t-value	R <sup>2</sup>	F-value	Ranks
<b>High Potential Category</b>	China P RP	65.61	3.029*	0.433	9.178	1
	Poland	53.32	5.492*	0.715	30.162	2
	Thailand	45.79	4.190*	0.594	17.558	3
	Bahrain Is	43.64	5.232*	0.695	27.381	4
	Mauritius	43.23	3.699*	0.532	13.683	5
	Finland	42.45	3.725*	0.536	13.876	6
	Lebanon	40.33	3.347*	0.482	11.207	7
<b>Middle Potential Category</b>	South Africa	38.63	7.413*	0.820	54.953	8
	Portugal	37.27	10.368*	0.899	107.479	9
	Turkey	34.10	4.726*	0.650	22.341	10
	Australia	34.06	5.008*	0.676	25.084	11
	Hong Kong	33.92	4.109*	0.584	16.887	12
	Croatia	32.08	2.366**	0.318	5.599	13
	Sweden	31.48	4.168*	0.591	17.378	14
	Japan	30.80	2.962**	0.422	8.774	15
	Israel	30.16	4.846*	0.661	23.484	16
	U.A.E.	29.13	4.207*	0.595	17.699	17
	Germany	28.85	7.840*	0.836	61.475	18
	Ireland	26.42	5.794*	0.736	33.580	19
	Canada	25.08	6.324*	0.769	39.994	20
	Netherland	23.89	6.728*	0.790	42.269	21
	U.S.A.	23.83	6.964*	0.801	48.502	22
	Malaysia	22.00	3.826*	0.549	14.644	23
	Chile	21.55	2.080**	0.265	4.329	24
U.K.	21.52	4.717*	0.649	22.252	25	
Saudi Arab	21.48	2.317**	0.309	5.368	26	
Switzerland	21.30	6.184*	0.761	38.254	27	

	Belgium	21.02	3.682*	0.530	13.560	28
	New Zealand	19.31	5.268*	0.698	27.755	29
	Slovenia	17.32	2.102**	0.269	4.421	30
	Singapore	16.60	3.084*	0.442	9.513	31
	Fiji Is	16.43	1.606	0.176	2.579	32
	France	16.32	5.239*	0.695	27.447	33
	Korea RP	16.21	1.538	0.164	2.365	34
	Brazil	14.92	1.480	0.154	2.192	35
	Denmark	14.19	4.580*	0.636	20.978	36
	Hungary	14.11	1.323	0.127	1.750	37
	Spain	13.35	6.210*	0.762	38.57	38
	Norway	10.69	1.462	0.151	2.138	39
	Italy	10.39	2.299**	0.305	5.286	40
<b>Low Potential category</b>	Argentina	9.88	1.049	0.084	1.100	41
	Oman	7.77	2.042**	0.258	4.173	42
	Indonesia	5.49	0.434	0.015	0.188	43
	Cyprus	5.41	0.664	0.035	0.440	44
	Greece	1.55	0.579	0.027	0.336	45
	Taiwan	0.02	0.003	0.000	0.000	46
	Trinyded	-0.56	-0.049	0.000	0.002	47
	Czech Republic	-1.29	-0.148	0.001	0.022	48
	Austria	-3.92	-0.492	0.019	0.243	49
	Kuwait	-12.75	-0.990	0.075	0.981	50

Source: *Ibid.*, Table-4.1

Note \* The coefficients are significant at  $\alpha = 0.01$ .

\*\* The coefficients are significant at  $\alpha = 0.10$ .

Table 4.8 demonstrates the descriptive statistics of non-gold jewellery exports to importing countries during the period 1996-97 to 2009-10. The mean values of exports for the study period have been displayed in column III. Likewise, standard deviations of the exports to various countries for the period have been depicted in the column IV. The last column of the Table provides coefficients of variations. Year-wise mean values of non-gold

jewellery has increased from 91.530 to 2,238.680 which is twenty four times increase from the year 1996-97 to 2009-10. Similarly, the absolute dispersion measured by standard deviation has increased from 306.629 to 6,495.657, which is twenty one times increase from the year 1996-97 to 2009-10.

**Table – 4.8**  
**Descriptive Statistics of Exports of Non- Gold Jewellery during the**  
**Period from 1996-97 to 2009-10**

(Values in Rs. Lacs)

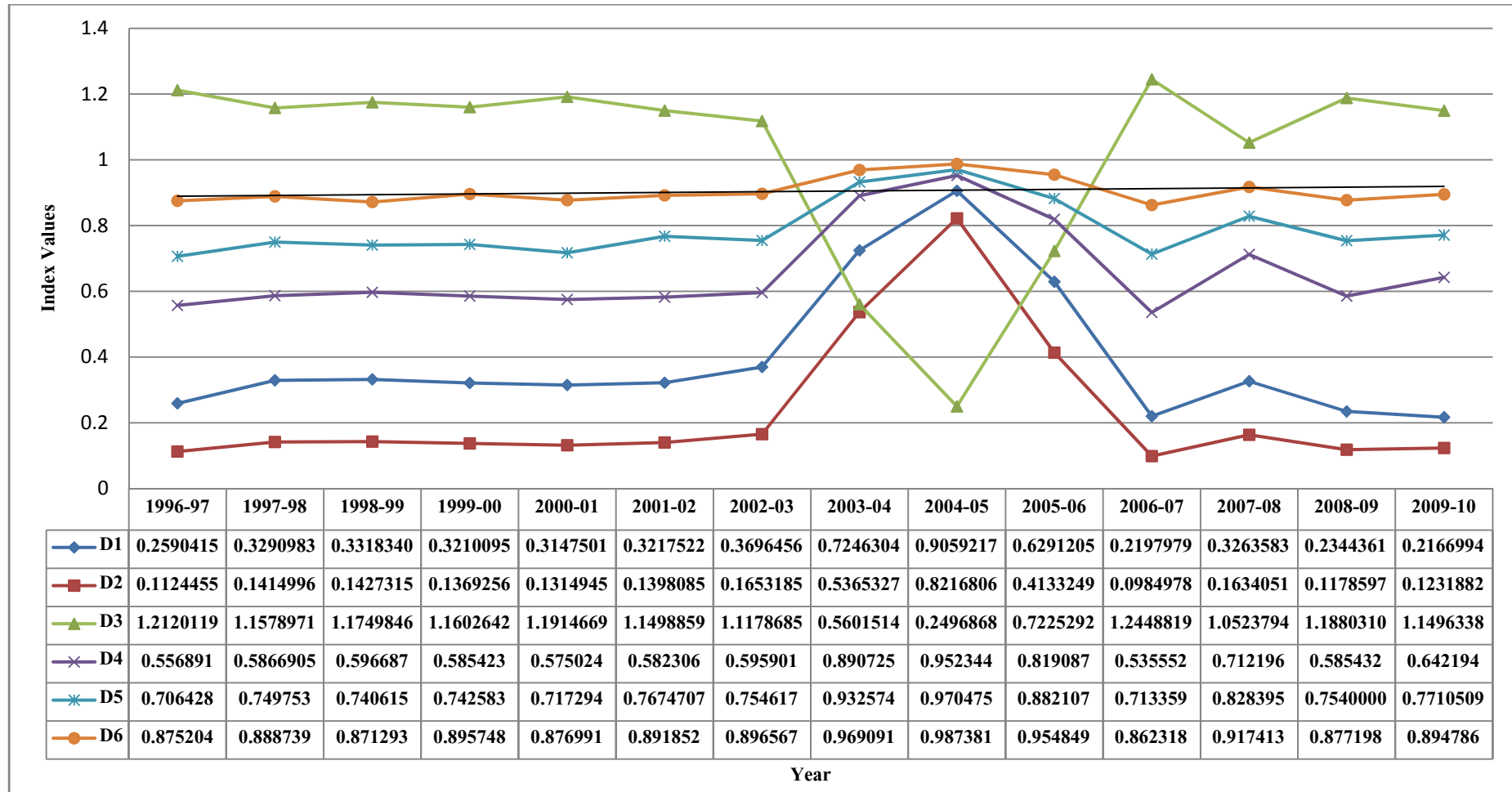
I	II	III	IV	V
Sr. No.	Year	Mean	Standard Deviation	Coefficient of Variations
1	1996-97	91.530	306.629	335.001
2	1997-98	90.916	265.860	292.421
3	1998-99	457.009	1216.591	266.206
4	1999-00	244.265	769.463	315.011
5	2000-01	348.862	1216.790	348.788
6	2001-02	557.386	2195.346	393.864
7	2002-03	833.726	3170.234	380.249
8	2003-04	949.085	3691.797	388.984
9	2004-05	807.117	3137.301	388.704
10	2005-06	703.172	2335.681	332.159
11	2006-07	771.388	2755.396	357.199
12	2007-08	810.172	3244.943	400.525
13	2008-09	4170.073	9760.481	234.060
14	2009-10	2238.680	6495.657	290.155

**Source:** *Ibid.*, Table-4.1

The coefficients of variations in these years have been of the fluctuating nature. The figure of coefficient of variations in the year 1996-97 was 335.001 and in the year 2009-10, the figure was 290.155, which means the reduction in inequality of the exports of non-gold jewellery. Obviously, it highlights that the stability over the study period in the exports of non-gold

Figure – 4.5

## Country Concentration Indices of Costume/Fashion Jewellery during the Period 1996-97 to 2009-10



Source: Calculated on the basis of data given in Appendix-IX



jewellery has improved.

Figure-4.5 shows the value of six different measures of concentration of costume/fashion jewellery exports among the fifty major importing countries during the period 1996-97 to 2009-10. These measures of concentration viz., Index of Maximum Proportion ( $D_1$ ) Herfindhal Index ( $D_2$ ), Entropy Index ( $D_3$ ), concentration ratio of four major importing countries  $CR_4$  ( $D_4$ ), concentration ratio of eight importing countries  $CR_8$  ( $D_5$ ), and concentration ratio of sixteen major importing countries  $CR_{16}$  ( $D_6$ ) ranges from value 0.216699 to 0.905921, 0.098497 to 0.821680, 0.249686 to 1.244882, 0.535552 to 0.952344, 0.706428 to 0.970475 and 0.862318 to 0.987381, respectively. Further, in the figure-4.4 index  $D_2$  has been displaying fluctuating nature regarding concentration of the group except the year 2004-05 which is showing the highest value of index  $D_2$ . Index  $D_3$  depicts also the fluctuating information about the concentration except the year 2004-05 which is revealing the lowest value of index  $D_3$ . From the figure, it is clear that the concentration measures  $CR_{16}$  ( $D_6$ ) gives high concentration figures in comparison to  $CR_4$  ( $D_4$ ) and  $CR_8$  ( $D_5$ ) index.

Table-4.9 represents the country-wise growth rates of the exports of Indian costume/fashion jewellery to the fifty major importing countries during the period 1996-97 to 2009-10. It is clear from the Table that the growth rates of Turkey (82.35), Fiji Is (69.49), Portugal (50.77) and Thailand (41.08) are falling in the high potential category which indicates an increasing trend of the exports of costume/fashion jewellery in the above importing countries. Undoubtedly, there is a great potential for exports of costume/fashion jewellery in the markets of the above mentioned countries. Further, thirty five countries come in the middle potential category and the last eleven countries are falling in the low potential category. It is clear from the Table that the most of the growth rates are statistically significant at one per cent ( $\alpha = 0.01$ ) level of significance. Similarly, the growth rates for the UAE, Sweden and Kuwait have been positive and significant at ten per cent ( $\alpha = 0.10$ ) level of significance. However, the t-values of growth rates of

Table – 4.9

**Country-wise Growth Rates of Gems and Jewellery Products of Exports  
(Costume/Fashion Jewellery) during the Period from 1996-97 to 2009-10**

(Values in Rs. Lacs)

Category	Country	CAGR	t-value	R <sup>2</sup>	F-value	Ranks
<b>High Potential Category</b>	Turkey	82.35	6.533*	0.780	42.682	1
	Fiji Is	69.49	4.001*	0.571	16.015	2
	Portugal	50.77	7.343*	0.817	53.925	3
	Thailand	41.08	4.342*	0.611	18.853	4
<b>Middle Potential Category</b>	Spain	38.08	21.175*	0.973	448.412	5
	UAE	37.35	2.924**	0.416	8.550	6
	Greece	36.33	6.363*	0.771	40.489	7
	Egypt	33.91	7.370*	0.819	54.324	8
	Sri Lanka	32.91	5.977*	0.748	35.728	9
	UK	32.69	19.472*	0.969	379.164	10
	Denmark	32.11	6.586*	0.783	43.383	11
	Australia	31.89	7.420*	0.821	55.069	12
	Finland	31.79	4.612*	0.639	21.271	13
	Senegal	30.23	9.599*	0.884	92.148	14
	Poland	27.85	3.765*	0.541	14.178	15
	France	27.73	5.175*	0.690	26.787	16
	Ghana	27.36	5.884*	0.742	34.624	17
	South Africa	26.91	7.701*	0.831	59.312	18
	Austria	26.15	4.257*	0.601	18.127	19
	Germany	25.52	8.3158	0.852	69.143	20
	Netherland	25.22	6.969*	0.801	48.574	21
	Nigeria	24.47	5.088*	0.683	25.897	22
	Sudan	23.99	8.767*	0.864	76.872	23
	Israel	22.98	6.113*	0.756	37.371	24
Canada	20.44	10.469*	0.901	109.615	25	
Italy	20.17	5.764*	0.734	33.234	26	

	Afghanistan	19.40	4.449*	0.662	23.519	27
	New Zeland	19.00	6.984*	0.802	48.784	28
	Switzerland	18.99	4.530*	0.631	20.521	29
	Malaysia	17.11	7.371*	0.819	54.343	30
	Norway	16.38	3.515*	0.507	12.355	31
	Mauritius	15.99	6.626*	0.785	43.915	32
	USA	14.85	8.128*	0.846	66.078	33
	Balgium	14.54	5.438*	0.711	29.58	34
	Swedan	14.17	2.656**	0.370	7.054	35
	Ymen Republic	14.11	6.870*	0.797	47.198	36
	Japan	12.58	4.974*	0.673	24.745	37
	Qatar	11.81	2.065**	0.262	4.265	38
	Tanzania	11.59	3.449*	0.497	11.901	39
<b>Low Potential Category</b>	Kuwait	9.91	1.895**	0.230	3.594	40
	Baharain Is	9.89	1.628	0.180	2.651	41
	Oman	9.37	1.659	0.186	2.753	42
	Kenya	9.00	3.093*	0.443	9.569	43
	Singapore	8.79	1.328	0.128	1.765	44
	Saudi Arab	8.26	4.438*	0.621	19.700	45
	Hong Kong	6.59	1.585	0.173	2.514	46
	Jordan	6.37	0.859	0.057	0.738	47
	Ethiopia	-4.48	-0.670	0.036	0.449	48
	Bangladesh	-9.47	-1.219	0.110	1.486	49
	Russia	-18.40	-2.924	0.416	8.554	50

Source: *Ibid.*, Table-4.1

Note \* The coefficients are significant at  $\alpha = 0.01$ .

\*\* The coefficients are significant at  $\alpha = 0.10$ .

Ethiopia, Bangladesh and Russia have been negative and statistically insignificant and all these values are confirmed by t-value and  $R^2$ .

Table-4.10 represents descriptive statistics of the costume/fashion jewellery exports to various importing countries during the period from 1996-97 to 2009-10. The column III of the table displays the mean values of

costume/fashion jewellery exports for the study period. Similarly, column IV depicts standard deviations of the year-wise exports to various importing countries. The last column of the Table provides coefficient of variations which is considered as relative measures of inequality in gems and jewellery

**Table – 4.10**  
**Descriptive Statistics of Exports of Costume/Fashion Jewellery during**  
**the Period from 1996-97 to 2009-10**

(Values in Rs. Lacs)

I	II	III	IV	V
Sr. No.	Year	Mean	Standard Deviation	Coefficient of Variations
1	1996-97	131.305	285.166	217.177
2	1997-98	184.353	458.997	248.977
3	1998-99	202.717	507.272	250.236
4	1999-00	283.386	692.159	244.245
5	2000-01	386.475	921.765	238.505
6	2001-02	311.054	769.045	247.238
7	2002-03	379.985	1034.662	272.290
8	2003-04	1710.327	8780.111	513.358
9	2004-05	5987.253	38291.317	639.547
10	2005-06	2863.307	12826.722	447.968
11	2006-07	911.391	1823.919	200.124
12	2007-08	1412.133	3819.707	270.491
13	2008-09	1299.607	2903.931	223.446
14	2009-10	1602.657	3677.290	229.449

Source: *Ibid.*, Table-4.1

exports of India. The mean value of year-wise exports of costume/fashion jewellery has increased from 131.305 to 1,602.657 which is twelve times increased from the year 1996-97 to 2009-10. Further, absolute dispersion measured by standard deviation has increased from 285.166 to 3,677.290 which is almost thirteen times increased in fourteen years (1996-97 to 2009-

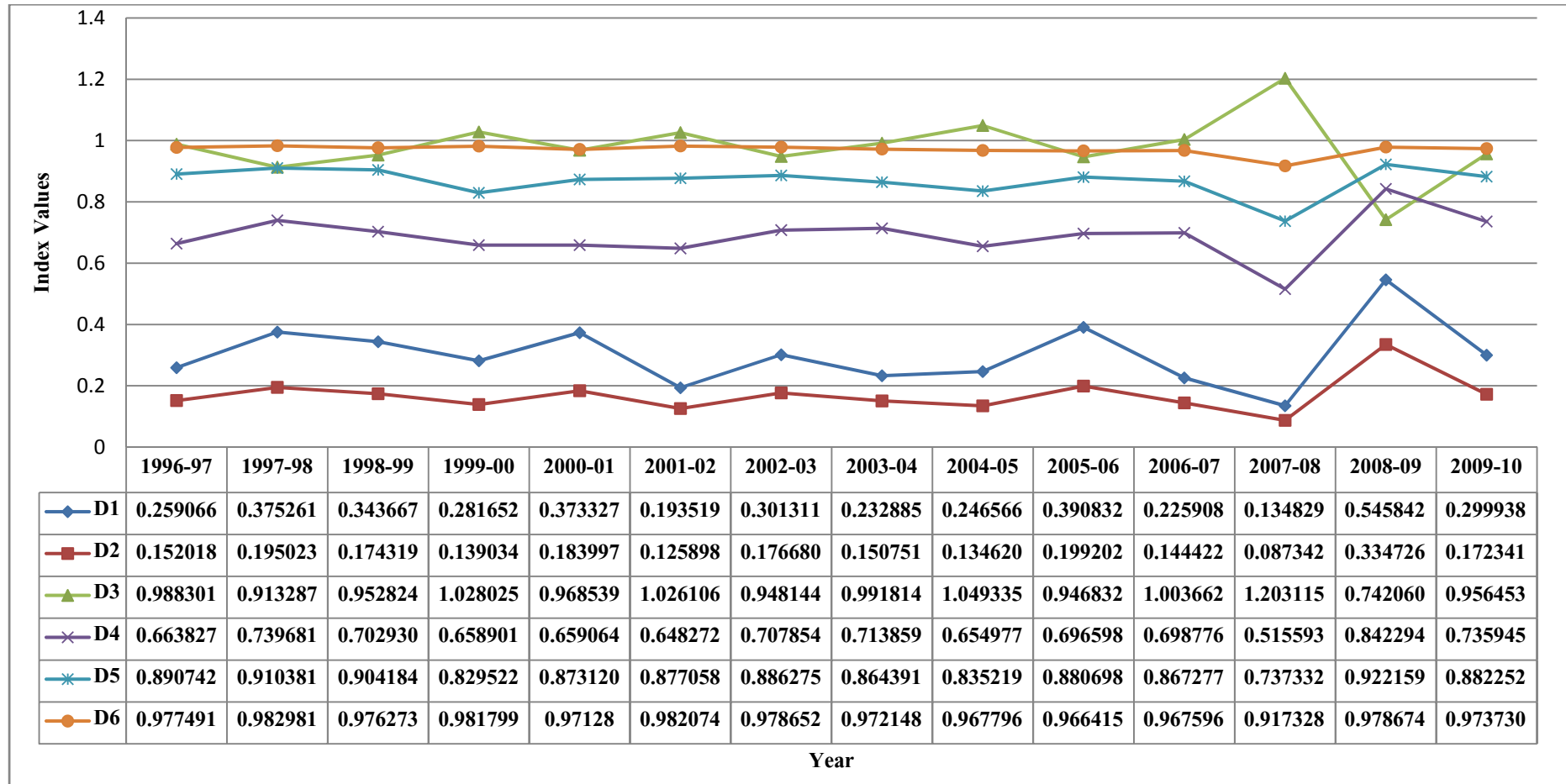
10). Likewise, the coefficients of variations during the study period have been of fluctuating nature. However, one may conclude that the stability during 1996-97 to 2009-10 in the exports of costume/fashion jewellery improved. It is because in the year 1996-97, the figure was 217.177 and in the year 2009-10 the figure increased to 229.449. Obviously, it indicates the presence of diversification of the costume/fashion jewellery exports to various countries of the world.

Figure-4.6 exhibits the country concentration indices of the exports of other gems and jewellery products among the fifty major importing countries for the period 1996-97 to 2009-10. The measures of concentration specifically Index of Maximum Proportion ( $D_1$ ), Hirschman Herfindhal Index ( $D_2$ ), Entropy Index ( $D_3$ ),  $CR_4$  ( $D_4$ ),  $CR_8$  ( $D_5$ ) and  $CR_{16}$  ( $D_6$ ) ranges from 0.134829 to 0.545842, 0.087342 to 0.334726, 0.742060 to 1.203115, 0.515593 to 0.842294, 0.737332 to 0.922159 and 0.917328 to 0.982981, respectively. Index  $D_2$  has been showing mixed nature regarding the concentration of the other gems and jewellery products. Similarly, index  $D_3$  displays the fluctuating information about the concentration over the study period. Further, the concentration index  $D_4$  of this group reveals that it has been almost of constant nature for the countries South Africa, the UAE, the USA and Hong Kong. Likewise,  $D_5$  has been displaying the stable nature except the year 2007-08. In addition,  $D_6$  has also been showing the stable nature for the countries like the USA, Japan, the UAE, Hong Kong, Switzerland, Finland, Thailand, Germany, Bahrain Is, the UK, France, Singapore, Taiwan, Saudi Arab, Italy and Belgium.

On the pattern of earlier Tables, Table-4.11 shows the country-wise growth rates of other gems and jewellery products to fifty major importing countries during the period 1996-97 to 2009-10. The Table displays that the first two countries are falling in the high potential category. Similarly, the next eighteen countries namely, China P RP, Israel, South Africa, Austria, Italy, Armenia, Canada, Indonesia, Belgium, Korea RP, Sweden, Bhamas, Norway, Finland, Hong Kong, Korea DP RP, Greece and Qatar fall in the middle potential category, which indicates the increasing trend of exports of

Figure – 4.6

## Country Concentration Indices of Other Gems and Jewellery Products during the Period 1996-97 to 2009-10



Source: Calculated on the basis of data given in Appendix-XI

Table – 4.11

**Country-wise Growth Rates of Gems and Jewellery Products of Exports  
(Other Gems and Jewellery Products) during the Period from 1996-97 to 2009-10  
(Values in Rs. Lacs)**

Category	Country	CAGR	t-value	R <sup>2</sup>	F-value	Ranks	
High Potential Category	Lebanon	47.01	4.672*	0.645	21.834	1	
	Brazil	44.54	5.194*	0.692	26.979	2	
Middle Potential Category	China P RP	37.09	4.181*	0.592	17.481	3	
	Israel	33.61	3.748*	0.539	14.051	4	
	South Africa	24.81	1.162	0.101	1.351	5	
	Austria	23.55	1.517	0.161	2.303	6	
	Italy	20.09	1.987**	0.247	3.951	7	
	Armenia	20.07	1.684	0.191	2.837	8	
	Canada	18.77	2.560**	0.353	6.558	9	
	Indonesia	16.62	2.186**	0.284	4.782	10	
	Belgium	16.36	0.935	0.068	0.875	11	
	Korea RP	16.13	2.442**	0.331	5.963	12	
	Sweden	14.44	1.871**	0.225	3.502	13	
	Bhamas	13.42	1.021	0.079	1.042	14	
	Norway	13.38	1.303	0.123	1.698	15	
	Finland	13.07	1.048	0.083	1.098	16	
	Hong Kong	12.57	2.009**	0.251	4.037	17	
	Korea DP RP	11.64	0.861	0.058	0.741	18	
	Greece	11.32	1.266	0.117	1.603	19	
	Qatar	10.30	1.600	0.175	2.561	20	
		U A E	9.80	1.220	0.110	1.488	21
		Sri Lanka	9.57	0.099	0.922	0.066	22
Spain		7.83	0.898	0.063	0.807	23	
Singapore		6.13	0.423	0.014	0.179	24	
Switzerland		5.95	1.550	0.100	1.335	25	
Chile		3.58	0.516	0.021	0.266	26	
Cyprus		3.21	0.564	0.025	0.318	27	

Low Potential Category	Russia	2.68	0.210	0.003	0.044	28
	Oman	1.70	0.220	0.004	0.048	29
	Mauritius	1.59	0.285	0.006	0.081	30
	New Zealand	0.99	0.142	0.001	0.020	31
	U S A	0.87	0.191	0.003	0.036	32
	U K	0.70	0.183	0.002	0.033	33
	Portugal	0.52	0.083	0.000	0.006	34
	France	0.37	0.044	0.000	0.001	35
	Australia	0.21	0.037	0.000	0.001	36
	Germany	-0.38	-0.083	0.000	0.006	37
	Thailand	-0.68	-0.097	0.000	0.009	38
	Ireland	-5.16	-0.992	0.075	0.985	39
	Japan	-5.79	-1.793	0.211	3.216	40
	Denmark	-5.83	-0.863	0.058	0.746	41
	Nigeria	-6.95	-1.321	0.127	1.745	42
	Malaysia	-7.36	-0.854	0.057	0.730	43
	Kenya	-8.84	-1.066	0.086	1.136	44
	Soudi Arab	-11.06	-1.639	0.182	2.686	45
	Bahrain Is	-13.21	-2.366	0.318	5.598	46
	Netherland	-13.83	-1.582	0.172	2.503	47
Czech Republic	-15.47	-1.786	0.210	3.189	48	
Taiwan	-16.05	-1.920	0.235	3.687	49	
Kuwait	-17.88	-0.647	0.033	0.419	50	

Source: *Ibid.*, Table-4.1

Note \* The coefficients are significant at  $\alpha = 0.01$ .

\*\* The coefficients are significant at  $\alpha = 0.10$ .

other gems and jewellery products for these countries. However, the rest of the countries are falling in the third low potential category. After examining t-values, the growth rates values for Lebanon, Brazil, China P RP and Israel are positive and statistically significant at one per cent ( $\alpha = 0.01$ ) level of significance. However, Germany, Thailand, Ireland, Japan, Denmark, Saudi



Arab, Nigeria, Malaysia, Kenya, Taiwan and Kuwait are negative and statistically insignificant. All these results are based on t-test.

Table-4.12 demonstrates the descriptive statistics of the other gems and jewellery products exports to various importing countries for the period 1996-97 to 2009-10. The column III of the Table shows the mean values of exports for the period. Likewise, column IV depicts standard deviations of the exports to various importing countries for the study period. The last column of the Table gives coefficients of variations. The mean value of exports of other gems and jewellery products has increased from 43.885 to 180.187, which is four folds increase from the year 1996-97 to 2009-10.

**Table – 4.12**

**Descriptive Statistics of Exports of Other Gems and Jewellery Products  
during the Period from 1996-97 to 2009-10**

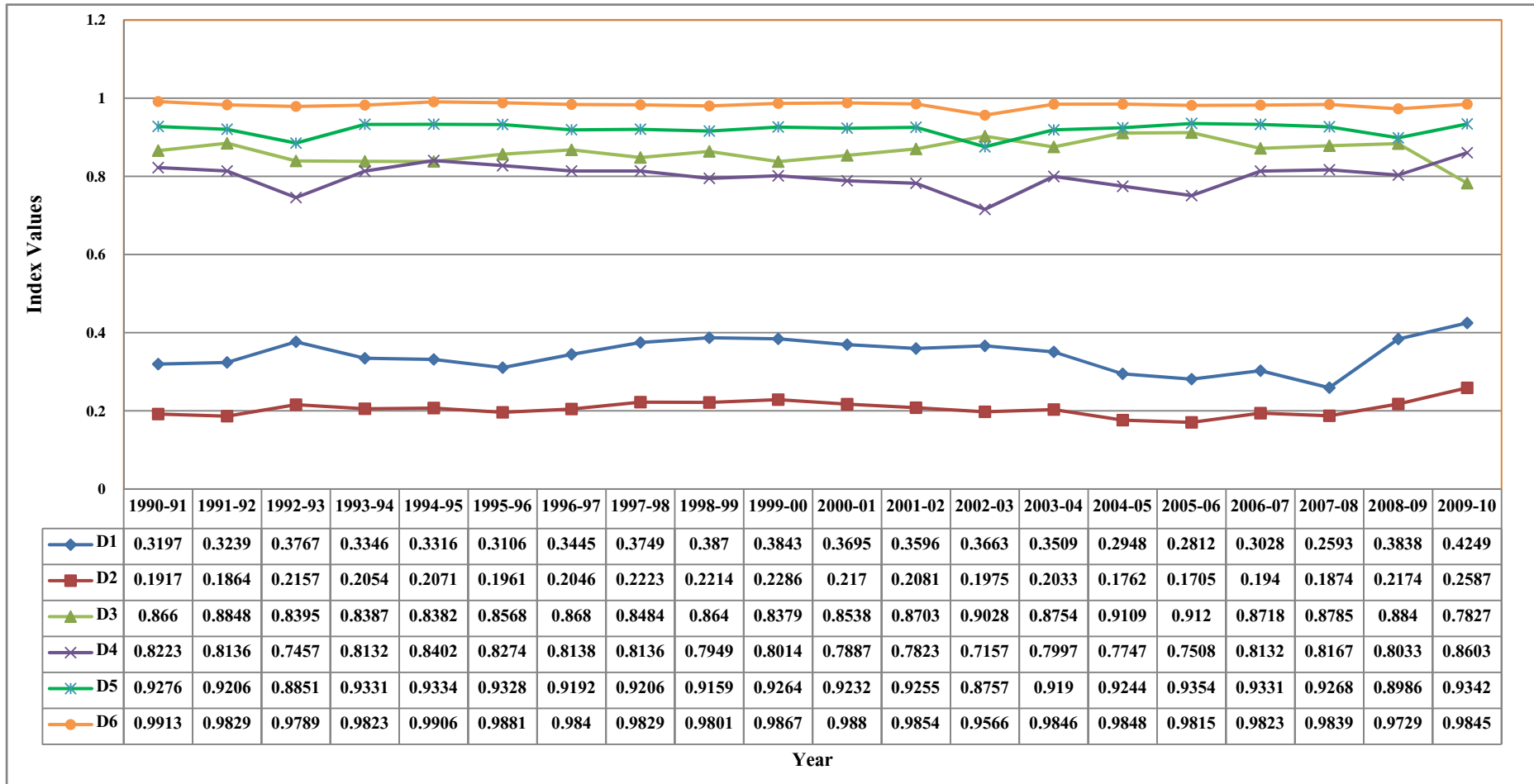
(Values in Rs. Lacs)

<b>I</b>	<b>II</b>	<b>III</b>	<b>IV</b>	<b>V</b>
<b>Sr. No.</b>	<b>Year</b>	<b>Mean</b>	<b>Standard Deviation</b>	<b>Coefficient of Variations</b>
1	1996-97	43.885	113.895	259.531
2	1997-98	74.495	222.613	298.827
3	1998-99	56.308	157.998	280.596
4	1999-00	51.175	126.115	246.438
5	2000-01	52.117	150.755	289.261
6	2001-02	58.418	135.788	232.443
7	2002-03	111.032	313.928	282.735
8	2003-04	16.709	415.085	258.282
9	2004-05	247.985	599.692	241.825
10	2005-06	69.668	210.660	302.373
11	2006-07	42.427	107.000	251.953
12	2007-08	45.108	83.613	185.360
13	2008-09	179.765	720.352	400.718
14	2009-10	180.187	502.350	278.792

Source: *Ibid.*, Table-4.1

Figure – 4.7

Country Concentration Indices of Total Gems and Jewellery Exports during the Period 1990-91 to 2009-10



Source: Calculated on the basis of data given in Appendix-XIII

Furthermore, the absolute dispersion measured by standard deviation has increased from 113.895 to 502.350, which is almost five folds increase over the study period. The coefficients of variations over the study period have been of fluctuating nature. However, one may conclude that the stability over the period in exports of other gems and jewellery products has improved. It is because in the year 1996-97, the figure was 259.531 and in the year 2009-10, the figure increased to 278.792, which means the increase in inequality of the exports of other gems and jewellery products.

Figure-4.7 shows the value of six different measures of concentration of total gems and jewellery exports among the fifty major importing countries during the period 1990-91 to 2009-10. These major concentration namely, Index of Maximum Proportion ( $D_1$ ), Hirschman Herfindhal Index ( $D_2$ ), Entropy Index ( $D_3$ ),  $CR_4$  ( $D_4$ ),  $CR_8$  ( $D_5$ ) and  $CR_{16}$  ( $D_6$ ) ranges from value 0.2593 to 0.4249, 0.1705 to 0.2587, 0.8379 to 0.9120, 0.7157 to 0.8603, 0.8757 to 0.9354 and 0.9566 to 0.9913, respectively. All these measures indicate the presence of diversification for total gems and jewellery exports during the study period. After analyzing the figure-1, it has been observed that the concentration measure  $CR_{16}$  ( $D_6$ ) gives high concentration figures in comparison to  $CR_8$  ( $D_5$ ) and  $CR_4$  ( $D_4$ ).

Table-4.13 displays the country-wise growth rates of gems and jewellery exports during the period 1990-91 to 2009-10. For the purpose of trend analysis, the data related to gems and jewellery exports from India is divided into two periods, i.e., 1990-91 to 1999-2000 and 2000-01 to 2009-10.

The Table demonstrates that the growth rate of China P RP, South Africa, Honduras, Lebanon, Fiji Is, Turkey and Argentina are highest among the fifty major importing countries of gems and jewellery products for the period 1990-91 to 2009-10. The most of the growth rates are statistically significant at one per cent and some other growth rates are significant at ten per cent level of significance which are confirmed by the t-values. The growth rate of Indian gems and jewellery exports during the period 1990-91 to 2009-10 presents a rosy picture for the future.

By seeing the trends of growth rate in the period 1990-91 to 1999-2000,

**Table – 4.13**  
**Country-wise Growth Rates of Total Gems and Jewellery Products**  
**during the Period from 1990-91 to 2009-10**

(Values in Rs. Lacs)

Sr. No.	Country	CAGR	t-value	R <sup>2</sup>	F-value
1	U.S.A.	13.97	14.590*	0.922	212.89
	$\alpha$	22.58	15.620*	0.968	243.988
	$\beta$	6.65	7.501*	0.875	56.275
2	U.A.E.	39.1	23.391*	0.968	547.16
	$\alpha$	28.11	5.925*	0.814	35.111
	$\beta$	45.31	13.673*	0.958	186.964
3	Hong Kong	18.38	17.402*	0.943	302.831
	$\alpha$	27.54	8.493*	0.900	72.143
	$\beta$	16.67	16.335*	0.970	266.853
4	Belgium	11.75	21.705*	0.963	471.141
	$\alpha$	16.59	17.595*	0.974	309.599
	$\beta$	8.83	9.336*	0.915	87.171
5	Singapore	19.09	8.548*	0.802	73.076
	$\alpha$	18.99	4.929*	0.752	24.297
	$\beta$	15.34	1.815**	0.291	3.295
6	Israel	22.27	17.863*	0.946	319.119
	$\alpha$	33.26	17.115*	0.973	292.95
	$\beta$	14.68	5.753*	0.805	33.099
7	Japan	1.68	1.849**	0.159	3.419
	$\alpha$	4.94	1.691	0.263	2.862
	$\beta$	-2.29	-1.262	0.166	1.594
8	Thailand	11.43	10.841*	0.867	117.539
	$\alpha$	13.57	3.577*	0.615	12.799
	$\beta$	6.139	4.389*	0.706	19.263
9	U.K.	15.67	18.189*	0.948	330.839
	$\alpha$	20.75	11.499*	0.942	132.232

	$\beta$	11.38	4.907*	0.750	24.082
10	Switzerland	11.24	8.531*	0.801	72.791
	$\alpha$	20.22	11.193*	0.939	125.304
	$\beta$	1.15	0.443	0.023	0.196
11	Australia	19.92	28.410*	0.978	807.173
	$\alpha$	14.46	15.945*	0.969	254.25
	$\beta$	24.82	15.756*	0.968	248.257
12	Canada	20.00	12.222*	0.892	149.396
	$\alpha$	38.23	13.921*	0.96	193.814
	$\beta$	13.63	5.904*	0.813	34.863
13	France	11.52	12.771*	0.900	163.118
	$\alpha$	15.25	10.642*	0.934	113.259
	$\beta$	13.83	4.328*	0.700	18.737
14	Germany	10.80	9.754*	0.840	95.155
	$\alpha$	15.16	10.322*	0.930	106.558
	$\beta$	14.51	3.628*	0.621	13.163
15	Italy	20.2	14.848*	0.924	220.463
	$\alpha$	16.99	3.633*	0.622	13.199
	$\beta$	17.04	6.039*	0.820	36.472
16	Kenya	28.18	4.278*	0.504	18.308
	$\alpha$	57.01	2.307**	0.399	5.322
	$\beta$	23.49	1.619	0.246	2.623
17	Argentina	50.32	7.536*	0.759	56.795
	$\alpha$	98.82	5.978*	0.817	35.746
	$\beta$	31.53	1.655	0.255	2.741
18	Austria	7.28	3.039*	0.339	9.235
	$\alpha$	26.07	5.619*	0.797	31.573
	$\beta$	6.99	1.039	0.118	1.080
19	Bahamas	49.83	3.599*	0.418	12.959
	$\alpha$	-7.65	-0.223	0.006	0.050
	$\beta$	71.66	2.073**	0.349	4.300

20	Bharain Is	19.47	6.823*	0.721	46.564
	$\alpha$	37.82	4.971*	0.755	24.712
	$\beta$	15.34	1.976**	0.328	3.908
21	Chile	45.05	4.978*	0.579	24.781
	$\alpha$	93.24	2.944*	0.52	8.671
	$\beta$	37.63	1.608	0.244	2.587
22	Puerto Rico	37.39	4.218*	0.497	17.797
	$\alpha$	5.62	0.562	0.038	0.316
	$\beta$	50.38	1.415	0.200	2.002
23	China P RP	86.11	9.427*	0.831	88.868
	$\alpha$	120.31	3.260*	0.570	10.63
	$\beta$	126.05	8.572*	0.901	73.481
24	Cyprus	-7.52	-2.176	0.208	4.736
	$\alpha$	28.85	6.940*	0.857	48.164
	$\beta$	-20.94	-3.441	0.596	11.84
25	Denmark	20.07	7.512*	0.758	56.431
	$\alpha$	43.72	7.703*	0.881	59.341
	$\beta$	25.48	4.001*	0.666	16.009
26	Finland	25.13	13.152*	0.905	172.981
	$\alpha$	24.10	5.097*	0.764	25.981
	$\beta$	22.73	3.511*	0.606	12.327
27	Malaysia	22.04	12.721*	0.899	161.824
	$\alpha$	17.25	3.384*	0.588	11.457
	$\beta$	19.89	4.132*	0.681	17.081
28	Kuwait	8.59	3.172*	0.358	10.064
	$\alpha$	30.42	4.605*	0.726	21.206
	$\beta$	7.64	1.149	0.141	1.322
29	Fiji Is	61.73	6.483*	0.700	42.035
	$\alpha$	137.16	4.193*	0.687	17.586
	$\beta$	-5.65	-1.241	0.161	1.541
30	Indonesia	14.3	2.418**	0.245	5.851

	$\alpha$	21.11	0.961	0.103	0.924
	$\beta$	26.24	2.002**	0.333	4.008
31	Greece	16.74	5.478*	0.625	30.014
	$\alpha$	22.91	2.015**	0.336	4.063
	$\beta$	12.80	2.031**	0.340	4.127
32	Honduras	63.85	4.106*	0.483	16.86
	$\alpha$	1.81	0.041	0.0001	0.001
	$\beta$	27.88	1.624	0.248	2.640
33	Ireland	17.76	5.765*	0.648	33.245
	$\alpha$	21.70	1.842*	0.297	3.393
	$\beta$	8.56	1.749**	0.276	3.059
34	Korea RP	38.73	13.742*	0.912	188.863
	$\alpha$	24.74	5.700*	0.802	32.497
	$\beta$	51.82	5.237*	0.774	27.432
35	Lebanon	62.77	7.176*	0.741	51.499
	$\alpha$	172.08	5.860*	0.811	34.345
	$\beta$	8.83	2.781*	0.491	7.739
36	Mauritius	27.32	3.876*	0.454	15.025
	$\alpha$	125.84	5.899*	0.813	34.806
	$\beta$	12.56	1.821**	0.293	3.316
37	Netherland	7.21	3.453*	0.398	11.927
	$\alpha$	8.32	1.886**	0.307	3.558
	$\beta$	5.46	0.715	0.060	0.512
38	New Zealand	13.48	16.566*	0.938	274.457
	$\alpha$	12.36	4.162*	0.684	17.325
	$\beta$	15.18	9.264*	0.914	85.840
39	Norway	19.22	6.038*	0.669	36.460
	$\alpha$	49.39	12.092*	0.948	146.210
	$\beta$	12.58	1.425	0.202	2.032
40	Oman	4.41	2.071**	0.192	4.291
	$\alpha$	14.24	2.567**	0.451	6.592

	$\beta$	6.26	0.969	0.105	0.939
41	Poland	45.32	7.493*	0.757	56.198
	$\alpha$	32.70	1.674	0.259	2.805
	$\beta$	83.16	6.578*	0.843	43.277
42	Qatar	5.88	2.110**	0.198	4.453
	$\alpha$	20.04	2.653**	0.468	7.042
	$\beta$	17.89	2.586**	0.455	6.688
43	Russia	40.96	4.231*	0.498	17.907
	$\alpha$	138.11	3.443*	0.597	11.856
	$\beta$	24.68	1.725**	0.271	2.976
44	Saudi Arab	19.8	5.986*	0.665	35.834
	$\alpha$	51.87	6.566*	0.843	43.115
	$\beta$	26.42	4.060*	0.673	16.491
45	South Africa	70.63	9.2318	0.825	85.224
	$\alpha$	168.56	6.596*	0.844	43.51
	$\beta$	31.96	4.649*	0.729	21.614
46	Spain	24.04	18.062*	0.947	326.239
	$\alpha$	32.06	7.087*	0.862	50.231
	$\beta$	21.68	9.112*	0.912	83.045
47	Sri Lanka	20.51	4.839*	0.565	23.423
	$\alpha$	51.56	4.179*	0.685	17.467
	$\beta$	5.03	0.551	0.036	0.304
48	Sweden	22.06	6.979*	0.730	48.716
	$\alpha$	41.67	4.429*	0.710	19.619
	$\beta$	14.24	1.854**	0.300	3.439
49	Maxico	-73.32	4.895*	0.571	23.968
	$\alpha$	30.91	1.421	0.201	2.021
	$\beta$	12.11	0.947	0.100	0.897
50	Turkey	52.59	10.687*	0.863	114.232
	$\alpha$	53.80	2.826**	0.499	7.988
	$\beta$	33.80	5.628*	0.798	31.683



51	Others	35.26	10.222*	0.853	104.491
	$\alpha$	37.3	4.690*	0.733	22.004
	$\beta$	25.63	2.228**	0.382	4.965

**Source:** Calculated on the basis of data collected from Foreign Trade Statistics of India, Director General of Commercial Intelligence and Statistics (DGCI&S), Ministry of Commerce, Government of India, Kolkata.

**Note:**  $\alpha$  Denote the period from 1990-91 to 1999-2000.

$\beta$  Denote the period from 2000-2001 to 2009-2010

\* The coefficients are significant at  $\alpha = 0.01$ .

\*\* The coefficients are significant at  $\alpha = 0.10$ .

it is clear that the growth rate of gems and jewellery exports from India to various importing countries have increased much more as compared to total period of twenty years, i.e., 1990-91 to 2009-10. For example, the growth rate of the USA, Hong Kong, Belgium, Israel, Japan, Thailand, the UK, Switzerland, Canada, France, Germany, Kenya, Argentina, Austria, Bahrain Is, Chile, China P RP, Cyprus, Denmark, Kuwait, Fiji Is, Indonesia, Greece, Ireland, Lebanon, Mauritius, Netherland, Norway, Oman, Qatar, Russia, Saudi Arab, South Africa, Spain, Sri Lanka, Sweden and Turkey were higher as compared to the total period. The increasing growth rate of gems and jewellery exports for the period 1990-91 to 1999-2000 stresses the positive effects of Globalization, Privatization and Liberalization (LPG) on exports of gems and jewellery products.

The Table also represents the growth rate of gems and jewellery exports for the period 2000-2001 to 2009-10. After studying the growth rate of gems and jewellery exports from India to various importing countries during the period 2000-01 to 2009-10, we can conclude that the growth rate of some countries have increased but also have decreased for some countries as compared to total period of twenty years (1990-91 to 2009-10). For example, the growth rate of the UAE, Australia, France, Bhamas, Puerto Rico, China P RP, Denmark, Indonesia, Korea RP, New Zealand, Oman, Poland, Qatar, Saudi Arab and Maxico was higher as compared to the total period. On the other hand, some countries have been showing negative trends in the period 2000-01 to 2009-10, which shows the negative effect of LPG and some other

factors related to supply of India's gems and jewellery exports during the period 2000-01 to 2009-10.

Table-4.14 illustrates the descriptive statistics of the total gems and jewellery exports to various countries during the period from 1990-91 to

**Table – 4.14**  
**Descriptive Statistics of Total Gems and Jewellery Exports during the**  
**Period 1990-91 to 2009-10**

(Values in Rs. Lacs)

<b>I</b>	<b>II</b>	<b>III</b>	<b>IV</b>	<b>V</b>
<b>Sr. No.</b>	<b>Year</b>	<b>Mean</b>	<b>Standard Deviation</b>	<b>Coefficient of Variations</b>
1	1990-91	10215.762	30573.639	299.279
2	1991-92	13235.502	38990.765	294.592
3	1992-93	17331.594	55363.745	319.438
4	1993-94	24573.260	76410.456	310.949
5	1994-95	27712.857	86561.470	312.351
6	1995-96	34597.979	104862.562	303.088
7	1996-97	33024.528	102452.211	310.231
8	1997-98	37281.477	121087.270	324.792
9	1998-99	48703.342	157807.613	324.180
10	1999-00	64880.407	213967.607	329.787
11	2000-01	66197.463	212175.043	320.518
12	2001-02	68318.241	213973.177	313.200
13	2002-03	84013.470	255632.852	304.276
14	2003-04	94693.840	292727.824	309.130
15	2004-05	120746.225	344699.300	285.474
16	2005-06	134960.982	378231.436	280.252
17	2006-07	138283.232	416508.060	301.199
18	2007-08	155180.209	458559.498	295.501
19	2008-09	249851.631	801616.630	320.837
20	2009-10	269020.223	948820.895	352.695

Source: *Ibid.*, Table 4.13.

2009-10. The column III of the Table displays the mean values of total gems and jewellery exports for the study period. Similarly, column IV depicts standard deviations of the year-wise exports to various countries, which highlights the dispersion among the importing countries. The last column of the table provides coefficients of variations, which is considered as relative measures of inequality, in gems and jewellery exports of India. The mean value of year-wise total exports of gems and jewellery has increased from 10,215.762 to 2,69,020.223 which is twenty six times increase from the year 1990-91 to 2009-10. Further, absolute dispersion measured by standard deviation has increased from 30,573.639 to 9,48,820.895 which is thirty one fold increase in twenty years (1990-91 to 2009-10). Likewise, the coefficients of variations during the study period have been of fluctuating nature. However, one may conclude that the stability over the study period in the exports of gems and jewellery has, to some extent, improved. It is because in the year 1990-91, the figure was 299.279 and in the year 2009-10 the figure increased to 352.695. Obviously, it signifies the presence of diversification of the gems and jewellery exports from India to various importing countries.

Table-4.15 reveals the growth rate and ranks of fifty major importing countries of India's gems and jewellery exports during the period 1990-91 to 2009-10. The Table displays that China P RP, South Africa, Honduras, Lebanon, Fiji Is, Turkey, Argentina, Bhamas, Poland, Chile and Russia are the eleven largest importers of India's gems and jewellery products in the world. From the Table it is also clear that South Africa, China P RP, Honduras, Lebanon, Fiji Is, Turkey and Argentina are very lucrative markets for the Indian gems and jewellery products not only because of being the largest rank (1 to 7), but also due to their continuous positive annual growth rate, i.e., 86.11, 70.63, 63.85, 61.73, 52.59 and 50.32 per cent, respectively. Further, the next thirty two countries come in the middle potential category which indicates only marginal demand for Indian gems and jewellery exports. Moreover, the category of low potential countries consisting of Austria, Kuwait and Netherland have been positive and statistically significant at

**Table – 4.15**  
**Country-wise/Rank-wise Growth Rates of Exports of Gems and Jewellery Products during the Period from 1990-91 to 2009-10**

(Values in Rs. Lacs)

<b>Country</b>	<b>CAGR</b>	<b>Ranks</b>
China P RP	86.11 (9.427*)	1
South Africa	70.63 (9.231*)	2
Honduras	63.85 (4.106*)	3
Lebanon	62.77 (7.176*)	4
Fiji Is	61.73 (6.483*)	5
Turkey	52.59 (10.687*)	6
Argentina	50.32 (7.536*)	7
Bahamas	49.83 (3.599*)	8
Poland	45.32 (7.493*)	9
Chile	45.05 (4.978*)	10
Russia	40.96 (4.231*)	11
U.A.E.	39.10 (23.391*)	12
Korea RP	38.73 (13.742*)	13
Puerto Rico	37.39 (4.218*)	14
Others	35.26 (10.222*)	15
Kenya	28.18 (4.278*)	16
Mauritius	27.32 (3.876*)	17
Finland	25.13 (13.152*)	18
Spain	24.04 (18.062*)	19
Israel	22.27 (17.863*)	20
Sweden	22.06 (6.979*)	21
Malaysia	22.04 (12.721*)	22
Sri Lanka	20.51 (4.839*)	23
Italy	20.20 (14.848*)	24
Denmark	20.07 (7.512*)	25
Canada	20.00 (12.222*)	26

Australia	19.92 (28.410*)	29
Saudi Arab	19.80 (5.986*)	27
Bharain Is	19.47 (6.823*)	28
Norway	19.22 (6.038*)	30
Singapore	19.09 (8.548*)	31
Hong Kong	18.38 (17.402*)	32
Ireland	17.76 (5.765*)	33
Greece	16.74 (5.478*)	34
U.K.	15.67 (18.189*)	35
Indonesia	14.30 (2.418**)	36
U.S.A.	13.97 (14.590*)	37
New Zealand	13.48 (16.566*)	38
Belgium	11.75 (21.705*)	39
France	11.52 (12.771*)	40
Thailand	11.43 (10.841*)	41
Switzerland	11.24 (8.531*)	42
Germany	10.80 (9.754*)	43
Kuwait	8.59 (3.172*)	44
Austria	7.28 (3.039*)	45
Netherland	7.21 (3.453*)	46
Qatar	5.88 (2.110**)	47
Oman	4.41 (2.071**)	48
Japan	1.68 (1.849**)	49
Cyprus	-7.52 (-2.176)	50
Maxico	-73.32 (4.895)	51

**Source:** *Ibid.*, Table 4.13.

**Note:** Figures in parentheses are t-values.

\* The coefficients are significant at  $\alpha = 0.01$ .

\*\* The coefficients are significant at  $\alpha = 0.10$ .

one per cent ( $\alpha = 0.01$ ) level of significance. Likewise, the growth rate of Maxico and Cyprus is negative and statistically insignificant and all these

values are confirmed by t-value, ANOVA (F-value) and  $R^2$ . It is clear from the Table that the world trading system is constantly creating new opportunities and new trends for the developed as well as developing countries.

Table-4.16 displays the comparative picture of the product-wise growth rate of gems and jewellery products exports during the period 1990-91 to 2009-10. Further, for the purpose of trend analysis, the data related to gems and jewellery products exports from India is divided into two periods,

**Table -4.16**

**Growth Rates of the Exports of Gems and Jewellery Products  
(Item-wise) during the Period from 1990-91 to 2009-10**

(Values in Rs. Crores)

Sr. No.	Product	CAGR	t-value	R2	F-value
1	Cut and Polished Diamonds	14.39	22.689*	0.966	514.803
	$\alpha$	19.41	12.343*	0.950	152.350
	$\beta$	11.83	9.912*	0.924	98.249
2	Gold Jewellery	25.90	37.517*	0.987	1407.578
	$\alpha$	29.84	16.555*	0.971	274.089
	$\beta$	26.78	14.142*	0.961	200.011
3	Coloured Gemstones	9.55	12.733*	0.900	162.135
	$\alpha$	16.27	12.508*	0.951	156.461
	$\beta$	4.80	4.851*	0.746	23.532
4	Non-Gold Jewellery	26.92	21.367*	0.962	456.560
	$\alpha$	37.43	10.901*	0.936	118.834
	$\beta$	21.01	10.836*	0.936	117.434
5	Costume/Fashion Jewellery	13.2	5.649*	0.639	31.920
	$\alpha$	25.34	3.525*	0.608	12.430
	$\beta$	-0.47	-0.135	0.002	0.018
6	Pearls	1.63	1.744	0.144	3.043
	$\alpha$	7.61	3.934*	0.659	15.477
	$\beta$	0.81	0.297	0.010	0.088

7	Synthetic Stones	3.80	1.237	0.082	1.530
	$\alpha$	36.73	4.767*	0.739	22.724
	$\beta$	-4.23	-1.307	0.175	1.708
8	Rough Diamonds	27.03	11.566*	0.911	133.774
	$\alpha$	142.21	5.988*	0.817	35.860
	$\beta$	19.80	5.987*	0.817	35.847
9	Total	16.59	30.741*	0.981	945.013
	$\alpha$	20.7	14.969*	0.965	224.094
	$\beta$	15.27	13.140*	0.955	172.672

**Source:** *Ibid.*, Table 3.1.

**Note:**  $\alpha$  Denote the period from 1990-91 to 1999-2000.

$\beta$  Denote the period from 2000-2001 to 2009-2010.

\* The coefficients are significant at  $\alpha = 0.01$ .

\*\* The coefficients are significant at  $\alpha = 0.10$ .

i.e., 1990-91 to 1999-2000 and 2000-01 to 2009-10. From the Table it is clear that during the period 1990-91 to 1999-2000 the growth rates of all gems and jewellery products like cut and polished diamonds, gold jewellery, coloured gemstones, non-gold jewellery, costume/fashion jewellery, pearls, synthetic stones, rough diamonds and total of gems and jewellery have been showing high growth rates as compared to the total period (1990-91 to 2009-10). And, after examining the t-value, most of the growth rates are statistically significant at one per cent ( $\alpha = 0.01$ ) level of significance.

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