CHAPTER - III

EXPORT PERFORMANCE OF INDIA'S GEMS AND JEWELLERY PRODUCTS IN THE GLOBAL MARKET

Indian gems and jewellery industry has achieved a premier position in the global market. The products of India's exports of gems and jewellery are acknowledged all over the world for their exquisite craftsmanship. Modern state of the art machinery and computerised operations have lent a cutting edge to gems and jewellery manufacture. Over three million people are directly or indirectly employed in this industry. The industry is one of the important foundations of the export growth of India. It is not only a major exchange earner but also one of the fastest growing sectors. Realising enormous potential of the sector, the Ministry of Commerce, Government of India, declared gems and jewellery as thrust sector for export promotion. The Gem and Jewellery Export Promotion Council (GJEPC) is primarily involved in introducing the gems and jewellery products to the international market and promoting exports. To achieve this, the council provides market information to its members regarding foreign trade inquiries, trade and tariff regulations and import duties etc.

India captured and increased proportion of this market, and at present, India is the world's leading diamond cutting and polishing centre. In recent times, India has increasingly held a dominant position in the global market in the cutting and polishing of diamond. It is said that 11 out 12 diamond sets in jewellery are cut and polished in India. India is accounting for 65 per cent share of the global polished diamond market in terms of value. Gold jewellery contributes 30 per cent and coloured gemstones and others contribute 2 per cent each, where as rough diamond contributes 3 per cent of total share. The industry is truly global one, with both suppliers and buyers from many different countries. (GJEPC, 2010)[1]

According to KPMG study, India's growing importance in global jewellery market is expected to reach US $ 28.28 billion in 2015. The Geological survey of India has stated that India has a great potential for

diamond deposits. Based on this and independent analysis, some of the diamond exploration companies are making efforts to make India another target destination for diamond exploration. Maharashtra features on the top in the list of potential states for diamond exploration.

The present study is based on secondary data from the various published sources and on-line database. The country-wise growth rates and trend values have enabled us to identify the export potential countries into high, middle and low potential categories respectively for the Indian economy. And the product-wise and port-wise growth rates and trend values of these exports have been analysed in terms of value which show significant variations in the categories of the considered products. In addition, growth rates and trend values of gems and jewellery products exports from SEEPZ SEZ, Mumbai also have been analysed in terms of value. The study reveals that India's share in world exports has increased considerably. The study is an attempt to examine the position and growth of gems and jewellery products along with instability in exports.

Table-3.1 clearly shows a comprehensive picture of Indian exports of gems and jewellery consisting of different dimensions during the study period 1990-91 to 2009-10. Column 2 of the Table vividly shows that national exports have been continuously increasing with 17.82 per cent Compound Annual Growth Rate (CAGR). In addition, its annual trend values Rs. 39,974.60 crore are almost statistically significant at $\alpha = 0.01$. Similarly, column 3 reveals total gems and jewellery exports with parenthetical as the percentage of total exports. The total gems and jewellery exports in absolute term is continuously increasing but with certain fluctuations. Its CAGR and trend values are 16.59 per cent and Rs. 5,622.59 crore respectively. But their percentage share in total national exports shows minor decline from 16.47 per cent to 16.44 per cent during the study period. This decline is insignificant and not a matter of serious concern for industrial sector of Indian economy. Further, column 4 and 9 of the Table portray the diminishing rate of cut and polished diamonds and synthetic stones exports respectively in percentage with respect to total gems and jewellery exports.

Table – 3.1
India's Exports of Gems and Jewellery Products during the Period 1990-91 to 2009-10

(Values in Rs. Crores)

1	2	3	4	5	6	7	8	9	10	11	12
Year	**Total National Exports**	**Total Gems and Jewellery Exports**	**Cut and Polished Diamonds Exports**	**Gold Jewellery Exports**	**Coloured Gemstones Exports**	**Pearls Exports**	**Non-gold Jewellery Exports**	**Synthetic Stones Exports**	**Costume/ Fashion Jewellery Exports**	**Saloes to Foreign Tourists**	**Rough Diamonds Exports**
1990-91	32527.28	5360	4739	364	208	8	15	0	2	24	0
		(16.47)	(88.41)	(6.79)	(3.88)	(0.14)	(0.27)		(0.03)	(0.44)	
1991-92	44041.81	7234	6163	750	257	10	25	1	3	25	0
		(16.42)	(85.19)	(10.36)	(3.55)	(0.13)	(0.34)	(0.01)	(0.04)	(0.34)	
1992-93	53688.26	9503	8316	844	270	10	29	2	12	20	0
		(17.70)	(87.50)	(8.88)	(2.84)	(0.10)	(0.30)	(0.02)	(0.12)	(0.21)	
1993-94	69748.85	12943	11410	1149	312	14	23	1	18	16	0
		(18.55)	(88.15)	(8.87)	(2.41)	(0.10)	(0.17)	(0.007)	(0.13)	(0.12)	
1994-95	82673.41	14637	12573	1519	442	15	36	8	20	24	0
		(17.70)	(85.89)	(10.37)	(3.01)	(0.10)	(0.24)	(0.05)	(0.13)	(0.16)	
1995-96	106353.40	18145	15501	1888	488	19	83	12	16	32	106
		(17.06)	(85.42)	(10.40)	(2.68)	(0.10)	(0.45)	(0.06)	(0.08)	(0.17)	(0.58)
1996-97	118817.30	18521	14916	2636	481	13	103	9	21	29	313
		(15.58)	(80.53)	(14.23)	(2.59)	(0.07)	(0.55)	(0.04)	(0.11)	(0.15)	(1.68)
1997-98	130100.60	20559	16579	3097	490	15	129	8	12	49	180
		(15.80)	(80.64)	(15.06)	(2.38)	(0.07)	(0.62)	(0.03)	(0.05)	(0.23)	(0.87)
1998-99	139751.80	26038	21074	3542	747	16	243	10	22	44	340
		(18.63)	(80.93)	(13.60)	(2.86)	(0.06)	(0.93)	(0.03)	(0.08)	(0.16)	(1.30)
1999-00	159095.20	35171	28707	4694	885	17	210	11	26	39	582
		(22.10)	(81.62)	(13.34)	(2.51)	(0.04)	(0.59)	(0.03)	(0.07)	(0.11)	(1.65)
2000-01	201356.50	35273	28042	5220	924	12	255	7	44	56	713
		(17.51)	(79.49)	(14.79)	(2.61)	(0.03)	(0.72)	(0.01)	(0.12)	(0.15)	(2.02)
2001-02	209018.00	35862	28346	5538	867	13	305	11	48	61	673
		(17.15)	(79.04)	(15.44)	(2.41)	(0.03)	(0.85)	(0.03)	(0.13)	(0.17)	(2.87)
2002-03	255137.30	44232	34298	7301	926	21	410	5	46	63	1162
		(17.33)	(77.54)	(16.50)	(2.09)	(0.04)	(0.92)	(0.01)	(0.10)	(0.14)	(2.62)
2003-04	293366.80	55726	39591	12255	818	19	457	5	47	83	2451
		(18.99)	(71.04)	(21.99)	(1.46)	(0.03)	(0.82)	(0.008)	(0.08)	(0.14)	(4.39)
2004-05	375339.50	70239	50074	16976	864	12	580	5	40	89	1599
		(18.71)	(71.29)	(24.16)	(1.23)	(0.01)	(0.82)	(0.007)	(0.05)	(0.12)	(2.27)
2005-06	456417.90	73583.24	52126.3	17104.059	1030.43	10.64	644.41	5.61	53.11	114.86	2493.83
		(16.12)	(70.83)	(23.24)	(1.40)	(0.01)	(0.87)	(0.007)	(0.07)	(0.15)	(3.38)
2006-07	571779.30	77430.24	49230.57	23507.07	1112.6	11.13	789.6	3.36	35.6	191.55	2548.76
		(13.54)	(63.58)	(30.35)	(1.43)	(0.01)	(1.01)	(0.004)	(0.04)	(0.24)	(3.29)
2007-08	655863.50	84181.96	57158.62	22379.43	1111.67	15.93	921.33	4.5	22.17	287.99	2280.32
		(12.83)	(67.89)	(26.58)	(1.32)	(0.01)	(1.09)	(0.005)	(0.02)	(0.34)	(2.70)
2008-09	839978.00	95610.31	58792.47	30957.8	1197.58	16.55	872.34	5.47	40.9	252.26	3474.94
		(11.38)	(61.49)	(32.37)	(1.25)	(0.01)	(0.91)	(0.005)	(0.04)	(0.26)	(3.60)
2009-10	845534.00	139056.4	86125.98	45802.12	1358.12	16.3	1952.05	6.52	72.78	197.06	3525.42
		(16.44)	(61.93)	(32.93)	(0.97)	(0.01)	(1.40)	(0.004)	(0.05)	(0.14)	(2.53)
CAGR	**17.82**	**16.59**	**14.39**	**25.90**	**9.55**	**1.63**	**26.92**	**3.80**	**13.20**	**15.18**	**27.03**
	(43.55*)	**(30.74*)**	**(22.68*)**	**(37.51*)**	**(12.73*)**	**(1.74**)**	**(21.36*)**	**(1.23)**	**(5.64*)**	**(13.49*)**	**(11.56*)**
Trend Values	**39974.60**	**5659.22**	**3529.37**	**1798.97**	**56.89**	**0.20**	**67.54**	**0.01**	**2.55**	**11.64**	**255.46**
	(9.46*)	**(11.10*)**	**(13.57*)**	**(7.40*)**	**(17.29*)**	**(1.56)**	**(6.83*)**	**(0.08)**	**(6.01*)**	**(6.63*)**	**(10.78*)**

Source: 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 $\alpha = 0.10$.

Figures in parentheses are percentage change. Figures in parentheses in the last two rows are t-values.

Interestingly, exports of gold jewellery, non-gold jewellery and costume/ fashion jewellery are continuously increasing with negligible fluctuations. Moreover, exports of pearls and sales to foreign tourists are declining continuously and there is stagnation in the exports of pearls from 2004-05 onwards. Column 6 shows that exports of coloured gemstones are on decline except during the year 1991-92. Column 12 displays so many fluctuations in exports of rough diamonds with 27.03 per cent CAGR and Rs. 255.46 trend values. To recapitulate briefly, diminishing trends in the exports of various products of gems and jewellery is a matter of concern to industrial sector of Indian economy and needs immediate attention.

Table - 3.2

Growth Rates of the Exports of Gems and Jewellery Products during the Period 1990-91 to 2009-10

(Values in Rs. Crores)

Sr. No.	Product Groups	CAGR	t-value	R^2	F-value
1	Cut & Polished diamonds	14.39	22.68*	0.966	514.80
2	Gold Jewellery	25.90	37.51*	0.987	1407.57
3	Coloured Gemstones	9.55	12.73*	0.900	162.13
4	Pearls	1.63	1.74**	0.144	3.04
5	Non-Gold Jewellery	26.92	21.36*	0.962	456.56
6	Synthetic Stones	3.80	1.23	0.082	1.53
7	Costume/Fashion jewellery	13.20	5.64*	0.639	31.92
8	Sales to Foreign Tourists	15.18	13.49*	0.910	182.16
9	Rough Diamonds	27.03	11.56*	0.911	133.77
10	Total	16.59	30.74*	0.981	945.01

Source: *Ibid.,* Table - 3.1

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

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

Table-3.2 shows the compound annual growth rates of exports of various gems and jewellery products for the period 1990-91 to 2009-10. The study has trenchantly analysed that rough diamonds exports have the highest growth rate, i.e., 27.03 per cent followed by non-gold jewellery and gold jewellery with 26.92 and 25.90 per cent CAGR respectively. The main reason behind such a high growth rate is the demand from major importing countries of the product like especially from Belgium followed by the USA, the UK, South Africa and Israel etc. The least growth rate has been shown by pearls, i.e., 1.63 per cent. The reason behind such a low growth rate may be that for foreigners their might be no astronomical value of this product as we find in Indian context. It is evident from the table that almost all growth rates have been found statistically significant at α = 0.01 per cent level of significance.

Table – 3.3

Trend Values of the Exports of Gems and Jewellery Products during the Period 1990-91 to 2009-10.

(Values in Rs. Crores)

Sr. No.	Product Groups	Trend Values	t-value	R^2	F-value
1	Cut & Polished diamonds	3529.379	13.57*	0.910	184.23
2	Gold Jewellery	1798.976	7.40*	0.752	54.866
3	Coloured Gemstones	56.8945	17.29*	0.943	299.041
4	Pearls	0.2013	1.56	0.119	2.436
5	Non-Gold jewellery	67.5481	6.83*	0.721	46.660
6	Synthetic Stones	0.0125	0.08	0.0004	0.007
7	Costume/Fashion jewellery	2.5553	6.01*	0.667	36.186
8	Sales to Foreign Tourists	11.6406	6.63*	0.709	44.004
9	Rough Diamonds	255.4633	10.78*	0.899	116.421
10	Total	5659.22	11.10*	0.872	123.407

Source: *Ibid.,* Table - 3.1

Note: * The coefficients are significant at α = 0.01.

Table-3.3 demonstrates the item-wise trend values of exports of gems and jewellery products for the period 1990-91 to 2009-10. The highest trend value (using least square method) of Rs. 3,529.379 crore as compared to the total trend value of Rs.5,722.6706 crore is shown by cut and polished diamonds followed by gold jewellery and rough diamonds at the second and third place respectively with trend values of Rs. 1,798.976 and 255.4633 crore and statistically significant t-values of 7.40* and 10.78*. On the other hand, the least trend value, i.e., Rs. 0.0125 crore and 0.08* t-value has been displayed by synthetic stones. In conclusion, almost all the coefficients are statistically significant at $\alpha = 0.01$ per cent level of significance. The trend value of above mentioned items is a good omen for the growth of Indian economy.

Table-3.4 consists the indices and coefficients of variations of gems and jewellery products exports taken in the value terms during the period from 1990-91 to 2009-10. From the table it can be observed that the indices of the exports of various gems and jewellery products have increased tremendously over the study period. However, the indices of the value of cut and polished diamonds, gold jewellery, coloured gemstones, pearls, non-gold jewellery, synthetic stones, costume/fashion jewellery, sales to foreign tourists, rough diamonds and total of gems and jewellery products ranges from 94.44 to 146.491, 95.202 to 206.043, 88.336 to 152.448, 40.000 to 143.126, 79.310 to 230.555, 45.454 to 800.000, 57.142 to 400.000, 78.117 to 166.768, 57.507 to 295.283, 100.071 to 145.440, respectively. Further, the last row of the Table provides the coefficients of variations of the indices of value of exports of gems and jewellery products for the twenty years and it has been observed that the lowest coefficient of variations in the cut and polished diamonds and the highest coefficient of variations in the synthetic stones (range from 13.4508 to 114.777). The highest coefficients of variations in the synthetic stones indicate the increase in the inequality of the exports and showing the presence of diversification of these products export. Such kind of empirical

Table - 3.4

Indices of Value of Exports of Gems and Jewellery Products during the Period 1990-91 to 2009-10

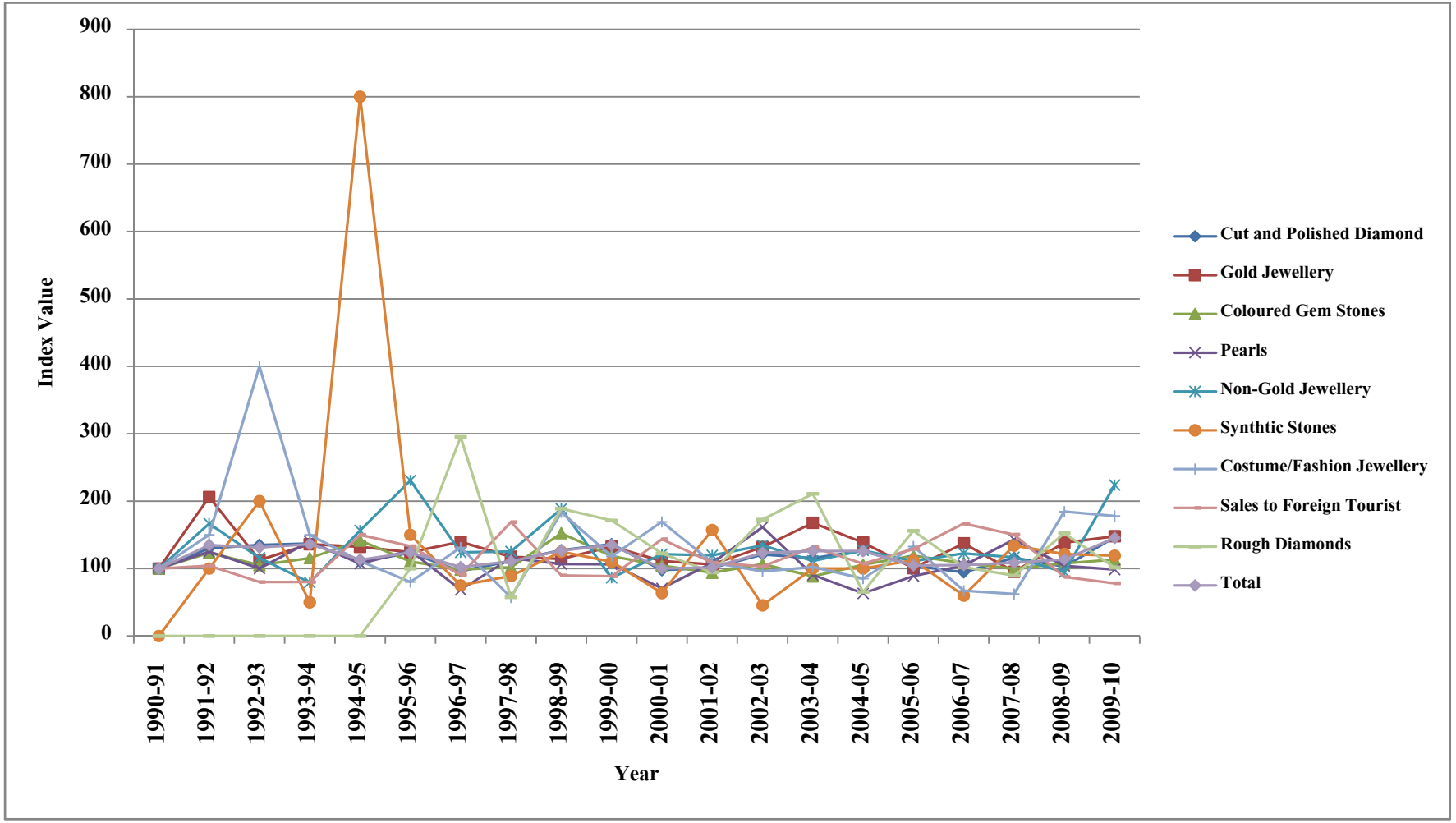
(Value in Rs. Crores)

Year	Cut & Polished Diamonds	Gold Jewellery	Coloured Gemstones	Pearls	Non-Gold Jewellery	Synthetic Stones	Costume/ Fashion Jewellery	Sales to Foreign Tourist	Rough Diamonds	Total
1990-91	100.0000	100.0000	100.0000	100.0000	100.0000	-	100.0000	100.0000	-	100.0000
1991-92	130.0485	206.044	123.5577	125.0000	166.6667	100.0000	150.0000	104.1667	-	134.9627
1992-93	134.9343	112.5333	105.0584	100.0000	116.0000	200.0000	400.0000	80.0000	-	131.3658
1993-94	137.2054	136.1374	115.5556	140.0000	79.31034	50.0000	150.0000	80.0000	-	136.1991
1994-95	110.1928	132.2019	141.6667	107.1429	156.5217	800.0000	111.1111	150.0000	-	113.0882
1995-96	123.288	124.2923	110.4072	126.6667	230.5556	150.0000	80.0000	133.3333	100.0000	123.9667
1996-97	96.22605	139.6186	98.56557	68.42105	124.0964	75.0000	131.2500	90.6250	295.283	102.0722
1997-98	111.1491	117.4886	101.8711	115.3846	125.2427	88.88889	57.14286	168.9655	57.50799	111.0037
1998-99	127.1126	114.3687	152.449	106.6667	188.3721	125.0000	183.3333	89.79592	188.8889	126.6501
1999-00	136.22	132.524	118.4739	106.2500	86.41975	110.0000	118.1818	88.63636	171.1765	135.0757
2000-01	97.68349	111.2058	104.4068	70.58824	121.4286	63.63636	169.2308	143.5897	122.5086	100.29
2001-02	101.0841	106.092	93.83117	108.3333	119.6078	157.1429	109.0909	108.9286	94.3899	101.6698
2002-03	120.9977	131.8346	106.8051	161.5385	134.4262	45.45455	95.83333	103.2787	172.6597	123.3395
2003-04	115.4324	167.8537	88.33693	90.47619	111.4634	100.0000	102.1739	131.746	210.9294	125.9857
2004-05	126.4782	138.5231	105.6235	63.15789	126.9147	100.0000	85.10638	107.2289	65.23868	126.0435
2005-06	104.0985	100.7543	119.2627	88.66667	111.1052	112.2000	132.775	129.0562	155.9619	104.7612
2006-07	94.44478	137.4357	107.9743	104.6053	122.5307	59.89305	67.03069	166.7682	102.2026	105.2281
2007-08	116.1039	95.20298	99.91641	143.1267	116.6831	133.9286	62.27528	150.3472	89.46782	108.7197
2008-09	102.8584	138.3315	107.728	103.892	94.68269	121.5556	184.4835	87.59332	152.3883	113.5758
2009-10	146.4915	147.9502	113.4054	98.48943	223.7717	119.1956	177.9462	78.11781	101.4527	145.4407
C.V.	**13.4508**	**19.8073**	**13.7431**	**27.2015**	**31.0114**	**114.7773**	**55.8241**	**26.4378**	**45.5281**	**11.9013**

Source: *Ibid.,* Table - 3.1

Figure – 3.1

Indices of Value of Exports of Gems and Jewellery Products during the Period 1990-91 to 2009-10



Source: *Ibid.,* Table – 3.1

results of the exports indices is entirely useful in making the appropriate policies in the field of Indian exports of such products. The respective indices of gems and jewellery products explore a very high potentiality for the India's exports in the global market.

Table-3.5 vividly reveals a comprehensive picture of India's port-wise exports of gems and jewellery comprising of different dimension during the study period 1990-91 to 2009-10. Column 2 of the table clearly shows that total gems and jewellery exports of ports have been continuously increasing with 12.60 per cent Compound Annual Growth Rate (CAGR). In addition, its annual trend values US $ 1,196.304 million are statistically significant at α = 0.01. Further, column 3 to 12 of the Table depicts the total gems and jewellery exports of ten ports. Column 8 shows that the diminishing rate of exports from Coimbatore in percentage with respect to total gems and jewellery exports of ports and in absolute term also. Its CAGR and trend values are 23.25 per cent and US $ -0.887 million.

These ports (clusters) of gems and jewellery have been showing with figures in parentheses as percentages of total ports exports of gems and jewellery in fluctuating nature over the study period. The CAGR and trend values for these ports have also been statistically significant at α = 0.01. In this way, the Table represents the dynamic as well as progressive pattern of India's exports of various ports.

Table-3.6 displays the compound annual growth rates of exports of gems and jewellery by various ports during the period 1990-91 to 2009-10. The study has trenchantly analysed that Kolkata has marked highest growth rate, i.e., 67.27 per cent followed by Surat and Bangalore with 53.16 and 34.79 per cent CAGR respectively. The least growth rate has been shown by Mumbai, i.e., 10.55 per cent. It is evident from the Table that all growth rates have been found statistically significant at α = 0.01 per cent level of significance.

Table – 3.5

India's Exports of Gems and Jewellery Products (port-wise) during the Period 1990-91 to 2009-10

(Values in US $ Million)

1	2	3	4	5	6	7	8	9	10	11	12
Year	**Total**	**Mumbai**	**New Delhi**	**Jaipur**	**Chennai**	**Cochin**	**Coimb-atore**	**Banga-lore**	**Kolkata**	**Surat**	**Hyder-abad**
1990-91	2973.75	2803.85 (94.28)	81.31 (2.73)	80.91 (2.72)	6.25 (0.21)	0.52 (0.01)	0	0.91 (0.03)	0	0	0
1991-92	2924.13	2752.52 (94.13)	80.28 (2.74)	75.9 (2.59)	9.2 (0.31)	0.66 (0.02)	0	5.53 (0.18)	0.2 (0.006)	0	0
1992-93	3265.39	3107.39 (95.16)	77.84 (2.38)	62.75 (1.92)	8.43 (0.25)	0.78 (0.02)	0	8.61 (0.26)	0.37 (0.01)	0	0
1993-94	4134.27	3926.33 (94.97)	128.32 (3.10)	56.12 (1.35)	9.69 (0.23)	0.86 (0.02)	0	13.39 (0.32)	0.42 (0.01)	0	0
1994-95	4673.47	4411.93 (94.40)	137.18 (2.93)	84.53 (1.80)	14.63 (0.31)	1.66 (0.03)	0	24.84 (0.53)	0.36 (0.007)	0	0
1995-96	5417.08	5067.97 (93.55)	176.83 (3.26)	104.72 (1.93)	23.15 (0.42)	3.15 (0.05)	0	40.58 (0.74)	0.68 (0.01)	0	0
1996-97	5249.93	4818.02 (91.77)	249.18 (4.74)	112.5 (2.14)	16.43 (0.31)	6.39 (0.12)	0	46.49 (0.88)	1.02 (0.01)	2.24 (0.007)	0
1997-98	5560.77	5110.42 (91.90)	253.51 (4.55)	118 (2.12)	14.23 (0.25)	4.01 (0.07)	7.55 (0.13)	49.52 (0.89)	4.59 (0.29)	0.94 (0.01)	0
1998-99	6201.12	5742.26 (92.60)	238.62 (3.84)	147.05 (2.37)	14.93 (0.24)	7.63 (0.12)	6.38 (0.10)	40.45 (0.65)	18.47 (0.08)	1.25 (0.02)	1.08 (0.01)
1999-00	8136.04	7585.92 (93.23)	240.79 (2.95)	162.95 (2.00)	19.57 (0.24)	3.18 (0.03)	8.66 (0.10)	49.83 (0.61)	50.36 (0.61)	1.15 (0.01)	13.63 (0.16)
2000-01	7609.96	6949.07 (91.31)	297.03 (3.90)	164.94 (2.16)	20.5 (0.26)	3 (0.03)	13.7 (0.18)	48.44 (0.63)	53.88 (0.70)	46.69 (0.61)	12.71 (0.16)
2001-02	7401.01	6647.12 (89.81)	279.03 (3.77)	182.8 (2.46)	21.74 (0.29)	5.06 (0.06)	10.29 (0.13)	59.77 (0.80)	61.88 (0.83)	119.11 (1.60)	14.21 (0.19)
2002-03	8915.58	8069.9 (90.51)	313.69 (3.51)	218.1 (2.44)	28.84 (0.32)	6.55 (0.07)	7.3 (0.08)	64.43 (0.72)	75.94 (0.85)	115.96 (1.30)	14.87 (0.16)
2003-04	11601.74	9937.79 (85.65)	495.6 (4.27)	228.85 (1.97)	40.99 (0.35)	6.16 (0.05)	7.54 (0.06)	552.19 (4.75)	89.27 (0.76)	233.63 (2.01)	9.72 (0.08)
2004-05	15300.07	12937.38 (84.55)	682.66 (4.46)	277.63 (1.81)	106.9 (0.69)	8.71 (0.05)	2.95 (0.01)	912.63 (5.96)	130.13 (0.85)	231.49 (1.51)	9.59 (0.06)
2005-06	16706.05	14168.99 (84.81)	481.96 (2.88)	356.76 (2.13)	146.97 (0.87)	8.77 (0.05)	1.35 (0.008)	1022.47 (6.12)	220.36 (1.31)	282.22 (1.68)	16.2 (0.09)
2006-07	17116.7	13941.78 (81.45)	471.03 (2.75)	423.9 (2.47)	175.26 (1.02)	6.76 (0.03)	0.58 (0.003)	1441.33 (8.42)	417.88 (2.44)	225.55 (1.31)	12.63 (0.07)
2007-08	20849.72	17396.11 (83.43)	456.76 (2.19)	507.92 (2.43)	326.13 (1.56)	24.39 (0.11)	0.91 (0.004)	1077.97 (5.17)	651.26 (3.12)	378.88 (1.81)	29.39 (0.14)
2008-09	24771.17	15304.88 (61.78)	1522.9 (7.76)	502.95 (2.03)	404.39 (1.63)	34.24 (0.18)	0.6 (0.002)	364.86 (1.47)	910.99 (3.67)	529.18 (2.84)	27.17 (0.10)
2009-10	29370.19	15941.61 (54.27)	2015.77 (9.41)	535.17 (1.82)	538.05 (1.83)	54.29 (0.27)	0.88 (0.002)	500.7 (1.70)	1012.05 (3.44)	689.10 (3.46)	123.86 (0.42)
CAGR	**12.60 (25.53*)**	**10.55 (23.46*)**	**15.09 (11.90*)**	**12.70 (19.85*)**	**24.52 (11.03*)**	**21.79 (10.06*)**	**-23.25 (-5.87)**	**34.79 (10.54*)**	**67.27 (18.43*)**	**53.16 (8.91*)**	**15.35 (3.17*)**
Trend Values	**1196.304 (9.63*)**	**780.755 (13.20*)**	**61.629 (4.70*)**	**25.055 (10.60*)**	**19.711 (5.07*)**	**1.620 (4.32*)**	**-0.887 (-4.35)**	**54.645 (4.40*)**	**44.645 (5.30*)**	**46.277 (8.43*)**	**5.246 (2.31**)**

Source: 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 $\alpha = 0.10$.

Figures in parentheses are percentage change. Figures in parentheses in the last two rows are t-values.

Table - 3.6
Growth Rates of the Exports of Gems and Jewellery Products (port-wise) during the Period 1990-91 to 2009-10

(Values in US $ Million)

Sr. No.	Ports	CAGR	t-value	R^2	F-value
1	Mumbai	10.55	23.46*	0.968	550.82
2	New Delhi	15.09	11.90*	0.887	141.76
3	Jaipur	12.70	19.85*	.956	394.21
4	Chennai	24.52	11.03*	0.871	121.83
5	Cochin	21.79	10.06*	0.849	101.35
6	Coimbatore	-23.25	-5.87	0.758	34.55
7	Bangalore	34.79	10.54*	0.860	111.20
8	Kolkata	67.27	18.43*	0.952	339.87
9	Surat	53.16	8.91*	0.868	79.48
10	Hyderabad	15.35	3.17*	0.501	10.06
11	Total	12.60	25.53*	0.973	651.97

Source: *Ibid.,* Table 3.5

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

The trend values of the gems and jewellery products during the period 1990-91 to 2009-10 (port-wise) have been displayed in Table-3.7. Mumbai is showing highest trend value (using least square method) of US $ 780.755 million, as compared to the total trend value of US $ 1,196.304 million. New Delhi has got second highest position in trend value with statistically significant t-value (4.70*). On the other hand, the least trend value, i.e., US $ 1.620 million and 4.32* t-value has been displayed by Cochin. In the end, almost all the coefficients are statistically significant at $\alpha = 0.01$ per cent level of significance.

Table - 3.7

Trend values of the Exports of Gems and Jewellery Products (port-wise) during the Period 1990-91 to 2009-10

(Values in US $ Million)

Sr. No.	Ports	Trend Values	t-value	R^2	F-value
1	Mumbai	780.755	13.20*	0.906	174.26
2	New Delhi	61.629	4.70*	0.551	22.12
3	Jaipur	25.055	10.60*	0.862	112.54
4	Chennai	19.711	5.07*	0.588	25.71
5	Cochin	1.620	4.32*	0.509	18.71
6	Coimbatore	-0.887	-4.35	0.633	19.00
7	Banglore	54.645	4.40*	0.518	19.41
8	Kolkata	44.645	5.30*	0.623	28.19
9	Surat	46.277	8.43*	0.855	71.20
10	Hyderabad	5.246	2.31**	0.349	5.37
11	Total	1196.304	9.63*	0.837	92.73

Source: *Ibid.,* Table 3.5

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

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

Table -3.8 narrates the indices and coefficients of variations of the gems and jewellery exports from various ports in value terms during the period from 1990-91 to 2009-10. The Table explores that the indices of the exports of various ports have increased tremendously except Coimbatore over the study period. However, the indices of Mumbai, New Delhi, Jaipur, Chennai, Cochin, Coimbatore, Bangalore, Kolkata, Surat, Hyderabad and total of ports ranges from 87.87875 to 132.1069, 70.6003 to 333.4136, 82.67457 to 150.62366, 70.97192 to 260.79531, 41.67758 to 360.79881, 39.12467 to 158.1986, 33.84695 to 857.0386, 85.71428 to 450.0000, 79.91992 to 583.75634, 65.36650 to 455.87044, 93.23634 to 130.12883, respectively. In the end, the last row of the Table shows the coefficients of variations of

Table – 3.8

Indices of Value of Gems and Jewellery Exports (port-wise) during the Period 1990-91 to 2009-10

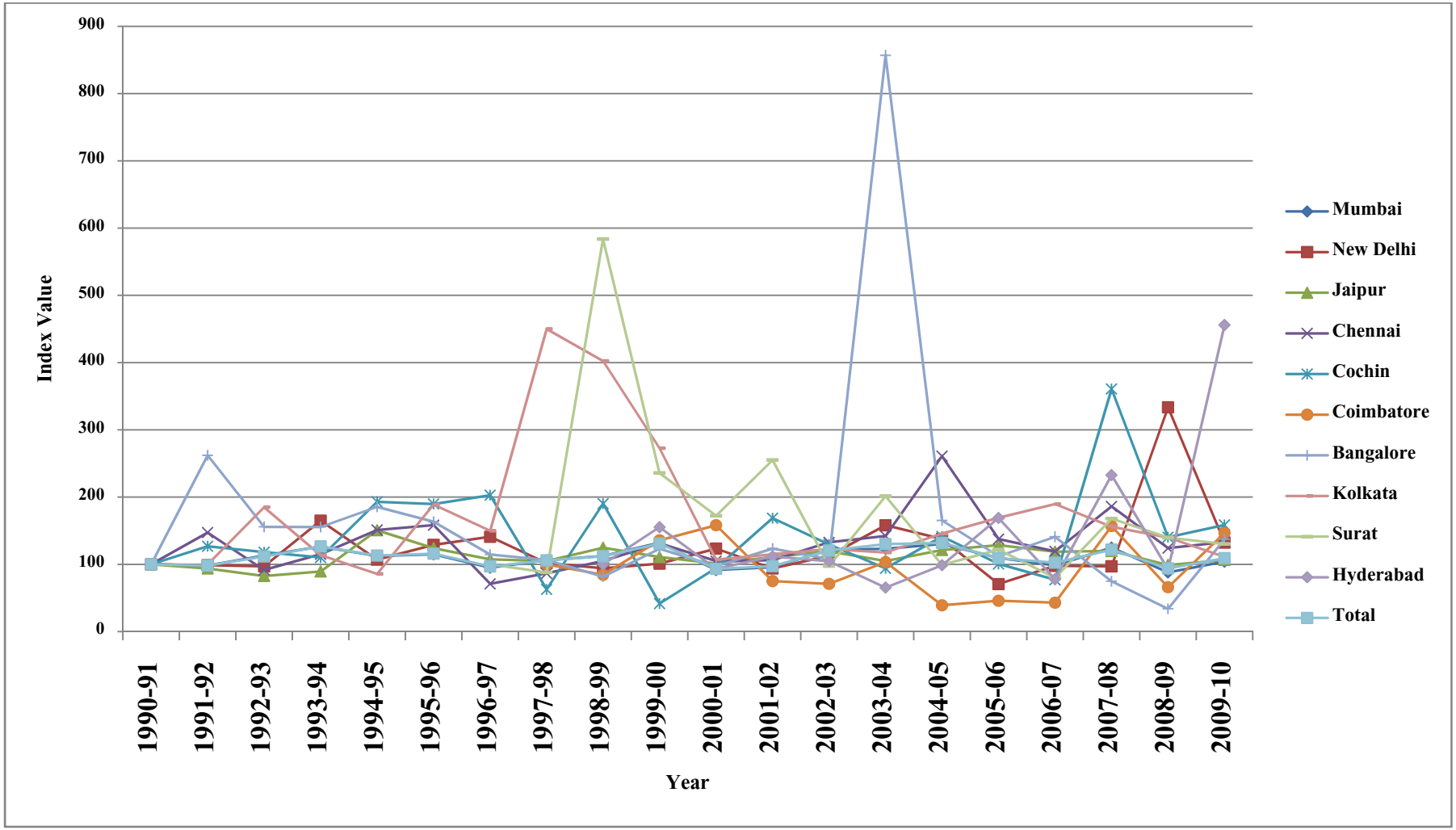
(Values in US $ Million)

Year	Mumbai	New Delhi	Jaipur	Chennai	Cochin	Coimbatore	Bangalore	Kolkata	Surat	Hyderabad	Total
1990-91	100.00000	100.00000	100.00000	100.00000	100.00000	-	100.00000	-	-	-	100.00000
1991-92	98.1693	98.73324	93.80793	147.2	126.92307	-	262.0853	100.00000	-	-	98.29173
1992-93	112.8925	96.96064	82.67457	91.63043	118.18181	-	155.6962	185.00000	-	-	111.69715
1993-94	126.3546	164.851	89.43426	114.94661	110.25641	-	155.5168	113.51351	-	-	126.60486
1994-95	112.3678	106.9046	150.62366	150.98039	193.02325	-	185.5116	85.71428	-	-	113.05883
1995-96	114.8697	128.9036	123.88501	158.23650	189.75903	-	163.3655	188.88888	-	-	115.87014
1996-97	95.06804	140.915	107.42933	70.97192	202.85714	-	114.5638	150.00000	100.00000	-	96.94872
1997-98	106.0689	101.7377	104.88888	86.60986	62.75430	100.00000	106.5175	450.00000	87.94642	-	105.90293
1998-99	112.3638	94.12646	124.61864	104.91918	190.27431	84.50331	81.68417	402.39651	583.75634	100.00000	111.81757
1999-00	132.1069	100.9094	110.81264	131.07836	41.67758	135.7367	123.1891	272.65836	235.82608	155.23918	131.24164
2000-01	91.60484	123.3565	101.22123	104.75217	94.33962	158.1986	97.21052	106.989673	172.16076	93.25018	93.23634
2001-02	95.65481	93.94001	110.82817	106.04878	168.66666	75.10949	123.3898	114.84780	255.10816	111.80173	97.25425
2002-03	121.4045	112.4216	119.31072	132.65869	129.44664	70.94266	107.7966	122.72139	97.35538	104.64461	120.46436
2003-04	123.1464	157.9904	104.92893	142.12898	94.04580	103.2877	857.0386	117.55333	201.47464	65.36650	130.12883
2004-05	130.1837	137.7441	121.31527	260.79531	141.39610	39.12467	165.2746	145.771257	99.08402	98.66255	131.87737
2005-06	109.5198	70.6003	128.50196	137.48362	100.68886	45.76271	112.0355	169.33835	121.91455	168.92596	109.18936
2006-07	98.39643	97.73218	118.81934	119.24882	77.08095	42.96296	140.9655	189.63514	79.91992	77.96296	102.45809
2007-08	124.7768	96.97047	119.82071	186.08353	360.79881	156.8966	74.78995	155.848569	167.98049	232.69992	121.80922
2008-09	87.97875	333.4136	99.02149	123.99656	140.38540	65.93407	33.84695	139.88115	139.66955	92.44641	94.01641
2009-10	104.1603	132.3639	106.40620	133.05225	158.55724	146.6667	137.2307	111.09342	130.22034	455.87044	109.23020
C.V.	**12.18452**	**45.07672**	**13.98749**	**31.51659**	**49.21310**	**47.7148**	**102.8964**	**56.59452**	**73.33158**	**73.72713**	**11.44361**

Source: *Ibid.,* Table – 3.5

Figure – 3.2

Indices of Value of Gems and Jewellery Exports (port-wise) during the Period 1990-91 to 2009-10



Source:*Ibid.,*Table-3.5

indices of the value of exports of gems and jewellery products from ports for the study period and it has been observed that the lowest coefficient of variations of Mumbai and highest coefficient of variations of Bangalore (ranges from 12.18452 to 102.8964). This type of analysis of the exports indices is very useful in formulating the appropriate policies about various exports clusters of India.

Table-3.9 shows that the total exports of gems and jewellery from India and total exports of gems and jewellery from Santacruz Electronic Export Processing Zone (SEEPZ) SEZ, Mumbai along with value of exports in Rs. crore during the period 1990-91 to 2009-10. Column 3 of the Table vividly shows that exports of gems and jewellery from SEEPZ have been continuously increasing except in year 2009-10 with 22.75 per cent Compound Annual Growth Rate (CAGR) and Rs. 471.18 crore as its annual trend values are statistically significant at $\alpha = 0.01$. Similarly, column 2 represents that India's total exports of gems and jewellery in absolute term is continuously increasing. Its CAGR and trend values are 16.59 per cent and Rs. 5659.22 crore respectively. Column 4 shows that the exports from SEEPZ as percentage of total gems and jewellery exports. It has been increasing but with a fluctuating rate.

Table-3.10 narrates the indices and coefficient of variations of the total gems and jewellery exports taken in value terms during the period 1990-91 to 2009-10. The Table explores that the indices of the exports of the gems and jewellery have been in fluctuating nature. Likewise, the indices of gems and jewellery exports from SEEPZ SEZ, Mumbai and total gems and jewellery exports ranges from 101.6698324 to 145.440748, 89.227869 to 205.616355, respectively. Further, the last row of the table gives the coefficient of variations of the gems and jewellery exports over these twenty years in value terms. It has been also observed that the coefficient of variations of exports from SEEPZ, SEZ (21.8661934) is greater than coefficient of variations of total gems and jewellery exports (11.90610466). So the comparative picture of exports highlights that there is an increasing trend in exports of gems and jewellery.

Table – 3.9
Exports of Gems and Jewellery from SEEPZ-SEZ, Mumbai during the Period 1990-91 to 2009-10

(Values in Rs. Crores)

1	2	3	4
YEAR	**Total Exports of Gems and Jewellery**	**Exports of Gems and Jewellery From SEEPZ, Mumbai**	**Percentage Change**
1990-91	5360	129.79	2.421455
1991-92	7234	213.02	2.944706
1992-93	9503	438.43	4.613596
1993-94	12943	525.79	4.06235
1994-95	14637	732.48	5.004304
1995-96	18145	959.3	5.286856
1996-97	18521	1159.25	6.259111
1997-98	20559	1456.1	7.082543
1998-99	26038	2080.93	7.991896
1999-00	35171	2425.84	6.897273
2000-01	35273	2600.92	7.373685
2001-02	35862	2628.96	7.330768
2002-03	44232	3903.45	8.824946
2003-04	55726	5022.75	9.013297
2004-05	70239	5092.65	7.250459
2005-06	73583.24	5985.7	8.134597
2006-07	77430.24	8289.45	10.7057
2007-08	84181.96	8680.27	10.31132
2008-09	95610.31	7745.22	8.100821
2009-10	139056.35	7392.31	5.316054
CAGR	**16.59 (30.74*)**	**22.75 (16.49*)**	
Trends values	**5659.22 (11.10*)**	**471.18 (13.28*)**	

Source: Gem and Jewellery Export Promotion Council (GJEPC), Ministry of Commerce and Industry, Government of India, New Delhi.

Note: * The coefficients are significant at $\alpha = 0.01$.
Figures in parentheses are t-values.

Table – 3.10

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

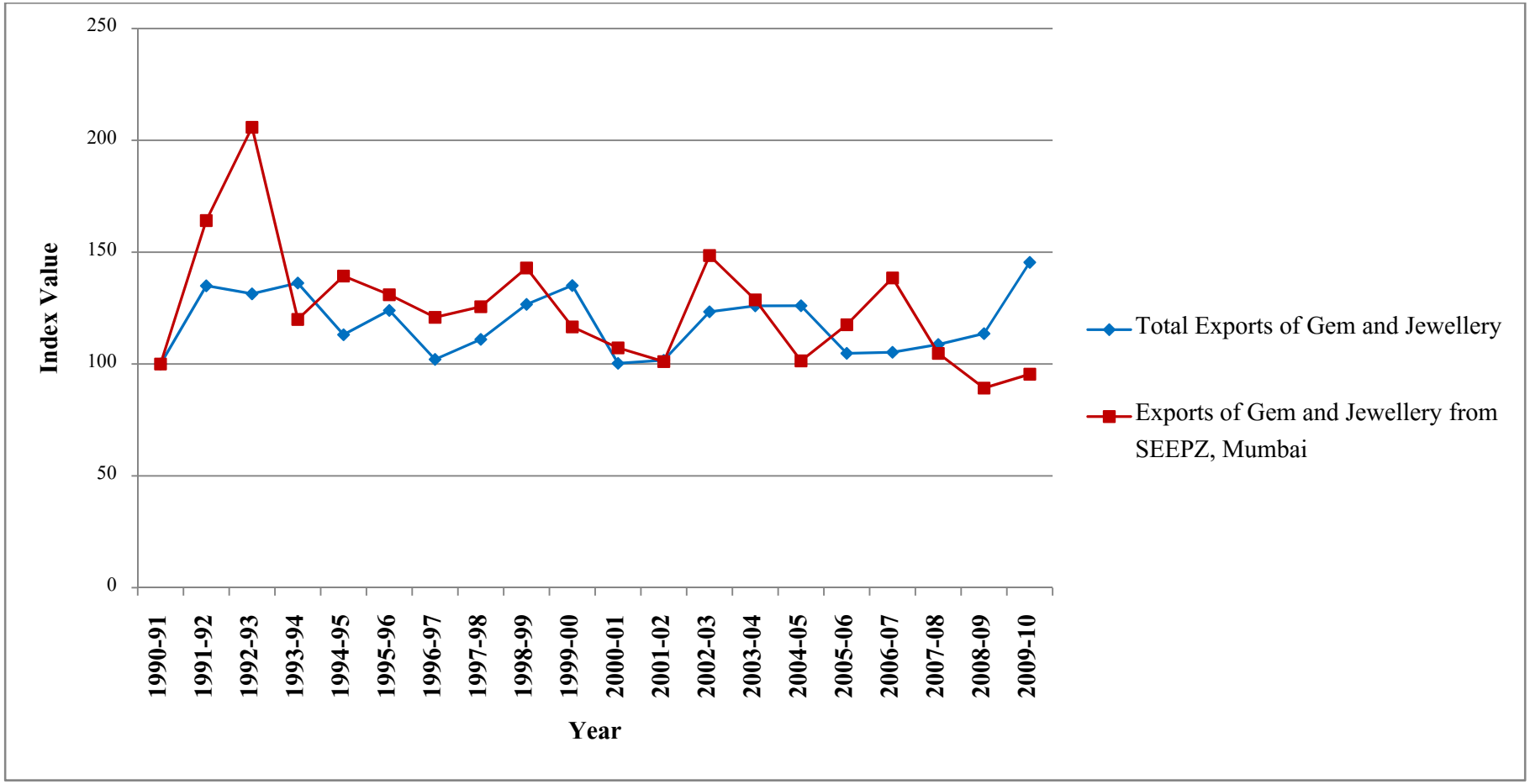
(Values in Rs. Crores)

YEAR	Total Exports of Gems and Jewellery	Exports of Gems and Jewellery From SEEPZ, Mumbai
1990-91	100	100
1991-92	134.9626866	164.1266662
1992-93	131.3657727	205.8163553
1993-94	136.199095	119.9256438
1994-95	113.0881558	139.3103711
1995-96	123.9666598	130.9660332
1996-97	102.0721962	120.8433233
1997-98	111.0037255	125.6070735
1998-99	126.6501289	142.9112012
1999-00	135.0756587	116.5748007
2000-01	100.2900117	107.2172938
2001-02	101.6698324	101.0780801
2002-03	123.339468	148.4788662
2003-04	125.9857117	128.674634
2004-05	126.0434985	101.3916679
2005-06	104.7612295	117.5360569
2006-07	105.2280927	138.487562
2007-08	108.7197457	104.7146674
2008-09	113.5757709	89.22786964
2009-10	145.440748	95.44351226
C. V.	**11.90610466**	**21.8661934**

Source: *Ibid.,* Table – 3.9

Figure – 3.3

Indices of Exports of Gems and Jewellery from SEEPZ-SEZ, Mumbai during Period 1990-91 to 2009-10

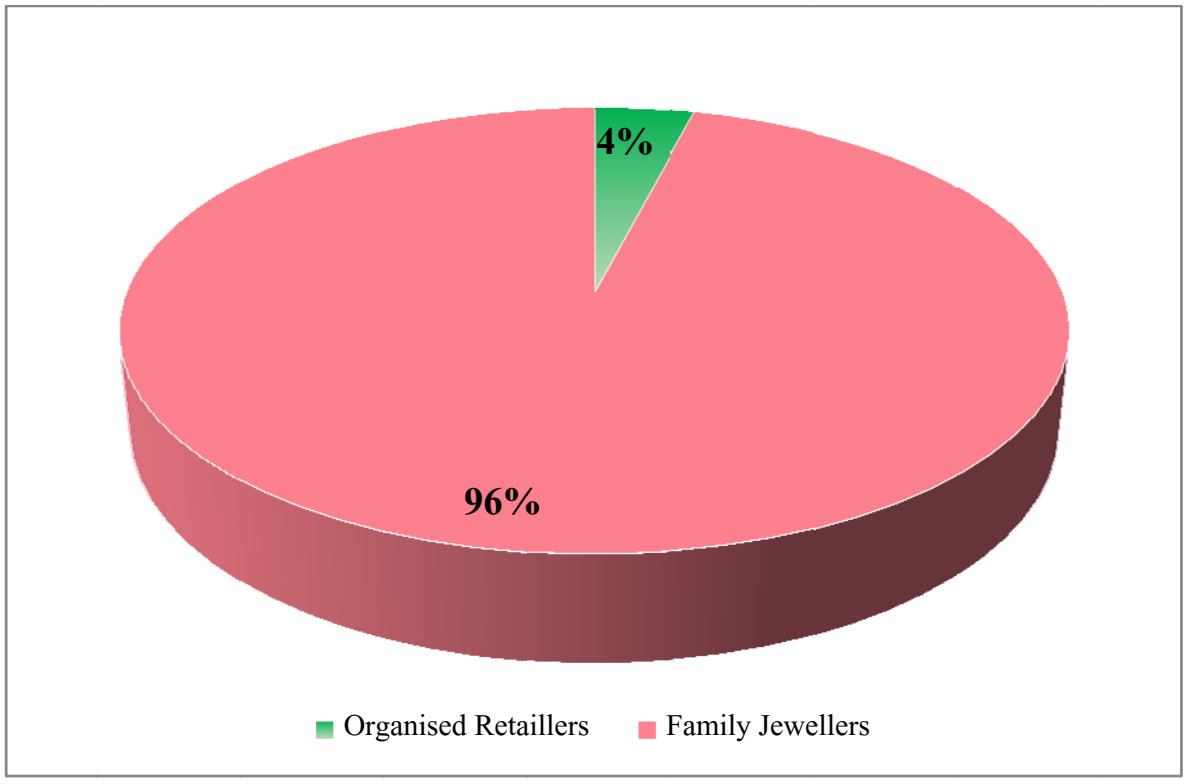


Source: *Ibid.,* Table – 3.9

GEMS AND JEWELLERY INDUSTRY: A GLITTERING SECTOR:

The gems and jewellery sector is largely unorganized at present. The industry is dominated by family jewellers, who constitute nearly 96 per cent of the market. However, just as in the case of jewellery, the share of organized sector has increased significantly in recent years due to an increase in demand for better quality finished jewellery products. And, India was one of the first countries to start making fine jewellery from minerals and metals and even today, most of the jewellery made in India is hand-made.

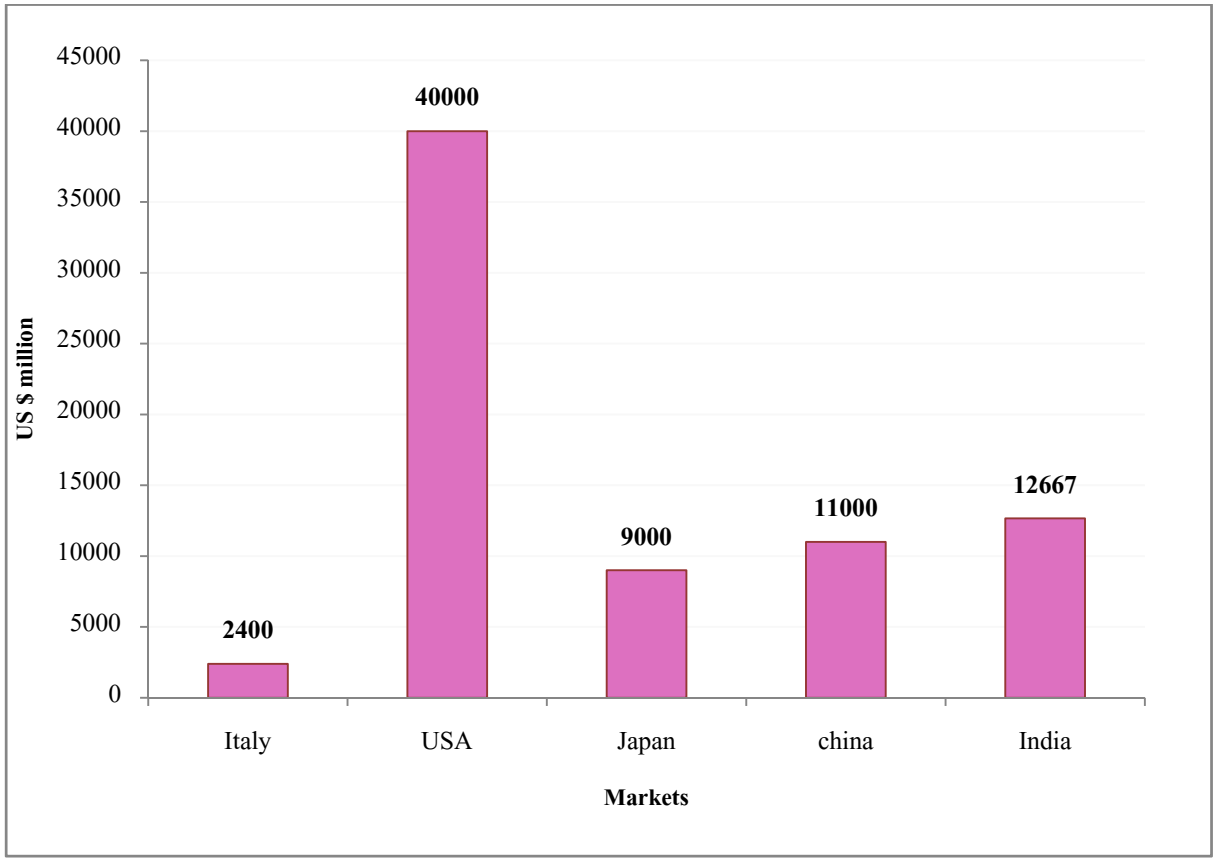
Figure – 3.4
Structure of Gems and Jewellery Industry of India



The Indian jewellery market is one of the largest in the world. The emergence of branded jewellery is a new trend that is shaping the Indian jewellery market. Branded jewellery is a relatively new concept in the sector, and has positioned itself on the quality, reliability and wearability factors. Traditional handcrafted jewellery is slowly giving way to machine-made jewellery.

Figure-3.5 shows that the Indian jewellery market size at US $ 12,667 million, is second only the US market of US $ 40,000 million. According to Gem and Jewellery Export Promotion Council (GJEPC) the gold jewellery market is growing at 15 per cent per annum and the diamond jewellery market, at 27 per cent per annum.

Figure - 3.5
Comparative Jewellery Market Size



Source: The 2003-2008 World Outlook for Jewellery-Prof. Philip M. Parker, Insead

Table-3.11 shows that the proportion of gold in jewellery is measured on the carat scale. Pure gold is designated 24 carat, which compares with fineness by which bar gold is defined. In India, as also in the Middle East and South East Asia, jewellery is traditionally 22 carat. The most widely used alloys for jewellery in Europe are 18 and 14 carat while 14 carat gold jewellery dominates in the US, 9 carat is popular in Britain. In China, Hong Kong and some other parts of Asia, 'chukkam' or pure gold jewellery of 990 fineness are popular.

Table – 3.11

Gold Caratage and Fineness

Caratage	Fineness	% Gold
24	1,000	100
22	916.7	91.67
18	750	75
14	583.3	58.3
10	416.7	41.67
9	375	37.5

Source: World Gold Council.

Table–3.12 shows a comparative picture of four gems and jewellery product groups exports as described in the footnote to the Table. The export of these product groups of gems and jewellery have been further classified into seven country groups (i.e. Group A to Group G) and have been shown in the given Table.

This kind of classification and grouping of the importing countries provide invaluable information regarding the demand of various types of gems and jewellery products. The analysis reveals that Group A countries are in the dire need of all the products under study. The remaining six groups of countries (Group B to Group G) are also in the demand of these products.

On the basis of CAGR of exports to the various countries the inter-comparison analysis of the product groups of gems and jewellery has also been made. Parenthetical figures of CAGR columns are the t-values that denote their importance at various levels. From the Table it is clear that there are some negative values of CAGR for these exports to some countries. The reason might be occasional local disturbances in the importing countries. This kind of empirical information is highly important regarding appropriate decision in the area of export-import policy.

Table – 3.12
Inter Comparison of Exports of the Gems and Jewellery Products Groups (1998-99 to 2004-05)

(Value in US $ Million)

Product Group-I				Product Group-II				Product Group-III				Product Group-IV			
Country Group	Sr. No.	Country	CAGR	Country Group	Sr. No.	Country	CAGR	Country Group	Sr. No.	Country	CAGR	Country Group	Sr. No.	Country	CAGR
Group-A	1	U.S.A.	3.87 (2.01**)	Group-A	1	U.S.A.	0.97 (0.47)	Group-A	1	U.S.A.	20.09 (9.20*)	Group-A	1	U.S.A.	18.70 (10.96*)
	2	Spain	12.07 (3.43**)		2	Spain	3.59 (2.31*)		2	Spain	16.89 (1.12)		2	Spain	24.13 (3.83*)
	3	Japan	2.20 (0.83)		3	Japan	1.02 (0.16)		3	Japan	6.33 (0.74)		3	Japan	8.20 (1.36)
Group-B	4	Belgium	5.05 (2.74**)	Group-B	4	Belgium	19.16 (0.52)	Group-D	4	Canada	11.65 (1.00)	Group-E	4	France	19.17 (4.53*)
	5	S. Korea	7.26 (0.49)		5	S. Korea	11.42 (0.87)		5	Malaysia	45.47 (1.56)		5	Thailand	32.93 (4.71*)
	6	Australia	19.16 (6.32*)		6	Australia	9.54 (1.66)		6	Italy	33.29 (9.40*)		6	Israel	17.41 (1.57)
Group-C	7	Taiwan	8.66 (1.21)	Group-D	7	Canada	9.83 (1.83)	Group-C	7	Taiwan	51.53 (2.12*)	Group-G	7	U.A.E.	-2.78 (-0.28)
	8	Singapore	39.83 (4.56*)		8	Malaysia	85.55 (2.80**)		8	Singapore	33.49 (13.74*)		8	Kuwait	-5.35 (-0.23)
	9	U.K.	15.59 (2.39**)		9	Italy	-1.75 (-0.27)		9	U.K.	10.26 (4.32*)		9	Switzerland	4.80 (0.95)
Group -E	10	France	22.10 (2.15**)	Group-F	10	Bahrain	64.37 (2.16**)	Group-G	10	U.A.E.	51.42 (4.81*)	Group-F	10	Bahrain	7.46 (0.78)
	11	Thailand	13.74 (3.91*)		11	Germany	-3.41 (-0.57*)		11	Kuwait	-5.48 (-1.23)		11	Germany	14.39 (2.79**)
	12	Israel	17.13 (3.60**)		12	Hong Kong	-7.91 (-2.65)		12	Switzerland	22.94 (0.06)		12	Hong Kong	-6.73 (-0.56)

Source: *Ibid.,* Table-3.1
Note: * The coefficients are significant at $\alpha = 0.01$
** The coefficients are significant at $\alpha = 0.10$

Figures in parentheses are t-value.

Product Group-I = Cut and Polished Diamonds
Product Group-II = Coloured Gemstones
Product Group-III = Gold Jewellery
Product Group-IV = Other Items of Gems and Jewellery Exports.

Table - 3.13
Two Way Classification of CAGR for India's Exports of Gems and Jewellery Products

(Value in US $ Million)

Product Group – I			Product Group – II			Product Group – III			Product Group – IV		
Countries Groups	**Highest Growth Rate**	**Lowest Growth Rate**	**Countries Groups**	**Highest Growth Rate**	**Lowest Growth Rate**	**Countries Groups**	**Highest Growth Rate**	**Lowest Growth Rate**	**Countries Groups**	**Highest Growth Rate**	**Lowest Growth Rate**
Group-A	12.07 (Spain)	2.20 (Japan)	Group-A	3.59 (Spain)	0.97 (USA)	Group-A	20.09 (USA)	6.33 (Japan)	Group-A	24.13 (Spain)	8.20 (Japan)
Group-B	19.16 (Australia)	5.05 (Belgium)	Group-B	19.16 (Belgium)	9.54 (Australia)	Group-D	45.47 (Malaysia)	11.65 (Canada)	Group-E	32.93 (Thailand)	17.41 (Israel)
Group-C	39.83 (Singapore)	8.66 (Taiwan)	Group-D	85.85 (Malaysia)	-1.75 (Italy)	Group-C	51.53 (Taiwan)	10.26 (UK)	Group-G	4.80 (Switzerland)	-5.35 (Kuwait)
Group-E	22.10 (France)	13.74 (Thailand)	Group-F	64.37 (Bahrain)	-7.91 (Hong Kong)	Group-G	51.42 (UAE)	-5.48 (Kuwait)	Group-F	14.39 (Germany)	-6.73 (Hong Kong)

Source: *Ibid.,*Table-3.1

Note: Product Group-I = Cut and Polished Diamonds
Product Group-II = Coloured Gemstones
Product Group-III = Gold Jewellery
Product Group-IV = Other Items of Gems and Jewellery Exports

Table-3.13, derived from the Table-3.12, clearly gives two way classifications of the exports of gems and jewellery products. This Table shows both the highest and lowest growth rates for the products under study for each category of the importing countries. For instance, the highest growth rates in the product groups are 12.07, 3.59, 20.09 and 24.13 respectively in countries of Group A and similarly the lowest growth rates for the same groups are 2.20, 0.97, 6.33 and 8.20 respectively. The same kind of interpretations for such remaining combinations may be produced on similar lines.

NOTES AND REFERENCE

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