

CHAPTER IV

ANALYSIS AND INTERPRETATION

This chapter has been divided into two sections. The first section analyses the overall performance of the Life Insurance Corporation of India and further studies the impact of the entry of private insurers in its performance. The second section deals with the overall performance analysis of private life insurers and the comparison of private and public life insurers in India.

4.1 ANALYSIS OF OVERALL PERFORMANCE OF LIFE INSURANCE CORPORATION OF INDIA AND THE IMPACT OF PRIVATIZATION:

In analyzing the overall performance of Life Insurance Corporation of India the three main core areas namely performance, productivity and investment portfolio management have been analyzed using the key determinants listed in the reports of Insurance Regulatory Development Authority (IRDA), exclusively for the evaluation of the insurance companies in India.

4.1.1 Performance of LIC

Performance refers to the accomplishment of a given task measured against preset known standards. In order to evaluate the performance, definite goal and objectives have to be set-up first. Performance evaluation is a must in order to find out the loopholes in the functioning and working of any activity. It also widens the scope for improvement. Thus performance evaluation is a measure of assignment based on authentic tasks such as activities, exercises or problems.

The main objective of the study is to evaluate the overall performance of LIC of India during a period of fifteen years from 1993-94 to 2007-08. The performance of LIC has been evaluated on the basis of quantum of business as well as income of the Corporation. The analysis has been made by using the following performance measures:

A) Individual Insurance

- 4.1.1(a) New business in India
- 4.1.1(b) New business out of India
- 4.1.1(c) Business in force in India
- 4.1.1(d) Business in force out of India
- 4.1.1(e) New rural business
- 4.1.1(f) Share of rural business to total business.

B) Group Insurance

- 4.1.1(g) New business progress under group superannuation schemes
- 4.1.1(h) Business in force under group insurance and superannuation schemes

C) Other performance measures

- 4.1.1(i) Growth in active agents
- 4.1.1(j) Composition of income
- 4.1.1(k) Average sum assured per policy
- 4.1.1(l) Ratio of First insurance to Total business in terms of number of policies
- 4.1.1(m) Ratio of First insurance to Total business in terms of sum assured
- 4.1.1(n) Life insurance fund
- 4.1.1(o) Claims settlement operations
- 4.1.1(p) Net lapse ratio
- 4.1.1(q) Analysis of utilisation of income

I.A Individual insurance

4.1.1(a) New business in India

In pursuance of the corporate objectives of providing insurance cover to more and more people, greater emphasis is laid on covering individuals who have no previous insurance on their lives. New business is a pointer towards the spread of message of insurance among those people who have never availed the benefits of life insurance as well as the exiting policyholders. New business of individuals in India includes the performance of the corporation in terms of number of policies, sum assured and the total annual premium during a particular year. It is one of the significant criterion for evaluating the performance of the corporation and thus the performance of the new business in India is analyzed for the period from 1993-94 to 2007-08 in the Table 4.1.

The annual premium ranges between Rs.2507.73 crores to Rs.16009.44 crores with a mean of Rs.8249.79 crores and a coefficient of variation of 58.24 percent. The annual premium has shown an average growth rate of 14.72 percent.

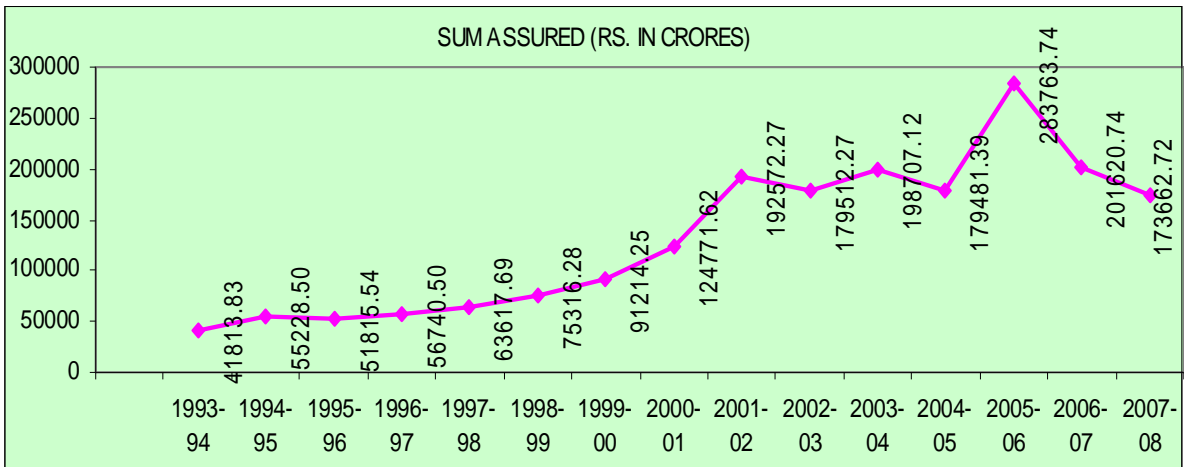
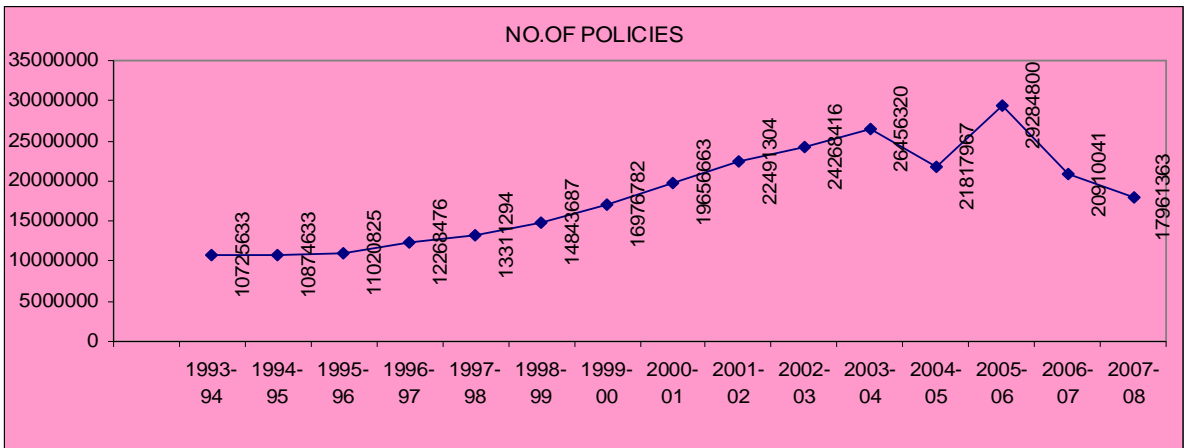
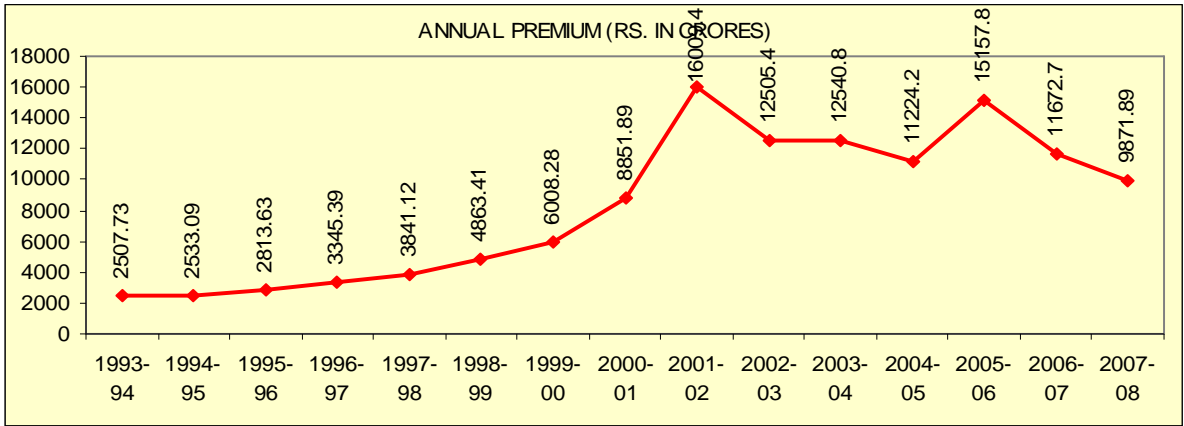
Table No: 4.1
Table Showing the New Business of LIC in India

YEAR	ANNUAL PREMIUM (Rs. in Crores)	PERCENT GROWTH OVER PREVIOUS YEAR	NUMBER OF POLICIES	PERCENT GROWTH OVER PREVIOUS YEAR	SUM ASSURED (Rs. in Crores)	PERCENT GROWTH OVER PREVIOUS YEAR	
1	2	3	4	5	6	7	
1993-94	2507.73	-	10725633	-	41813.83	-	
1994-95	2533.09	1.04	10874633	1.39	55228.50	32.08	
1995-96	2813.63	11.03	11020825	1.34	51815.54	-6.17	
1996-97	3345.39	18.89	12268476	11.32	56740.50	9.5	
1997-98	3841.12	14.83	13311294	8.5	63617.69	12.12	
1998-99	4863.41	26.61	14843687	11.51	75316.28	18.38	
1999-00	6008.28	23.54	16976782	14.37	91214.25	21.1	
2000-01	8851.89	47.32	19656663	15.78	124771.62	36.78	
2001-02	16009.44	80.85	22491304	14.42	192572.27	54.33	
2002-03	12505.38	-21.88	24268416	7.9	179512.27	-6.78	
2003-04	12540.83	0.28	26456320	9.02	198707.12	10.69	
2004-05	11224.19	-10.50	21817967	-17.53	179481.39	-9.68	
2005-06	15157.76	35.05	29284800	34.22	283763.74	58.1	
2006-07	11672.72	-22.99	20910041	-28.6	201620.74	-28.95	
2007-08	9871.89	-15.43	17961363	-14.1	173662.72	-13.87	
		Min.Val.	Max.Val.	Mean	SD	C.V (%)	C.G.R (%)
Annual premium (Rs. in Crores)		2507.73	16009.44	8249.78	4804.74	58.24	14.72
Number of policies		10725633	29284800	18191214	5986911	32.91	6.70
Sum assured (Rs. in Crores)		41813.83	283763.7	131322.6	74625.15	56.83	14.10

Source: Annual Reports, 1993-94 To 2007-08.

Chart No : 4.1

Charts showing the New Business in India



The number of policy ranges between 10.73 crores to 29.3 crores with a mean of 18.2 crores and a coefficient of variation of 32.91 percent and has shown a growth at 6.70 percent.

The sum assured ranges between Rs.41813.83 crores to Rs.283763.7 crores with a mean of Rs.131322.6 crores and a coefficient of variation of 56.83 percent and has shown a compound growth rate of 14.10 percent.

In all these cases a steady growth has been observed for the period from 1993-94 to 2001-02 after which a fluctuating trend has been observed. From 2002-03 onwards a decline in growth rate has been noticed due to recession as well as intense competition from private insurers. This indicates that the performance of LIC was affected by the entry of private players.

TREND ANALYSIS OF NEW BUSINESS IN INDIA DURING 1998-99 TO 2007-08

To study the pattern of trend of the parameters the polynomial trend equation namely, cubic trend equation of the form,

$$Y = b_0 + b_1 t + b_2 t^2 + b_3 t^3$$

are presented below. Where b_i 's ($i=1,2 \& 3$) are trend coefficients, b_0 = constant, t_i = i th year ($i=1,2,\dots,10$). The F-values indicate the overall significance of the trend equation and R^2 , the coefficient of determination indicates that to what extent the trend coefficients are able to explain the variations of the dependent variables under study.

Table No: 4.2

TRENDS IN NEW BUSINESS IN INDIA

	R²	D. F	F Value	Trend Coefficients			
				b₀	b₁	b₂	b₃
Annual Premium (Rs. in Crores) Y1	0.902	10	30.7**	5382.7	-2853.8	671.05	-30.78
Number of policies Y2	0.948	10	60.9**	1.5E+07	-4.E+06	939273	-43672
Sum assured (Rs. In Crores) Y3	0.917	10	37.0**	99615	-46577	9836.58	-422.57

** Significant at 1% level

$$\begin{aligned} \text{Annual premium (Rs. in Crores)} & \quad Y1 = 5382.7 - 2853.8t + 671.05t^2 - 30.78t^3 \\ \text{Number of policies} & \quad Y2 = (1.5E+07) - 4.E+06t + 939273t^2 - 43672t^3 \\ \text{Sum Assured (Rs. in Crores)} & \quad Y3 = 99615 - 46577t + 9836.58t^2 - 422.57t^3 \end{aligned}$$

The significant F value reveals the overall significance of the above Cubic trend equation. The Coefficient of determination R^2 indicates that the trend equations b1, b2 and b3 put together explain the variations of Y1 to the extent 90.2 percent, Y2 to the extent of 94.8 percent and Y3 to the extent of 91.7 percent, which shows the adequacy of the model fitted to forecast the trend values. The forecasted value for any 't' value-(year) can be obtained from the above trend equation. The above significant cubic trend equations forecast positive trend for this determinant in the future years.

4.1.1(b) New Business Outside India:

The Corporation directly operates through its Branch offices at Port Louis in Mauritius, Suva and Lautoka in Fiji and at Wembley in the United Kingdom. First ever Representative Office was opened in Singapore on 6th November, 2008. This Office is engaged in market research, study of regulatory issues and assessment of potential for viable operations through appropriate route. LIC operates in international markets through its branch offices as well as joint venture subsidiaries.

Foreign Joint Venture Companies:

i) LIC(International) B.S.C.(c), Bahrain:

LIC (International) B.S.C. (c), Bahrain was established in Bahrain in 1989 as a joint venture company which caters to the life insurance needs of NRIs and local population in the Gulf by issuing policies in US Dollars. The company operates in 5 GCC countries of Bahrain, Kuwait and UAE (through Chief Agents), Qatar (through Broker) and Oman (through Branch Office). As a part of its expansion activities, the Company has entered in to a brokership arrangement with a local company in Thailand.

ii) LIC (Nepal) Ltd:

LIC (Nepal) Ltd., a joint venture company between LIC of India and M/S Vishal Group of companies in the Republic of Nepal was established on 3 rd December 2001.

iii) LIC (Lanka) Ltd:

LIC (Lanka) Ltd., a joint venture company between LIC of India and M/S Bartleet Transcapital Ltd. was established on 1 st March 2003.

iv) Kenindia Assurance Co. Ltd.:

Kenindia Assurance Co. Ltd., a joint venture company between LIC of India, GIC and others was established on 06.12.1978 in Kenya. The Company transacts both life and non-life business.

v) Saudi Indian Company for Co-operative Insurance:

Saudi Indian Company for Co-operative Insurance (SICCI) is a joint venture company between LIC of India, LIC (International) B.S.C. (c), Bahrain, New India Assurance Company Limited, Al-Hokair Group and public from Saudi Arabia where LIC of India and LIC (International) hold 10.2 percent share each. Commercial License was granted on 8.8.2007. The Company began its Life Operations in January, 2009.

vi) LIC (Mauritius) Offshore Limited.

LIC (Mauritius) Offshore Limited (LICMOL), a joint venture company between LIC of India and GIC of India where LIC of India holds 70 percent share has decided to defer life business activities and is contemplating to pursue non-life reinsurance business with active participation of GIC of India.

Table 4.3 shows the offshore new business of the corporation for the period of study. The annual premium ranges between Rs.11.46 crores to Rs.26.5 crores with a mean of Rs.18.64 crores and a coefficient of variation of 28.12 percent. There were many fluctuations in the performance of LIC right from the initial period of the study and in particular in 2000-01. This is the year when the private insurers entered the sector. But afterwards LIC gradually picked up with slight increase and decrease in its performance and has shown an average annual growth at 4.61 percent.

Table No: 4.3**Table Showing the New Business of LIC outside India**

YEAR	ANNUAL PREMIUM (Rs. in Crores)	PERCENT GROWTH OVER PREVIOUS YEAR	NUMBER OF POLICIES	PERCENT GROWTH OVER PREVIOUS YEAR	SUM ASSURED (Rs. in Crores)	PERCENT GROWTH OVER PREVIOUS YEAR	
1	2	3	4	5	6	7	
1993-94	12.13	-	12376	-	199.07	-	
1994-95	14.93	23.00	13304	7.49	240.32	20.72	
1995-96	15.63	4.68	13345	0.30	255.99	6.52	
1996-97	15.39	-1.53	12296	-7.86	253.44	-0.99	
1997-98	18.07	17.41	13904	13.07	310.14	22.37	
1998-99	17.11	-5.31	13356	39.40	289.98	-6.50	
1999-00	17.74	3.68	12648	-5.30	276.69	-4.58	
2000-01	11.46	-35.40	7911	-37.40	179.01	35.30	
2001-02	12.57	9.68	8695	9.91	212.69	18.81	
2002-03	18.85	49.96	10359	19.13	298.95	40.55	
2003-04	23.27	23.45	11562	11.61	341.4	14.19	
2004-05	26.50	13.88	13807	19.42	405.27	18.71	
2005-06	25.24	-4.75	13370	-3.17	416.1	2.67	
2006-07	24.94	1.19	12059	-9.81	403.71	-2.98	
2007-08	25.74	3.21	10509	-12.85	381.08	-5.61	
	Min.Val.	Max.Val.		Mean	SD	C.V (%)	C.G.R (%)
Annul premium (Rs. in Crores)	11.46	26.5		18.64	5.24	28.12	4.61
Number of policies	7911	13904		11967	1842.01	15.39	-1.27
Sum assured (Rs. in Crores)	179.01	416.1		297.59	77.63	26.09	4.11

Source: Annual Reports, 1993-94 To 2007-08.

The number of policies ranges between 7911 and 13904 with a mean of 11967 and a coefficient of variation of 15.39 percent and has shown an overall negative growth rate of 1.27 percent.

The sum assured ranges between Rs.179.01 crores to Rs.416.1 crores with a mean of Rs.416.1 crores and a coefficient of variation of 26.09 percent with a growth of 4.11 percent.

It has been observed from the analysis of new business the progress of LIC in foreign countries is highly volatile in case of annual premium, number of policies and sum assured. This is the impact of the entry of private players. Therefore, LIC must make some conscious efforts to explore more business outside India and record a consistent growth.

Chart No: 4.2

Chart showing the New Business out of India

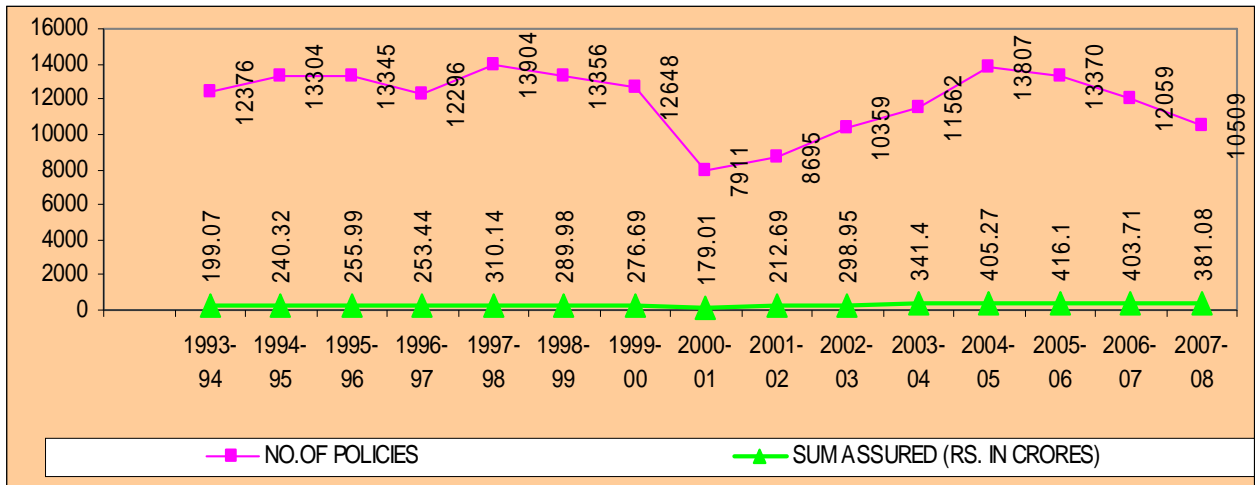


Table No: 4.4

TRENDS IN NEW BUSINESS OUTSIDE INDIA

	R ²	D. F	F Value	Trend Coefficients			
				b ₀	b ₁	b ₂	b ₃
Annual premium (Rs. in Crores) Y1	0.716	10	8.40**	12.673	1.105	-0.1	0.0096
Number of policies Y2	0.265	10	1.20	12788.4	388.581	-125.15	6.4593
Sum assured (Rs. in Crores) Y3	0.648	10	6.14*	202.961	21.947	-3.055	0.1733

** Significant at 1% level

$$\text{Annual premium (Rs. in Crores) } Y1 = 12.673 + 1.105 t - 0.1 t^2 + 0.0096 t^3$$

$$\text{Number of policies } Y2 = 12788.4 + 388.581 t - 125.15 t^2 + 6.4593 t^3$$

$$\text{Sum Assured (Rs. in Crores) } Y3 = 202.961 + 21.947 t - 3.055 t^2 + 0.1733 t^3$$

The significant F value reveals the overall significance of the above Cubic trend equation. The Coefficient of determination R² indicates that the trend equations b1, b2 and b3 put together explain the variations of Y1 to the extent 71.6 percent, Y2 to the extent of 26.5 percent and Y3 to the extent of 64.8 percent, which shows the adequacy of the model fitted to forecast the trend values. The forecasted value for any 't' value-(year) can be obtained from the above trend equation. The above significant cubic trend equations forecast positive trend for this determinant in the future years.

4.1.1(c) Business in force in India:

Business in force includes the sum assured, number of policies and the total premium till date. It is the major indicator of the growth of the corporation. It reveals the amount of business that the corporation has been able to conduct in the country.

Table No:4.5

Table Showing the Business In force in India

YEAR	ANNUAL PREMIUM (Rs. in Crores)	PERCENT GROWTH OVER PREVIOUS YEAR	NUMBER OF POLICIES (In Lakhs)	PERCENT GROWTH OVER PREVIOUS YEAR	SUM ASSURED (Rs. in Crores)	PERCENT GROWTH OVER PREVIOUS YEAR
1	2	3	4	5	6	7
1993-94	8758.19	-	608.00	-	207601.00	-
1994-95	10384.91	18.57	645.52	7.65	253333.00	22.02
1995-96	12093.63	16.46	708.78	8.30	294336.00	16.18
1996-97	14499.50	19.89	776.66	9.57	343018.00	16.53
1997-98	17065.64	17.69	849.15	9.33	398959.00	16.31
1998-99	20234.05	18.56	916.37	7.91	457435.00	14.65
1999-00	24540.37	21.28	1012.99	10.54	534589.00	16.86
2000-01	34117.92	39.02	1130.24	11.57	643241.00	20.32
2001-02	42336.84	24.08	1257.89	11.29	809170.00	25.79
2002-03	48148.98	13.72	1387.88	10.33	957501.00	17.96
2003-04	62333.71	12.30	1539.21	10.90	1113735.00	16.68
2004-05	68700.99	10.21	1629.50	5.67	1029839.00	11.32
2005-06	77303.43	12.52	1795.63	10.20	1280159.00	24.31
2006-07	81382.12	5.28	1895.17	5.54	1397468.01	9.16
2007-08	79142.55	-2.75	1924.28	1.54	1485379.90	6.25
	Min.Val.	Max.Val.	Mean	SD	C.V (%)	C.G.R (%)
Annul premium (Rs. in Crores)	8758.19	81382.12	40069.52	27389.94	68.36	19.11
Number of policies (In Lakhs)	608	1924.28	1205.15	464.62	38.55	9.30
Sum assured (Rs. in Crores)	207601	1485380	747050.90	437433.2	58.55	15.81

Source: Annual Reports,, 1993-94 To 2007-08.

Table 4.5 shows the business in force in India of LIC and it reveals that the annual premium ranges between Rs.8758.19 crores to Rs.81382.12 crores with a mean of Rs.40069.52 crores and a coefficient of variation of 68.36 percent and has shown a compounded growth rate of 19.11 percent. The performance has been consistent till 2001-02 and thereafter from 2002-03 onwards the business in force has shown a decline in growth rate.

The number of policies ranges between 608 lakhs to 1924.28 lakhs with a mean of 1205.15 lakhs and a coefficient of variation of 38.55 percent on an average annual growth at 9.30 percent. The graph of the policies tend to go upward starting from 608 lakhs policies in the year 1993-94 to 1924.28 lakhs number of policies in the year 2007-08.

The Sum assured ranges between Rs.207601 crores to Rs.1485380 crores with a mean of Rs.747050.9 crores, coefficient of variation of 58.55 percent and has shown an average growth rate of 15.81 percent. LIC's performance was consistent with Rs.207601 crores in the year 1993-94 to Rs. 1485379.90 crores in the year 2007-08.

It was witnessed from the analysis that the growth progress of LIC was steady till 2001-02 and with a decline in the growth rate from 2002-03 onwards. This is due to the competition given by private players to LIC and was the impact of the entry.

Chart No: 4.3 (a)

Chart Showing the Business in force in India

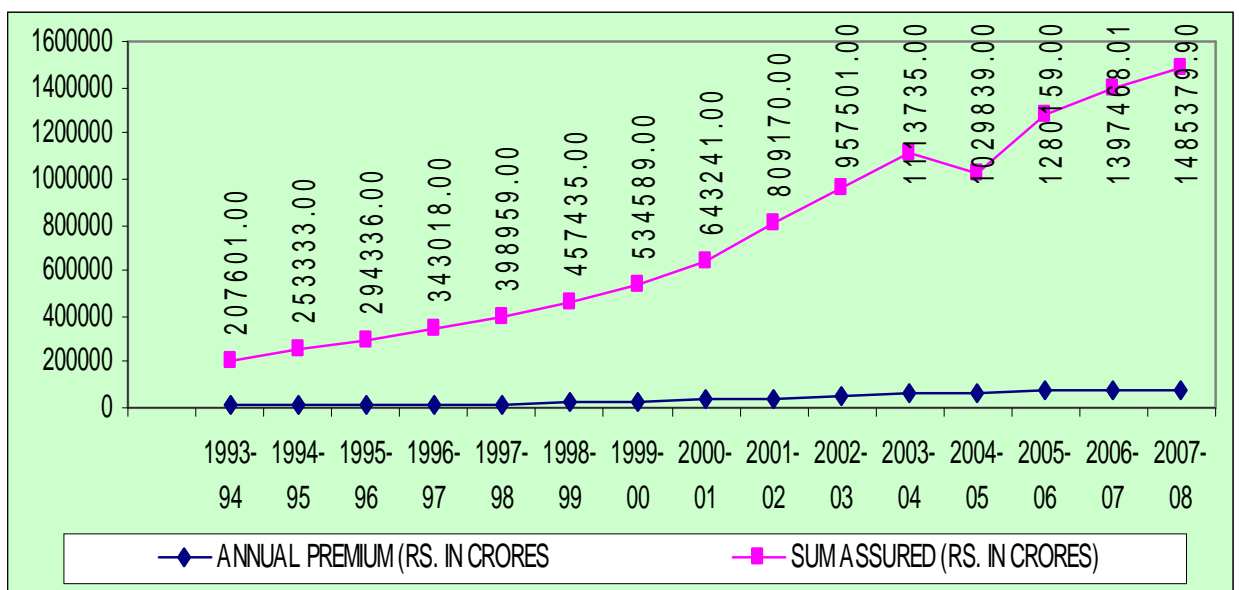


Chart Showing the Business in force in India (In lakhs)

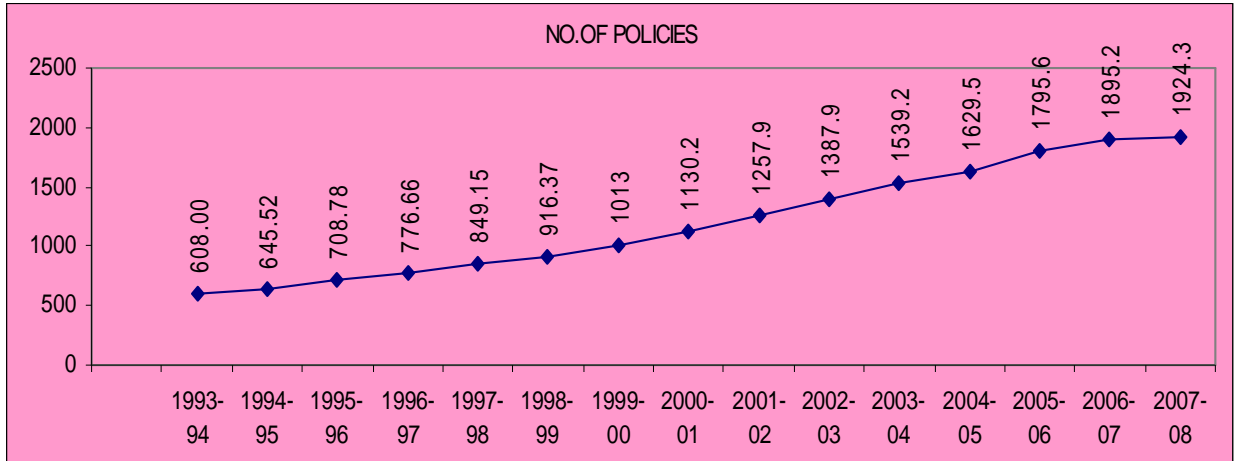


Table No: 4.6

TRENDS IN BUSINESS IN FORCE IN INDIA

	R ²	D. F	F Value	Trend Coefficients			
				b ₀	b ₁	b ₂	b ₃
Annual premium Y1	0.990	10	332.**	16929.8	-6643.2	1553.83	-54.467
Number of policies Y2	0.998	10	1382**	639.029	-24.606	15.1472	-0.5084
Sum assured Y3	0.996	10	766.**	274060	-50175	17375.9	-574.97

** Significant at 1% level

Annual premium (Rs. in Crores) $Y1 = 16929.8 - 6643.5 t + 1553.83 t^2 - 54.467 t^3$

Number of policies (in Lakhs) $Y2 = 639.029 - 24.606 t + 15.1472 t^2 - 0.5084 t^3$

Sum Assured (Rs. in Crores) $Y3 = 274060 - 50175 t + 17375.9 t^2 - 574.97 t^3$

The significant F value reveals the overall significance of the above Cubic trend equation. The Coefficient of determination R² indicates that the trend equations b1, b2 and b3 put together explain the variations of Y1 to the extent 99 percent, Y2 to the extent of 99.8 percent and Y3 to the extent of 99.6 percent, which shows the adequacy of the model fitted to forecast the trend values. The forecasted value for any 't' value-(year) can be obtained from the above trend equation. The above significant cubic trend equations forecast positive trend for this determinant in the future years.

4.1.1(d) Business in force Outside India

LIC caters to the needs of Non-Resident Indians and people of Indian origin by having its existence in the international market through its branches and joint venture subsidiaries. In order to evaluate its business performance it is important to discuss its business in force outside India in terms of premium income, number of policies and sum assured for all the years. Table 4.7 shows the total business in force out of India in respect of various parameters for the years 1993-94 to 2007-08.

Table No: 4.7

Table showing Business in force Outside India

YEAR	ANNUAL PREMIUM (Rs. in Crores)	PERCENT GROWTH OVER PREVIOUS YEAR	NUMBER OF POLICIES (In Lakhs)	PERCENT GROWTH OVER PREVIOUS YEAR	SUM ASSURED (Rs. In Crores)	PERCENT GROWTH OVER PREVIOUS YEAR	
1	2	3	4	5	6	7	
1993-94	46.19	-	0.73	-	1018.00	-	
1994-95	57.43	24.13	0.77	5.48	1239.00	21.70	
1995-96	65.41	14.07	0.82	6.49	1422.00	14.76	
1996-97	73.87	12.93	0.84	2.43	1601.00	12.50	
1997-98	81.00	9.65	0.88	4.76	1789.00	11.74	
1998-99	81.83	1.02	0.89	1.13	1766.00	-1.28	
1999-00	90.00	9.98	0.90	1.12	1862.00	5.43	
2000-01	89.85	-0.16	0.87	-3.34	1801.00	-3.27	
2001-02	96.60	7.51	0.87	0.00	1847.00	2.55	
2002-03	106.33	10.07	0.90	3.34	2174.00	17.70	
2003-04	131.42	23.61	0.93	7.33	2038.00	-6.67	
2004-05	137.16	4.37	1.00	7.53	2213.00	8.59	
2005-06	145.00	5.72	0.98	-2.00	2308.00	4.29	
2006-07	139.81	-3.57	1.00	2.04	2588.00	12.13	
2007-08	145.40	4.01	0.99	-1.00	2598.00	0.39	
		Min.Val.	Max.Val.	Mean	SD	C.V (%)	C.G.R (%)
Annual premium (Rs. in Crores)		46.19	145.4	99.15	33.33	33.62	8.00
Number of policies (in lakhs)		0.73	1	0.89	0.08	9.11	1.89
Sum assured (Rs .in Crores)		1018	2598	1884.27	454.54	24.12	5.74

Source: Annual Reports,, 1993-94 To 2007-08.

The annual premium ranges between Rs. 46.19 crores to Rs.145.4 crores with a mean of Rs.99.15 crores and a coefficient of variation of 33.62 percent with an annual growth rate of 8 percent.

The number of policy ranges between 0.73 lakh to 1 lakh with a mean of 0.89 lakh and a coefficient of variation of 9.11 percent. This has shown an average growth rate of 1.89 percent.

The sum assured ranges between Rs.1018 crores to Rs.2598 crores with a mean of Rs.1884.27 crores and a coefficient of variation 24.12 percent. This has shown an average annual growth rate of 5.74 percent.

It was clear from the table that the growth rate of LIC in case of business in force out of the country was fluctuating with slight increase and decrease in their quantum of business and it was negative in the year 2000-01. This was the year when IRDA came into existence and foreign players in collaboration with private players entered this sector. Therefore LIC must make effort to capture world market.

Chart No: 4.4

Chart Showing the Business In force Outside India

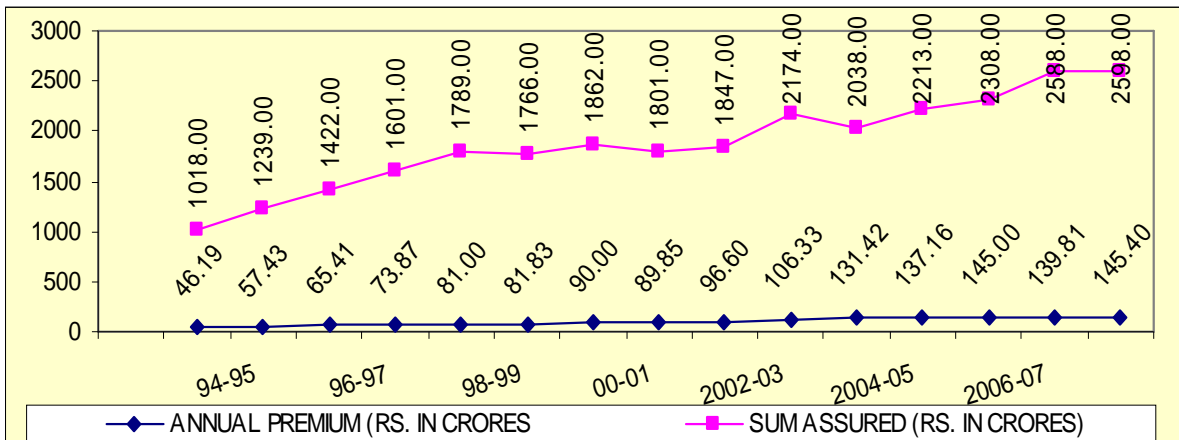


Chart showing the Number of policies (In Lakhs)

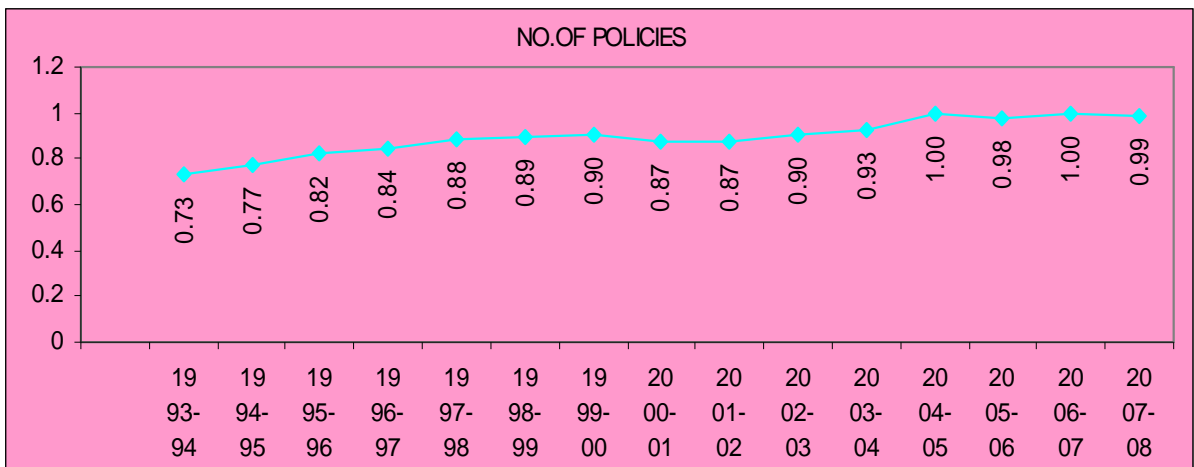


Table No: 4.8**TRENDS IN BUSINESS IN FORCE OUTSIDE INDIA**

	R ²	D. F	F Value	Trend Coefficients			
				b ₀	b ₁	b ₂	b ₃
Annual premium (Rs. in Crores) Y1	0.965	10	90**	45.027	5.428	0.1811	-0.0051
Number of policies (In lakhs) Y2	0.945	10	57**	0.6728	0.0657	-0.0069	0.0003
Sum assured (Rs. in Crores) Y3	0.971	10	112**	734.052	319.357	-31.963	1.2875

** Significant at 1% level

$$\text{Annual premium (Rs. in Crores)} \quad Y1 = 45.027 + 5.428 t + 0.1811 t^2 - 0.0051 t^3$$

$$\text{Number of policies (In Lakhs)} \quad Y2 = 0.6728 + 0.0657 t - 0.0069 t^2 + 0.0003 t^3$$

$$\text{Sum Assured (Rs. in Crores)} \quad Y3 = 734.052 + 319.357 t - 31.963 t^2 + 1.2875 t^3$$

The Coefficient of determination R² indicates that the trend equations b1, b2 and b3 put together explain the variations of Y1 to the extent 96.5 percent, Y2 to the extent of 94.5 percent and Y3 to the extent of 97.1 percent, which shows the adequacy of the model fitted to forecast the trend values. The forecasted value for any 't' value-(year) can be obtained from the above trend equation. The above significant cubic trend equations forecast positive trend for this determinant in the future years.

4.1.1(e) New Rural Business:

As per the Insurance Regulatory and Development Authority (Obligation of Insurers to Rural or Social Sectors) Regulations, 2002 as amended in 2007 the insurance companies are required to achieve the prescribed percentage of their policies in the rural sector in the respective year of their operations in India. Hence the performance of new rural business has been analyzed in terms of number of policies and sum assured. Table 4.9 gives a detailed picture of rural business of LIC and its growth rate for different years.

The table depicts that there has been a steady growth in the new business of rural market of the LIC. The new rural business was divided into two parts on the basis of time period. Year 1993-94 to 1999-2000 forms the first part and 2000-01 to 2007-08 constitutes the second part of the rural new business. Basically the reason for this division

was the change in the definition of rural areas after the formation of IRDA. In 1999, because of privatization, IRDA came into force and changed the definition of rural areas. This leads to a huge change in the figures related to number of policies and sum assured of the rural market after 1999-2000.

Table No: 4.9

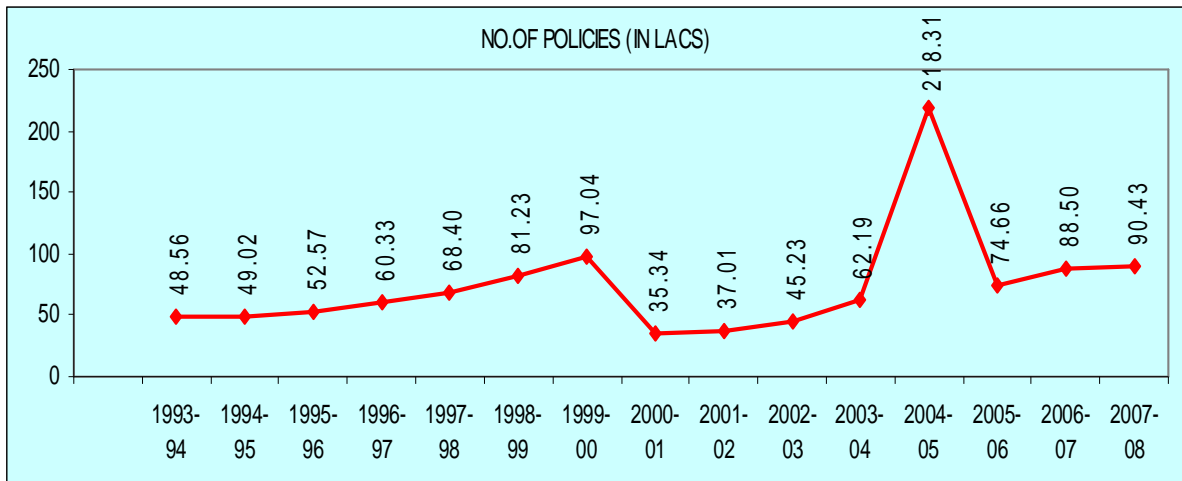
Table showing the New Rural Business in India

YEAR	NUMBER OF POLICIES (In Lakhs)	PERCENT GROWTH OVER PREVIOUS YEAR	SUM ASSURED (Rs. in Crores)	PERCENT GROWTH OVER PREVIOUS YEAR		
1	2	3	4	5		
1993-94	48.56	-	16680.41	-		
1994-95	49.02	1.00	21571.00	29.30		
1995-96	52.57	7.20	21263.59	-1.40		
1996-97	60.33	14.80	25278.73	18.90		
1997-98	68.40	13.38	27550.69	9.00		
1998-99	81.23	18.80	35372.94	28.40		
1999-00	97.04	19.50	44168.19	24.90		
2000-01	35.34	-36.41	17955.88	-59.30		
2001-02	37.01	4.72	25461.94	41.80		
2002-03	45.23	22.21	23547.69	-7.51		
2003-04	62.19	37.50	35651.99	51.40		
2004-05	218.31	251.03	179886.66	404.56		
2005-06	74.66	-65.80	60971.85	-66.11		
2006-07	88.50	18.54	68497.21	12.34		
2007-08	90.43	2.18	56694.44	-12.85		
	Min.Val.	Max.Val.	Mean	SD	C.V (%)	C.G.R (%)
Number of policies (In Lakhs)	35.34	218.31	73.92	44.45	60.14	2.80
Sum assured (Rs. in Crores)	16680.41	179886.7	44036.88	40958.43	93.01	8.31

Source: Annual Reports, 1993-94 To 2007-08.

Chart No : 4.5

Chart Showing the New Rural Business



The number of policies ranges between 35.34 lakhs to 218.31 lakhs with a mean of 73.92 lakhs and a coefficient of variation of 60.14 percent. The new rural policies of LIC on an average annually has shown a growth rate of 2.80 percent. The sum assured ranges between Rs.16680.41 crores to Rs.179886.7 crores with a mean of Rs.44036.88 crores and a coefficient of variation of 93.01 percent. LIC has shown an annual growth rate of 8.31 percent.

During 1993-94 to 1999-2000, the new business in terms of number of policies of the rural market was consistent. It showed an increase year after year showing a healthy growth rate in terms of number of policies and sum assured. Later from the year 2000-01, LIC 's performance shows a sudden decline, this is basically due to the change in the definition of rural areas after the formation of IRDA.

But there after LIC showed consistent growth rate from 35.34 lakh number of policies in the year 2000-01 to 90.43 lakh number of policies in the year 2007-08. Similarly in case of sum assured also it started from Rs. 17955.88 crores in the year 2000-01 and reached Rs. 68497.21crores in 2006-07. This shows that LIC restored its position in rural business and was satisfactory.

Table No: 4.10**TRENDS IN NEW RURAL BUSINESS**

	R ²	D. F	F Value	Trend Coefficients			
				b ₀	b ₁	b ₂	b ₃
Number of policies (In Lakhs) Y1	0.452	10	2.74	21.865	22.667	-3.493	0.155
Sum assured (Rs. in Crores) Y2	0.734	10	9.19	10977.9	6899.49	-981.28	51.872

** Significant at 1% level

Number of policies (In Lakhs) Y1 = 21.865 + 22.667 t - 3.493 t² + 0.155 t³

Sum Assured (Rs. In Crores) Y2 = 10977.9 + 6899.49 t - 981.28 t² + 51.872 t³

The Coefficient of determination R² indicates that the trend equations b₁, b₂ and b₃ put together explain the variations of Y1 to the extent 45.2 percent, Y2 to the extent of 73.4 percent, which shows the adequacy of the model fitted to forecast the trend values. The forecasted value for any 't' value-(year) can be obtained from the above trend equation. The above significant cubic trend equations forecast positive trend for this determinant in the future years.

4.1.1(f) Share of Rural business to Total business

Total new business includes the urban new business and rural new business during a particular year .The percentage share of number of policies as well as sum assured of the rural business was calculated for the different years in order to evaluate the performance of rural market. Table 4.11 shows the percentage share of the number of policies and sum assured to the total new business for the different years of the study period. For analysis this table has also been divided into two parts i.e. period before the formation of IRDA and period after the formation.

The percentage share of number of rural policies range between 16.94 to 57.5 with a mean of 34.58 and a coefficient of variation of 44.60 percent and has registered a negative growth rate of 7.38 percent.

The percentage share of rural sum assured ranges between 13.37 to 48.7 with a mean of 30.65 and a coefficient of variation of 44.06 percent among the rural area and has shown a negative growth rate of 6.73 percent. From 1993-94 to 1999-2000, rural business has remarkably contributed to the total business of LIC. The figures of number of policies and sum assured shows a consistent growth in all the years and this shows that LIC was able to explore more business from rural areas as compared to urban areas.

Table No: 4.11

Table showing the Share of Rural business to Total business

YEAR	% SHARE OF NUMBER OF POLICIES			% SHARE OF SUM ASSURED		
1993-94	45.30			39.90		
1994-95	45.10			39.10		
1995-96	47.70			41.00		
1996-97	49.18			42.79		
1997-98	51.04			43.30		
1998-99	54.70			47.00		
1999-00	57.50			48.70		
2000-01	18.18			14.59		
2001-02	16.94			13.65		
2002-03	18.90			13.37		
2003-04	22.79			17.85		
2005-06	23.65			21.21		
2006-07	23.16			22.60		
2007-08	21.67			24.06		
	Min.Val.	Max.Val.	Mean	SD	C.V (%)	C.G.R (%)
Percentage share of number of policies	16.94	57.5	34.58	15.42	44.60	-7.38
Percentage share of sum assured	13.37	48.7	30.65	13.50	44.06	-6.73

Source: Annual Reports,, 1993-94 To 2007-08.

Sustained and conscious efforts are made to carry the message of Life insurance into the rural areas, especially the backward and remote areas (Annual report of LIC, year 2007-08).LIC has been successful in creating its rural market and building confidence among them. After privatization and in consequence of the redefinition of rural areas by IRDA there has been a decline in the graph in the year 2000-01. The percentage share of rural business in terms of number of policies was 18.18 percent and that of sum assured

was 14.59 percent. But thereafter from 2003-04 onwards till 2007-08 its share rose up to 23.16 percent in number of policies and 24.06 percent in sum assured respectively. LIC maintained consistent percentage in all the consecutive years too showing that it would do better and better in the future years and maintain its faith and confidence in the minds of the rural people.

Chart No: 4.6

Chart Showing the Share of Rural Business to Total Business

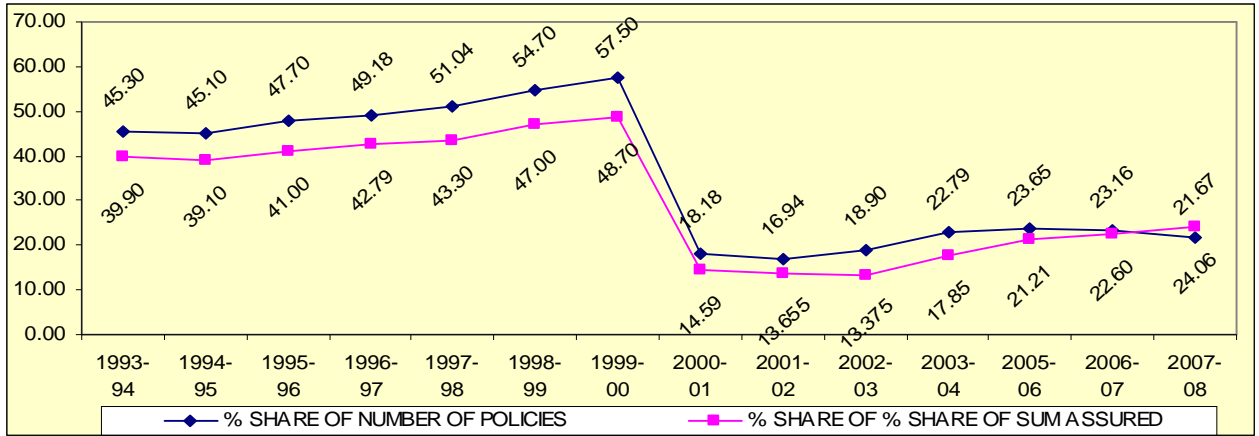


Table No: 4.12

TRENDS IN SHARE OF RURAL BUSINESS TO TOTAL BUSINESS

	R ²	D. F	F Value	Trend Coefficients			
				b ₀	b ₁	b ₂	b ₃
Percentage share of number of policies Y1	0.705	10	7.98**	30.888	13.39	-2.444	0.102
Percentage share of sum assured Y2	0.704	10	7.93**	26.175	12.499	-2.357	0.102

** Significant at 1% level

$$\text{Percentage share of number of policies Y1} = 30.888 + 13.39 t - 2.444 t^2 + 0.102 t^3$$

$$\text{Percentage share of Sum Assured Y2} = 26.175 + 12.499 t - 2.357 t^2 + 0.102 t^3$$

The Coefficient of determination R² indicates that the trend equations b1, b2 and b3 put together explain the variations of Y1 to the extent 70.5 percent, Y2 to the extent of 70.4 percent, which shows the adequacy of the model fitted to forecast the trend values. The forecasted value for any 't' value-(year) can be obtained from the above trend equation. The above significant cubic trend equations forecast positive trend in the future years.

I.B Group Insurance

4.1.1(g) New Business under Group Insurance

Group insurance is an insurance that covers a group of people, usually who are the members of societies, employees of a common employer, or professionals in a common group. Group life insurance covers the lives of multiple persons such as some or all employees of a business, members of a labor union, or members of an association. (www.freebusinessdictionary.com). The eligible groups include Employer–Employee Groups, Labour–Union Groups, Creditor – Debtor Groups, Associations, Cooperatives and Government Schemes. Instead of using the term policy, under group insurance, term “ scheme ” is used and for total number of people, term “ lives or members ” is used. Sum Assured is referred to as “Annuity”.

New business for group insurance under superannuation scheme has been analyzed for assessing the performance of LIC during the period of study. Table 4.13 depicts the new business performance under group insurance in terms of number of schemes, number of members and total annuity per annum for fifteen years of the study period.

The number of schemes ranges between 127 to 445 with a mean of 331 and a coefficient of variation of 25.06 percent. The number of schemes has shown a negative growth rate of 3.43 percent. The table depicts that the performance of LIC in number of schemes was good from the year 1993-94 till 2001-02 as it ranged from 273 to 427 number of schemes. From 2002-03 till 2005-06 there was a decline in the trend and this was due to the impact of competition with the private insurers. But soon LIC picked up in the last two years attaining the maximum of 445 number of schemes in the year 2007-08.

In case of number of members the figures ranges between 31299 to 421000 with a mean of 99597.87 and a coefficient of variation of 97.83 percent. The above table shows that LIC’s performance was affected in the years 2001-02 and 2004-05, but shot up in the next two years reaching the height of 421000 in the year 2007-08. This shows though LIC was affected by the entry of private insurers and got recovered in its position in the later years.

Table No: 4.13

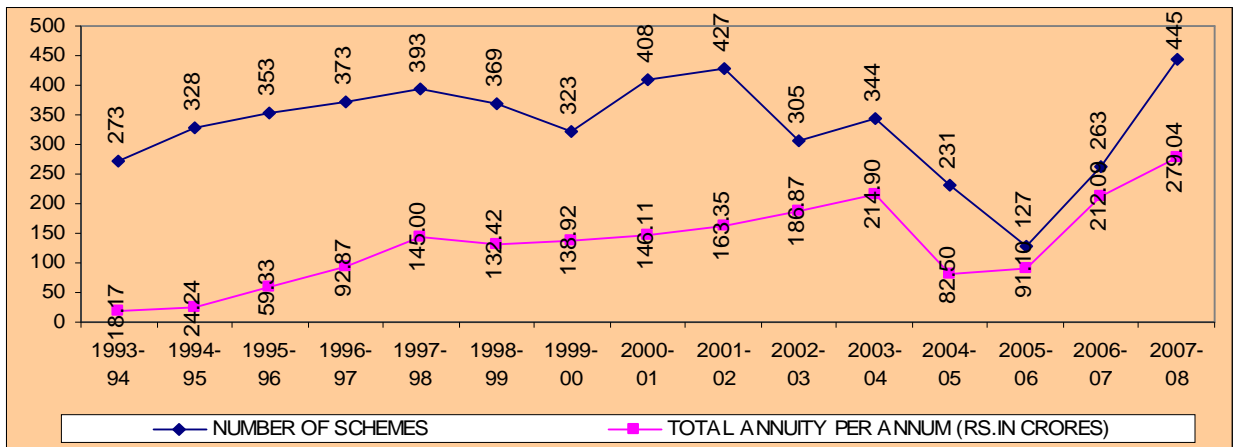
Table showing New Business under Group Insurance

YEAR	NUMBER OF SCHEMES	PERCENT GROWTH OVER PREVIOUS YEAR	NUMBER OF MEMBERS	PERCENT GROWTH OVER PREVIOUS YEAR	TOTAL ANNUITY PER ANNUM (Rs. in Crores)	PERCENT GROWTH OVER PREVIOUS YEAR
1	2	3	4	5	6	7
1993-94	273		31695		18.17	
1994-95	328	20.15	31299	-1.25	24.24	33.40
1995-96	353	7.62	75692	141.83	59.33	144.76
1996-97	373	5.66	125275	65.50	92.87	56.53
1997-98	393	5.36	33143	-73.54	145.00	56.13
1998-99	369	-6.10	51592	55.66	132.42	-8.67
1999-00	323	-12.47	64004	24.05	138.92	5.00
2000-01	408	26.31	93695	46.39	146.11	5.17
2001-02	427	4.65	59814	-36.16	163.35	11.80
2002-03	305	-28.80	108759	81.82	186.87	14.40
2003-04	344	12.79	172000	58.04	214.90	15.00
2004-05	231	131.80	43000	-75.00	82.50	-61.61
2005-06	127	45.02	71000	65.12	91.10	10.42
2006-07	263	107.09	112000	57.75	212.09	131.79
2007-08	445	69.20	421000	275.89	279.04	31.57
	Min.Val.	Max.Val.	Mean	SD	C.V (%)	C.G.R (%)
Number of schemes	127	445	331	82.89339	25.06	-3.43
Number of members	31299	421000	99597.87	97435.68	97.83	6.66
Total Annuity per annum (Rs. in Crores)	18.17	279.04	132.46	73.104	55.19	13.42

Source: Annual Reports, 1993-94 To 2007-08.

Chart No: 4.7

Chart Showing the New Business under Group Insurance



The total annuity per annum ranges between Rs.18.17 crores to Rs.279.04 crores with a mean of Rs.132.46 crores and a coefficient of variation of 55.19 percent. The performance was poor initially as the growth rate declined and was negative in the year 1998-99 but thereafter till 2003-04 it picked up gradually showing a growth rate of 13.42 percent.

On the whole the growth rate of new business of LIC under group insurance has been inconsistent especially in the year 2004-05 and 2005-06 with drastic downfall but it restored its position during the later years.

Table No: 4.14
TRENDS IN NEW BUSINESS UNDER GROUP INSURANCE

	R ²	D. F	F Value	Trend Coefficients			
				b ₀	b ₁	b ₂	b ₃
Number of schemes Y1	0.629	10	5.64*	213.794	66.54	-7.186	0.166
Number of members Y2	0.205	10	0.86	26491	12193.9	-765.56	18.03
Total Annuity per annum (Rs. in Crores) Y3	0.641	10	5.95*	-54.727	57.315	-5.122	0.15

** Significant at 1% level

$$\text{Number of schemes} \quad Y1 = 213.794 + 66.54 t - 7.186 t^2 + 0.166 t^3$$

$$\text{Number of members} \quad Y2 = 26491 + 12193.9 t - 765.56 t^2 + 18.03 t^3$$

$$\text{Total Annuity per annum} \quad Y3 = - 54.727 + 57.315 t - 5.122 t^2 + 0.15 t^3$$

The Coefficient of determination R² indicates that the trend equations b1, b2 and b3 put together explain the variations of Y1 to the extent 62.9 percent, Y2 to the extent of 20.5 percent and Y3 to the extent 64.1percent, which shows the adequacy of the model fitted to forecast the trend values. The forecasted value for any 't' value-(year) can be obtained from the above trend equation. The above significant cubic trend equations forecast positive trend in the future years.

4.1.1 (h) Business Inforce under Super Annuation scheme

Superannuation scheme basically means money which people pay while they are working, so that they will receive payment when they stop working or when they are old. The performance of LIC has been evaluated on the basis of business in force of group insurance under superannuation schemes. Under group insurance, business in force has

been analyzed in terms of number of schemes, sum assured and the premium income of different years of the study period. Sum assured includes the amount of bonuses in it.

Table 4.15 depicts the performance of business in force under super annuation scheme during the period of study. The table shows that LIC's performance in terms of number of schemes was tremendous as it raises from 64426 in the year 1993-94 and gradually increases year by year and attains 128840 in the year 2007-08. In total the number of schemes ranges between 64426 to 128840 with a mean of 90711, coefficient of variation of 19.82 percent and has shown a growth rate of 4.15 percent.

Table No: 4.15

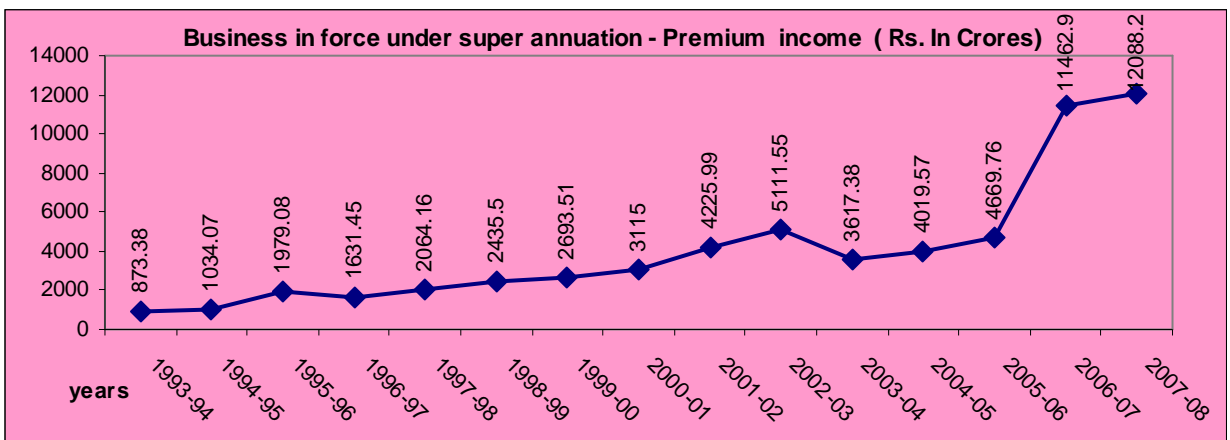
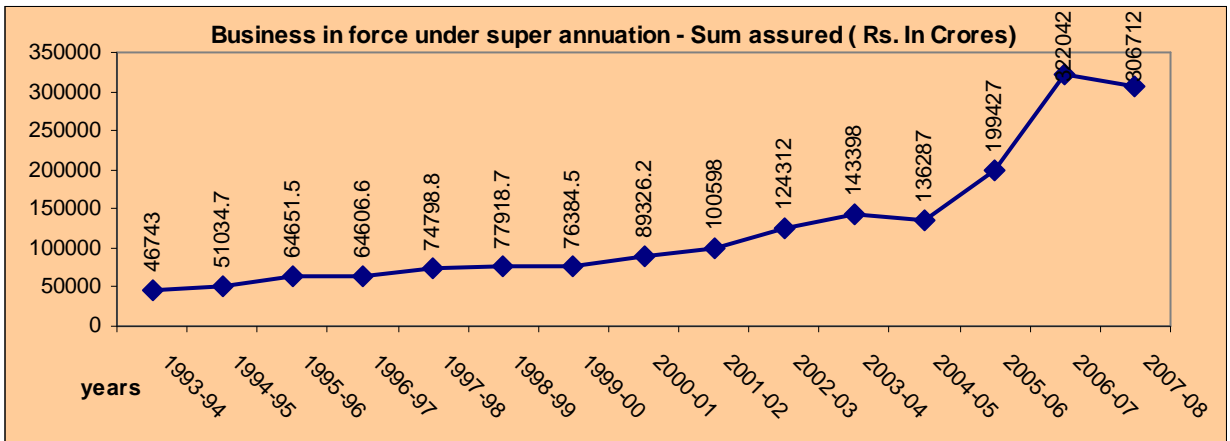
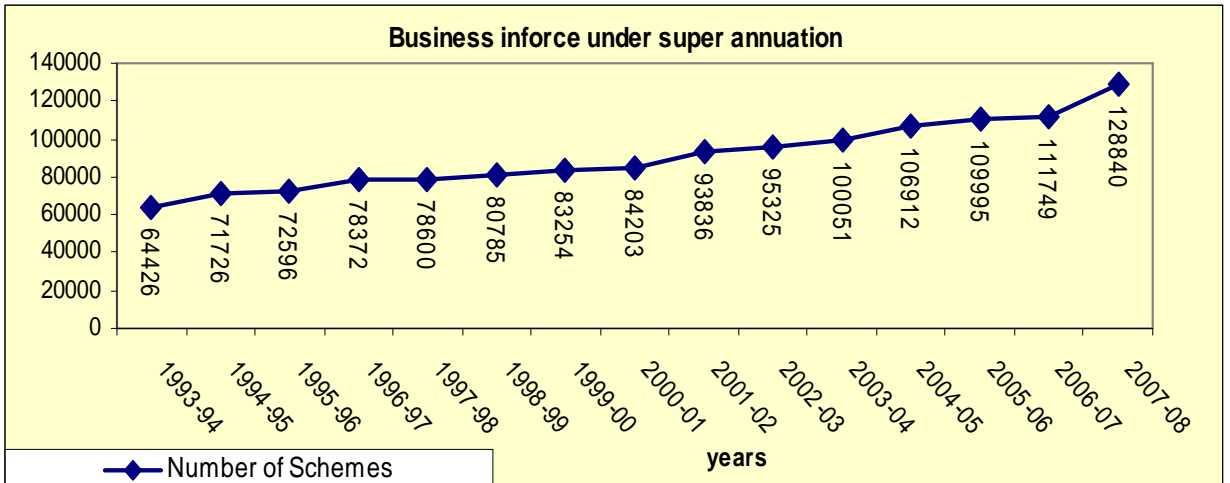
Table showing Business Inforce under SuperAnnuation scheme

YEAR	NUMBER OF SCHEMES	PERCENT GROWTH OVER PREVIOUS YEAR	SUM ASSURED (Rs. in Crores)	PERCENT GROWTH OVER PREVIOUS YEAR	PREMIUM INCOME (Rs. in Crores)	PERCENT GROWTH OVER PREVIOUS YEAR	
1993-94	64426	-	46742.95	-	873.38		
1994-95	71726	11.33	51034.71	9.18	1034.07	18.40	
1995-96	72596	1.21	64651.54	26.68	1979.08	91.38	
1996-97	78372	7.95	64606.60	-0.07	1631.45	-17.56	
1997-98	78600	0.29	74798.75	15.77	2064.16	26.52	
1998-99	80785	2.78	77918.65	4.17	2435.5	17.98	
1999-00	83254	3.05	76384.53	-1.96	2693.51	10.60	
2000-01	84203	1.14	89326.19	16.94	3115	15.64	
2001-02	93836	11.44	100597.64	12.61	4225.99	35.66	
2002-03	95325	1.58	124312.26	23.57	5111.55	20.95	
2003-04	100051	4.95	143398.20	15.35	3617.38	-29.23	
2004-05	106912	6.86	136286.92	-5.00	4019.57	11.12	
2005-06	109995	2.88	199427.16	46.33	4669.76	16.18	
2006-07	111749	1.59	322042.20	61.48	11462.91	145.47	
2007-08	128840	15.29	306711.77	-4.76	12088.24	5.46	
		Min.Val	Max.Val	Mean	SD	C.V (%)	C.G.R (%)
Number of schemes		64426	128840	90711	17976.08	19.82	4.15
Sum Assured (Rs. in Crores)		46742.95	322042.2	125216	86891.79	69.39	13.06
Premium Income (Rs. in Crores)		873.38	12088.24	4068.103	3379.338	83.07	16.21

Source: Annual Reports,, 1993-94 To 2007-08.

Chart No: 4.8

Chart showing the Business inforce under super annuation



LIC showed better performance in case of sum assured in business in force under super annuation scheme and it ranges between Rs.46742.95 crores to Rs.322042.2 crores with a mean of Rs.125216 crores and a coefficient of variation of 69.39 percent and has shown a growth rate of 13.06 percent.

The premium income in business in force under super annuation scheme ranges between Rs.873.38 crores to Rs.12088.24 crores with a mean of Rs.4068.103 crores and a coefficient of variation of 83.07 percent. This has an average annual growth rate of 16.21 percent. It is notable that LIC's premium in business in force under super annuation scheme got raised from Rs. 873.38 crores in the year 1993-94 to Rs.12088 crores in the year 2007-08.

In all the cases mentioned above the quantum of business was increasing but the growth rate has been fluctuating and was low. This implies that the corporation has to strive not only to spread insurance to individuals but also to groups of people working or living under one roof.

Table No: 4.16

TRENDS IN BUSINESS IN FORCE UNDER SUPER ANNUATION SCHEME

	R ²	D. F	F Value	Trend Coefficients			
				b ₀	b ₁	b ₂	b ₃
Number of schemes Y1	0.981	10	175**	63833	2941.4	-29.33	5.359
Number of members Y2	0.950	10	13**	5623.3	37001.9	-6456	377.361
Total Annuity per annum (Rs. in Crores) Y3	0.798	10	158**	-1127.2	1685.89	-260.59	13.805

** Significant at 1% level

Number of schemes $Y1 = 63833 + 2941.4 t - 29.33 t^2 + 5.359 t^3$

Number of members $Y2 = 5623.3 + 37001.9 t - 6456 t^2 + 377.361 t^3$

Total Annuity per annum $Y3 = -1127.2 + 1685.89 t - 260.59 t^2 + 13.805 t^3$

The Coefficient of determination R² indicates that the trend equations b1, b2 and b3 put together explain the variations of Y1 to the extent 98.1 percent, Y2 to the extent of 95 percent and Y3 to the extent 79.8 percent, which shows the adequacy of the model fitted to forecast the trend values. The forecasted value for any 't' value-(year) can be

obtained from the above trend equation. The above significant cubic trend equations forecast positive trend in the future years.

4.1.1(i) Growth in Active Agents

The performance of insurance business to a large extent is dependent on the skills and ability of the well-trained agents as most people have their first contact with an insurance company through a sales agent. These workers help individuals, families and businesses select insurance policies that provide the best protection for their lives. In insurance industry the term agent is ordinarily applied to a person engaged by the insurer to procure new business.

Section 2 (10) of the Insurance Act 1938 defines “ Insurance Agent ” as insurance agent licensed under section 42 being an individual who receives or agrees to receive payment by way of commission or other remuneration in consideration of his soliciting or procuring insurance business including business relating to the continuance, renewal or revival of policies of insurance.

Table No: 4.17

Table showing the Growth in Active Agents

YEAR	NUMBER OF ACTIVE AGENTS			PERCENTAGE GROWTH		
1993-94	524427			-		
1994-95	519504			-0.93		
1995-96	513897			-1.08		
1996-97	533133			3.74		
1997-98	558517			1.04		
1998-99	598217			7.10		
1999-00	683190			14.20		
2000-01	743064			8.76		
2001-02	744003			0.12		
2002-03	902199			21.26		
2003-04	1003241			11.20		
2004-05	980836			-2.23		
2005-06	987689			0.70		
2006-07	1028256			4.12		
2007-08	1117908			8.72		
	Min.Val.	Max.Val.	Mean	SD	C.V (%)	C.G.R (%)
Number of Active agents	513897	1117908	762539	220152.6	28.87	6.63

Source: Annual Reports, 1993-94 To 2007-08

The performance of the corporation depends upon the active agents. Thus to evaluate the performance of the corporation, it is significant to study the strength of active agents and its growth rate during the period of study. The table 4.17 depicts the number of agents and their percentage of growth for the entire period of the study.

The number of active agents ranges between 513897 to 1117908 with a mean of 762539 and a coefficient of variation of 28.87 percent. This has shown an average annual growth rate of 6.63 percent. The number of active agents increased from 524427 in the year 1993-94 to 1117908 in the year 2007-08.

There was drastic increase in the number of agents in the year 1999-2000 and 2002-03 with 14.2 percent and 21.26 percent increase respectively. This was the year when the private players entered the Indian scenario. There was inconsistency and decline in the graph towards the end years in the growth rate of the agents. But it is worth mentioning at this instance that from 524427 number of agents in the year 1993-94, LIC got raised to 117908 number in the year 2007-08 .

Chart No: 4.9

Chart Showing Growth in Active Agents

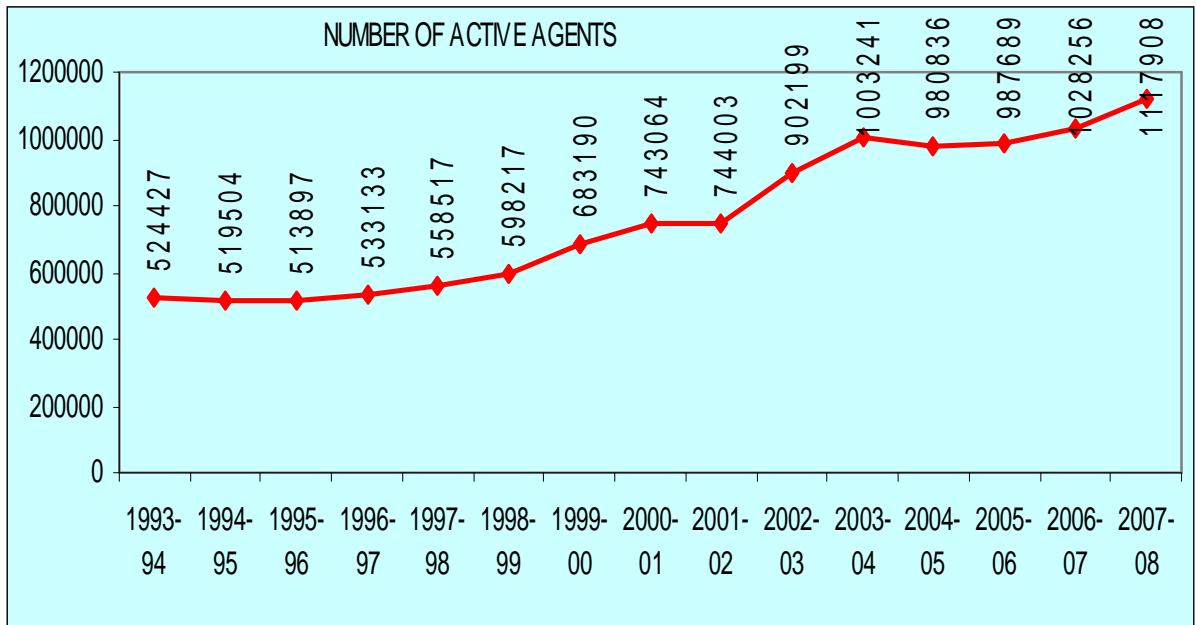


Table No: 4.18

TRENDS IN GROWTH OF ACTIVE AGENTS

	R ²	D. F	F Value	Trend Coefficients			
				b ₀	b ₁	b ₂	b ₃
Number of Active agents Y	0.979	10	158**	606379	-83410	18539.4	-746.36

** Significant at 1% level

$$\text{Number of Active agents } Y = 606379 - 83410 t + 18539.4 t^2 - 746.36 t^3$$

The Coefficient of determination R² indicates that the trend equations b₁, b₂ and b₃ put together explain the variations of Y to the extent 97.9 percent which shows the adequacy of the model fitted to forecast the trend values. The forecasted value for any ‘t’ value-(year) can be obtained from the above trend equation. The above significant cubic trend equations forecast positive trend in the future years.

4.1.1 (j) Composition of Income

Income of an organization is one of the important parameters for evaluating its performance. Income generated by LIC every year is a composition of various variables. It comes from different areas and in different forms. The total income of LIC can be analyzed in different categories in order to assess the contribution of each variable or category to the total income in each year. Thus, for this purpose the percentage is calculated for each variable to know the exact contribution of these variables in the total income. Income from LIC comes from First year premium, Renewal premium, Single premium and consideration for annuities, Income from Investments and Miscellaneous.

Table 4.19 shows the percentage share of each component to the total income of LIC over the period of the study. Huge percentage of income comes from the renewal premium every year. The second big percentage was the income from investments then first year premium followed by single premium and consideration for annuities and the smallest contribution was given by miscellaneous income.

The percentage of income from first year premium ranges between 9.29 to 14.11 with a mean of 14.36 and a coefficient of variation of 73.55 percent. This has shown a negative annual growth rate of 0.45 percent. The percentage of income from renewal premium ranges between 40.74 to 52.32 with a mean of 45.53 and a coefficient of variation of 28.19 percent with an average growth rate of 0.03 percent.

Table No : 4.19
Composition of Income (In Percentage)

YEAR	FIRST YEAR PREMIUM	RENEWAL PREMIUM	SINGLE PREMIUM	INCOME FROM INVESTMENTS			MISCELLANEOUS
1	2	3	4	5			6
1993-94	12.80	49.87	1.33	35.01			0.99
1994-95	11.57	50.67	1.44	35.00			1.32
1995-96	10.79	48.85	4.68	34.99			0.69
1996-97	11.14	50.14	1.61	36.39			0.72
1997-98	11.00	49.35	2.29	36.76			0.60
1998-99	11.20	48.72	2.81	36.27			1.00
1999-00	11.32	47.17	2.90	35.90			2.71
2000-01	12.44	45.96	4.99	34.59			2.02
2001-02	14.11	40.74	12.43	31.19			1.53
2002-03	13.13	47.73	6.60	30.93			1.61
2003-04	12.00	50.30	5.41	29.23			2.95
2004-05	10.93	50.55	0.69	33.44			4.39
2005-06	11.38	50.61	1.19	31.56			5.26
2006-07	9.29	52.11	0.75	32.16			5.69
2007-08	6.84	52.32	0.19	33.82			6.83
		Min.Val.	Max.Val.	Mean	SD	C.V (%)	C.G.R (%)
First year premium		9.29	14.11	14.36	10.56	73.55	-0.45
Renewal premium		40.74	52.32	45.53	12.83	28.19	0.03
Single premium		0.19	12.43	5.53	8.40	152.06	-1.74
Income from investments		29.23	36.76	32.01	7.34	22.93	-2.1
Miscellaneous		0.60	6.83	2.24	1.72	76.70	16.73

Source: Annual Reports, 1993-94 To 2007-08.

The percentage of income from single premium ranges between 0.19 to 12.43 with a mean of 5.53 and a coefficient of variation of 152.06, with a negative growth rate of 1.74 percent. The percentage of income from investments ranges between 29.23 to 36.76 with a mean of 32.01 and a coefficient of variation of 22.93 percent. This has shown a negative growth rate of 2.1 percent. The Miscellaneous income ranges between 0.60 to 6.83 with a mean of 2.24 and a coefficient of variation of 76.70 percent and has shown an average growth rate of 16.73 percent.

In total LIC has shown consistent performance in renewal premium, income from investments and miscellaneous income. In case of first year premium and single premium there was slight downfall in the later years on which LIC has to concentrate.

Chart No: 4.10
Chart showing the Composition of Income

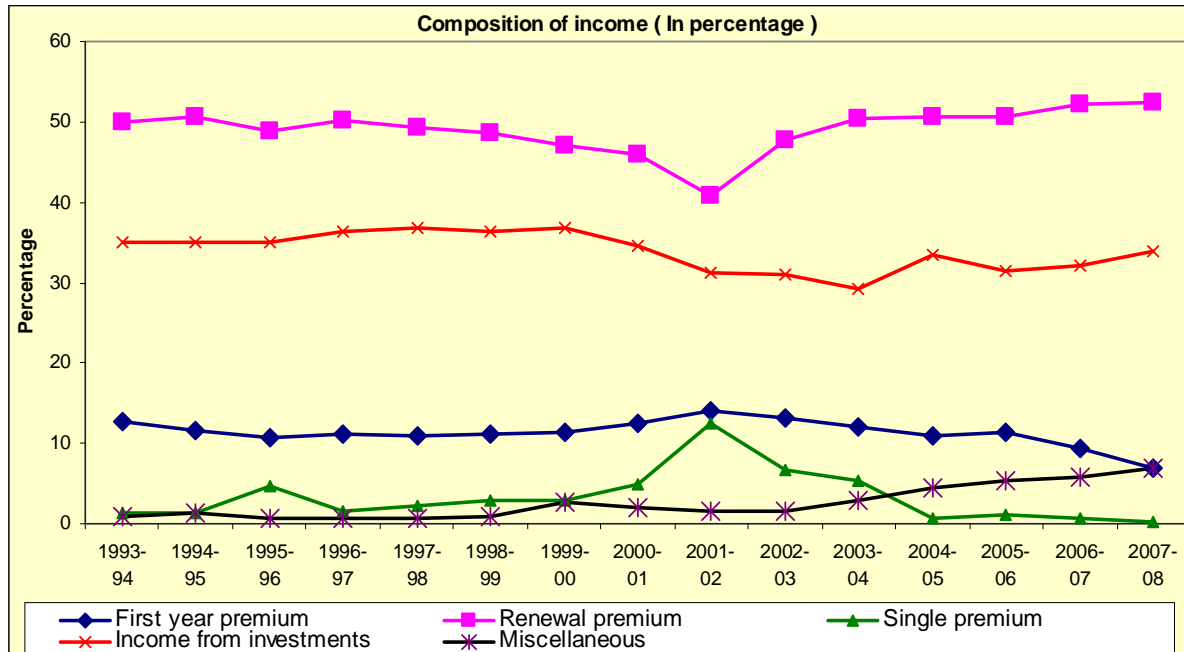


Table No: 4.20

TRENDS IN COMPOSITION OF INCOME

	R ²	D. F	F Value	Trend Coefficients			
				b ₀	b ₁	b ₂	b ₃
First year premium Y1	0.752	10	10**	14.372	-2.048	0.364	-0.02
Renewal premium Y2	0.496	10	3.3	50.232	0.39	-0.229	0.016
Single premium Y3	0.448	10	2.7	2.779	-1.265	0.383	-0.022
Income from investments Y4	0.745	10	9.7**	31.549	2.977	-0.516	0.022
Miscellaneous Y5	0.896	10	28.7**	1.039	-0.032	-0.006	0.002

** Significant at 1% level

First year premium $Y1 = 14.372 - 2.048 t + 0.364 t^2 - 0.2 t^3$

Renewal premium $Y2 = 50.232 + 0.39 t - 0.229 t^2 + 0.016 t^3$

Single premium $Y3 = 2.779 - 1.265 t + 0.383 t^2 - 0.022 t^3$

Income from investments $Y4 = 31.549 + 2.977 t - 0.516 t^2 + 0.022 t^3$

Miscellaneous $Y5 = 1.039 - 0.32 t - 0.006 t^2 + 0.002 t^3$

The Coefficient of determination R^2 indicates that the trend equations b1, b2 and b3 put together explain the variations of Y1 to the extent 75.2 percent, Y2 to the extent 49.6 percent, Y3 to the extent 44.8 percent, Y4 to the extent 74.5 percent, Y5 to the extent 89.6 percent which shows the adequacy of the model fitted to forecast the trend values. The forecasted value for any 't' value-(year) can be obtained from the above trend equation. The above significant cubic trend equations forecast positive trend in the future years.

4.1.1(k) Average Sum Assured per policy

The performance of LIC can be evaluated in terms of average sum assured per policy by taking sum assured of new business for different years and dividing it with the number of policies for different years. Thus for every year of the study period average sum assured per policy has been calculated and presented in table 4.21.

The sum assured ranges between Rs.41813.83 crores to Rs.283763.7 crores with a mean of Rs.131322.6 crores and a coefficient of variation of 56.83 percent. This has shown a growth rate of 15.79 percent. The number of policy ranges between 1.07 crores to 2.93 crores with a mean of 1.82 crores and a coefficient of variation of 32.91 percent and has shown a growth at 8.11 percent.

The average sum assured per policy ranges between Rs.38,984 to Rs.96,898 with a mean of Rs.67,047.33 and a coefficient of variation of 30.97. This has shown an average annual growth at 7.11 percent. To summarize LIC's performance in case of average sum assured per policy was commendable with steady growth rate, except in the years 2002-03 and 2003-04 with a declining sum of Rs.73970 and Rs.75108 respectively. This was the impact of the entry of private insurers. But LIC gradually regained its position in the next consecutive years and maintained its level with Rs.96000 till 2007-08 showing its performance was good.

Table No: 4.21

Table showing Average Sum Assured per policy

YEAR	SUM ASSURED (Rs. in Crores)	NUMBER OF POLICIES	AVERAGE SUM ASSURED PER POLICY (In Rs.)			
1993-94	41813.83	10725633	38984			
1994-95	55228.50	10874682	50786			
1995-96	51815.54	11020825	47016			
1996-97	56740.5	12268476	46219			
1997-98	63617.69	13311294	47792			
1998-99	75316.28	14843687	50739			
1999-00	91214.25	16976782	53729			
2000-01	124771.62	19656663	63475			
2001-02	192572.27	22491304	85621			
2002-03	179512.22	24268416	73970			
2003-04	198707.12	26456320	75108			
2004-05	179481.39	21817967	82263			
2005-06	283763.74	29284800	96898			
2006-07	201620.74	20910000	96423			
2007-08	173662.72	17961363	96687			
	Min.Val.	Max.Val.	Mean	SD	C.V (%)	C.G.R (%)
Sum Assured (Rs. in Crores)	41813.83	283763.7	131322.6	74625.14	56.83	15.79
Number of policies	10725633	29284800	18191214	5986906	32.91	8.11
Average Sum Assured/Policy (In Rs.)	38984	96898	67047.33	20763.67	30.97	7.11

Source: Annual Reports, 1993-94 To 2007-08.

Chart No : 4.11

Chart Showing the Average Sum Assured per policy

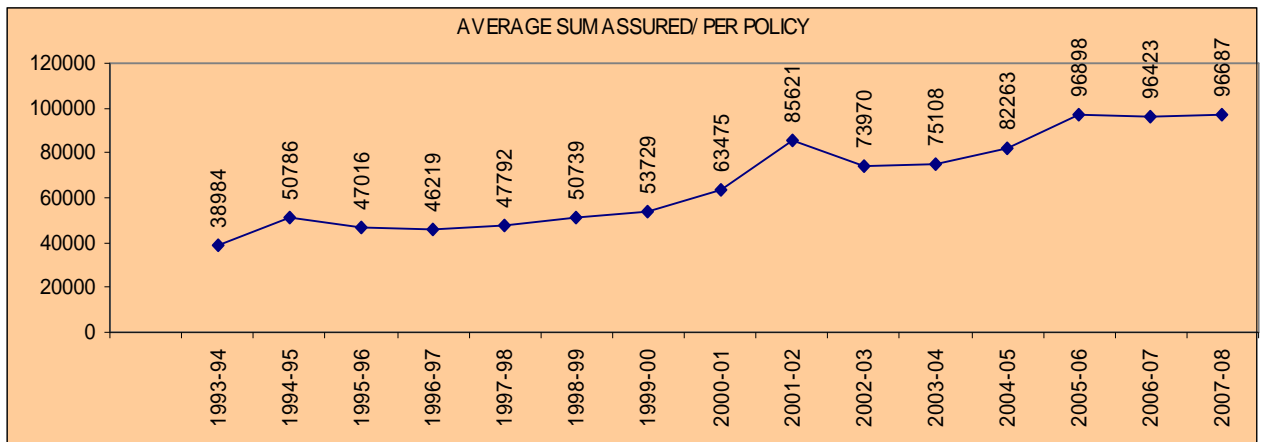


Table 4.22**TRENDS IN AVERAGE SUM ASSURED/POLICY**

	R ²	D. F	F Value	Trend Coefficients			
				b ₀	b ₁	b ₂	b ₃
Sum Assured (Rs. in Crores)	0.902	10	30.7**	78009.6	-29840	6879.15	-285.27
Number of policies	0.917	10	37**	1.4E+07	-3.E+06	752733	-35338
Average Sum Assured/Policy Y (In Rs.)	0.909	10	33**	45370	-2325	788.516	-25.612

** Significant at 1% level

$$\text{Average Sum Assured/Policy } Y = 45370 - 2325 t + 788.52 t^2 - 25.612 t^3$$

The Coefficient of determination R² indicates that the trend equations b₁, b₂ and b₃ put together explain the variations of Y to the extent 90.9 percent which shows the adequacy of the model fitted to forecast the trend values. The forecasted value for any 't' value-(year) can be obtained from the above trend equation. The above significant cubic trend equations forecast positive trend in the future years.

4.1.1(l) Ratio of First insurance to Total insurance completed:

The analysis was done :

- a) In respect of Policies
- b) In respect of Sum Assured

The performance of LIC was evaluated in terms of first insurance to total business completed in respect of policies as well as sum assured. Out of the total new business completed during the financial year, there was first insurance with regard to the number of policies as well as sum assured during that financial year. The ratio was calculated for each year of the study period by dividing the total policies in a year by the first insurance of number of policies in that year. Table 4.23 depicts the ratio of first insurance in respect of number of policies.

The table 4.23 reveals that the total number of policies ranges between 10725633 to 29284800 with a mean of 18191217 and a coefficient of variation of 32.9 percent and has shown an average growth rate of 8.11 percent.

Table No: 4.23**Table showing the Ratio of First insurance to Total insurance completed**

YEAR	TOTAL NUMBER OF POLICIES		FIRST INSURANCE POLICIES		RATIO OF FIRST INSURANCE TO TOTAL NUMBER OF POLICIES (%)	
1993-94	10725633		7702000		71.81	
1994-95	10874682		7690000		70.71	
1995-96	11020825		7663000		69.53	
1996-97	12268476		8455000		68.91	
1997-98	13311294		9255000		69.53	
1998-99	14843687		10753000		72.44	
1999-00	16976782		12535000		73.83	
2000-01	19656663		14430000		74.25	
2001-02	22491304		16230000		74.29	
2002-03	24268416		19180000		80.15	
2003-04	26456320		20242000		76.69	
2004-05	21817967		18592000		85.21	
2005-06	29284800		24365000		83.20	
2006-07	20910041		34338000		163.73	
2007-08	17961363		35547000		197.91	
	Min.Val.	Max.Val.	Mean	SD	C.V (%)	C.G.R (%)
Total Number of Policies	10725633	29284800	18191217	5986907	32.9	8.11
First Insurance Policies	7663000	35547000	16465133	9148835	55.5	11.92
Ratio of First insurance/Total number of policies	68.91	197.91	88.81	38.22	43.0	3.55

Source: Annual Reports,, 1993-94 To 2007-08.

The First insurance policy ranges between 7663000 to 35547000 with a mean of 16465133 and a coefficient of variation of 55.5 percent, with an average annual growth rate at 11.92 percent.

The ratio of first insurance to total number of policies ranges between 68.91 to 197.91 with a mean of 88.81 and a coefficient of variation of 43 percent and has shown an average growth rate of 3.55 percent.

Chart No: 4.12

Chart Showing the Ratio of First insurance to Total insurance completed

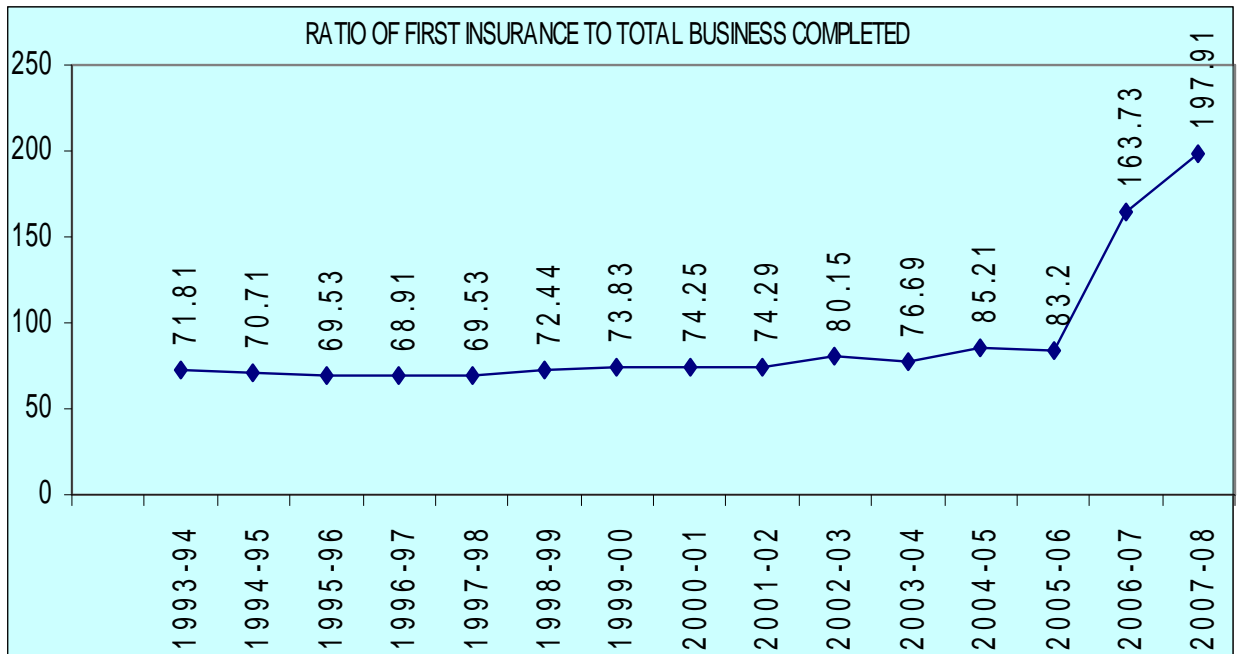


Chart 4.12 shows that LIC was striving hard on all its grounds to cover more and more individuals and tries to reach every nook and corner in order to spread the importance of insurance. LIC was able to capture 71.81 percent in the year 1993-94 and with 70.71, 69.53, 68.91 and 69.53 percent in the years 1994-95, 1995-96, 1996-97 and 1997-98 respectively. It gradually picked up and sustained its growth rate in 70's and then in 80's in the years 2004-05 and 2005-06. It has shown an appreciable rate, when it doubled to 163.73 percent in 2006-07 and touched its peak with 197.91 percent in 2007-08. This shows that the performance of LIC in terms of ratio of first insurance to total insurance completed was excellent.

Table No: 4.24**TRENDS IN RATIO OF FIRST INSURANCE TO TOTAL BUSINESS COMPLETED**

	R ²	D. F	F Value	Trend Coefficients			
				b ₀	b ₁	b ₂	b ₃
Total Number of Policies	0.917	10	36**	1.4 E+07	-3.E+06	752731	-35338
First Insurance Policies	0.944	10	56**	5633202	1273555	-142748	13036.8
Ratio of First insurance/Total no of policies Y	0.758	10	10**	51.599	15.913	-3.165	0.1773

** Significant at 1% level

$$\text{Ratio of First insurance/Total number of policies } Y = 51.599 + 15.913 t - 3.165 t^2 + 0.1773 t^3$$

The Coefficient of determination R² indicates that the trend equations b₁, b₂ and b₃ put together explain the variations of Y to the extent 75.8 percent which shows the adequacy of the model fitted to forecast the trend values. The forecasted value for any 't' value-(year) can be obtained from the above trend equation. The above significant cubic trend equations forecast positive trend in the future years.

4.1.1(m) Ratio of first insurance to total Business completed (Sum Assured)

The ratio of first insurance to total business completed in respect of sum assured has been calculated by dividing the total sum assured for new business by sum assured for first business. Table 4.25 depicts the ratio of first insurance in terms of sum assured. The total business ranges between Rs.41813.83 crores to Rs.283763.7 crores with a mean of Rs. 131322.6 crores and a coefficient of variation of 56.83 percent. The total business of LIC has shown an average growth rate of 15.79 percent.

The First insurance policy ranges between Rs.28618.16 crores to Rs. 260873.2 crores with a mean of Rs.108527.2 crores and a coefficient of variation of 75.16 percent. This has shown a growth at 18.73 percent.

Table No: 4.25

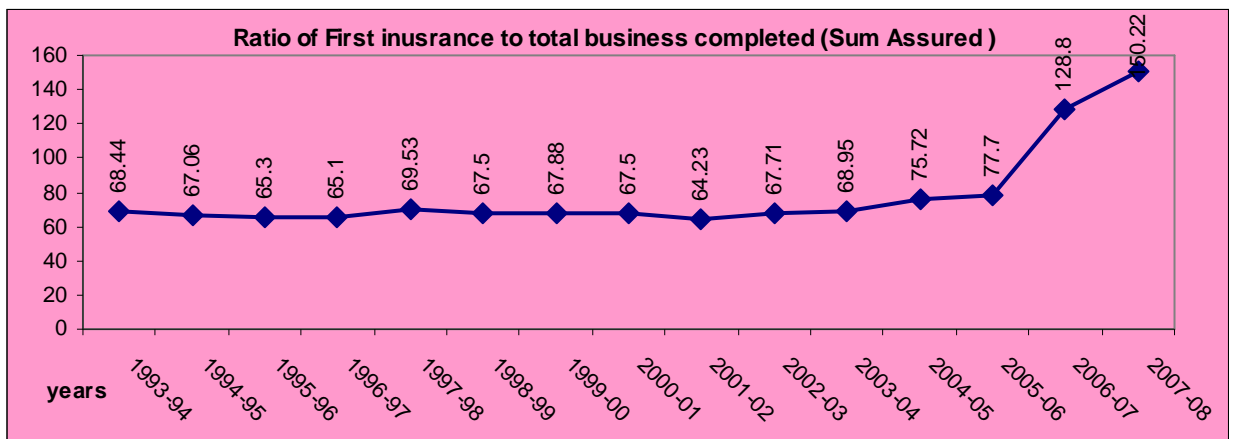
Table showing Ratio of first insurance to total Business completed (Sum Assured)

YEAR	TOTAL BUSINESS (SUM ASSURED) (Rs. in Crores)	FIRST INSURANCE (SUM ASSURED) (Rs in Crores)	RATIO OF FIRST INSURANCE TO TOTAL BUSINESS - SUM ASSURED (In percent)			
1993-94	41813.83	28618.16	68.44			
1994-95	55228.50	37040.49	67.06			
1995-96	51815.54	33884.32	65.30			
1996-97	56740.50	36935.63	65.10			
1997-98	63617.69	41576.45	69.53			
1998-99	75316.28	50845.63	67.50			
1999-00	91214.25	61915.50	67.88			
2000-01	124771.62	84320.79	67.50			
2001-02	192572.27	119859.73	64.23			
2002-03	179512.22	119221.07	67.71			
2003-04	198707.12	136703.32	68.95			
2004-05	179481.39	135909.80	75.72			
2005-06	283763.74	220523.50	77.70			
2006-07	201620.74	259680.31	128.80			
2007-08	173662.72	260873.23	150.22			
	Min.Val.	Max.Val.	Mean	SD	C.V (%)	C.G.R (%)
Total Business (Rs. in Crores)	41813.83	283763.7	131322.6	74625.14	56.83	15.79
First Insurance (Rs in Crores)	28618.16	260873.2	108527.2	81568.16	75.16	18.73
Ratio of First insurance to Total sum assured	64.23	150.22	78.10	25.51	32.66	2.51

Source: Annual Reports, 1993-94 To 2007-08.

Chart No: 4.13

Chart showing the First insurance to Total business (Sum Assured in percentage)



The ratio of first insurance to total business in respect of sum assured ranges between 64.23 percent to 150.22 percent with a mean of 78.10 percent and a coefficient of variation of 32.66 percent and has shown an average annual growth of 2.51 percent.

To summarise the table 4.25 shows consistent growth starting from Rs. 28618.16 crores in the year 1993-94 to Rs. 260873.23 crores in the year 2007-08. LIC sustained its growth rate with 67 percent it gradually increased to 150.22 percent in 2007-08. Except with a slight decline in the year 2001-02 when its growth rate of first insurance came down to 64.23 percent. But LIC was able to restore its position with increasing trend and touched its peak with 128.80 percent and 150.22 percent in the years 2006-07 and 2007-08 respectively, thus the performance of LIC was good.

Table No: 4. 26

TRENDS IN RATIO OF FIRST INSURANCE TO TOTAL BUSINESS COMPLETED

	R ²	D. F	F Value	Trend Coefficients			
				b ₀	b ₁	b ₂	b ₃
Total New Business	0.902	10	30.**	78009.6	-29840	6879.15	103.033
First Insurance	0.966	10	95.**	22244.3	5881.1	-687.53	103.033
Ratio of First insurance/Total new sum assured Y	0.916	10	14.**	52.881	12.29	-2.4996	0.1386

** Significant at 1% level

$$\text{Ratio of First insurance/Total new sum assured } Y = 52.881 + 12.29 t - 2.4996 t^2 + 0.1386 t^3$$

The Coefficient of determination R² indicates that the trend equations b₁, b₂ and b₃ put together explain the variations of Y to the extent 91.6 percent which shows the adequacy of the model fitted to forecast the trend values. The forecasted value for any 't' value-(year) can be obtained from the above trend equation. The above significant cubic trend equations forecast positive trend in the future years.

4.1.1(n) Life Fund

Prudence and law requires all income from life insurance business including investment income be kept aside in a fund called life fund, to meet the liabilities of life insurance policies. Life fund can be used to pay claims and expenses of running life insurance business. Hence it represents reserves for life insurance policies to meet policy liabilities. To analyse the performance of LIC, the evaluation of Life fund is important. Thus Table 4.27 depicts the amount of Life fund in crores and also the percentage increase over previous year for the complete period of the study.

Chart No : 4.14

Chart Showing the Life Fund (In percentage)

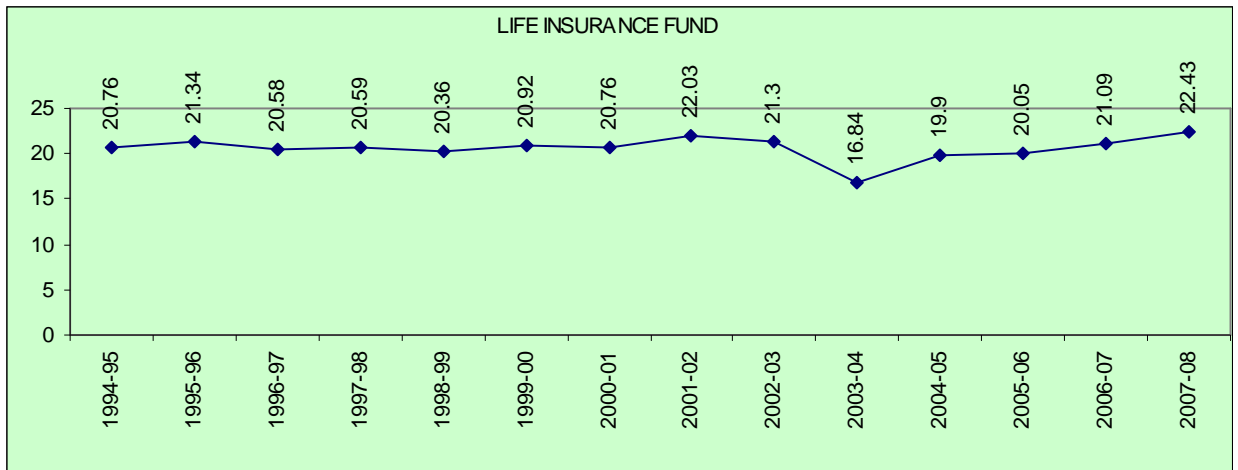


Table No: 4.27

Table showing the Life Fund of LIC

YEAR	LIFE FUND (Rs. in Crores)	PERCENTAGE INCREASE OVER PREVIOUS YEAR
1	2	3
1993-94	49665.52	
1994-95	59978.90	20.76
1995-96	72780.06	21.34
1996-97	81759.96	20.58
1997-98	105832.89	20.59
1998-99	127389.06	20.36
1999-00	154043.73	20.92
2000-01	186024.75	20.76
2001-02	227008.98	22.03
2002-03	275391.72	21.30
2003-04	321759.55	16.84
2004-05	385791.21	19.90
2005-06	463147.62	20.05
2006-07	560806.33	21.09
2007-08	686616.45	22.43

The above table 4.27 depicts the tremendous growth rate of Life Fund over the last fifteen years. The percentage growth in the Life fund has been constant throughout the study period. LIC was able to maintain its growth rate between 20% and 22%. Only

in the year 2003-04 the growth rate of LIC fund declined to 16.84 percent but then in the consecutive years it restored its position gaining 19.90, 20.05, 21.09 and 22.43 percent in the years 2004-05, 2005-06, 2006-07 and 2007-08 respectively. To its credential LIC was able to raise up its life fund from Rs. 49665.52 crores in the year 1993-94 to its great height of Rs. 686616.45 crores in the year 2007-08.

4.1.1(o) Claims settled during the year

The settlement of claims is a very important aspect of service to the policyholders. Hence the corporation has laid great emphasis on expeditious settlement of the maturity as well as death claims(Annual report of LIC, Year 2007-08). Table 4.28 shows the number and amount of claims settled during the entire period of the study.

Table No: 4.28
Table showing the Claims Settled during the Year

YEAR	NUMBER (In Lakhs)		AMOUNT (Rs in Crores)			
1993-94	34.47		3354.09			
1994-95	40.24		4076.07			
1995-96	41.67		4532.22			
1996-97	49.49		5691.49			
1997-98	56.52		6677.04			
1998-99	59.83		7583.18			
1999-00	66.42		9211.30			
2000-01	75.86		11637.98			
2001-02	87.67		14519.25			
2002-03	96.91		17035.81			
2003-04	103.53		19607.20			
2004-05	115.05		23661.53			
2005-06	120.90		28572.46			
2006-07	135.31		36485.91			
2007-08	141.00		37019.51			
Claims	Min.Val.	Max.Val.	Mean	SD	C.V(%)	C.G.R (%)
Number (In lakhs)	34.47	141	81.66	35.60	43.61	11.17
Amount (Rs. in Crores)	3354.09	37019.51	19317.67	17286.6	89.49	16.97

Source: Annual Reports, 1993-94 To 2007-08.

The number of claims settled ranges between 34.47 lakhs to 141 lakhs with a mean of 81.66 lakhs and a coefficient of variation of 43.61 percent. LIC has shown an average growth rate of 11.17 percent in terms of number of claims settled.

The amount of claim settled ranges between Rs.3354.09 crores to Rs.37019.51 crores with a mean of Rs.19317.67 crores and 89.49 percent of coefficient of variation with a compounded growth rate of 16.97 percent.

The settlement of claims increases steadily and gradually year after year right from 1993-94 till 2007-08. This indicates that LIC settles majority of the claims every year.

Chart No : 4.15

Chart Showing the Number of Claims Settled (In Lakhs)

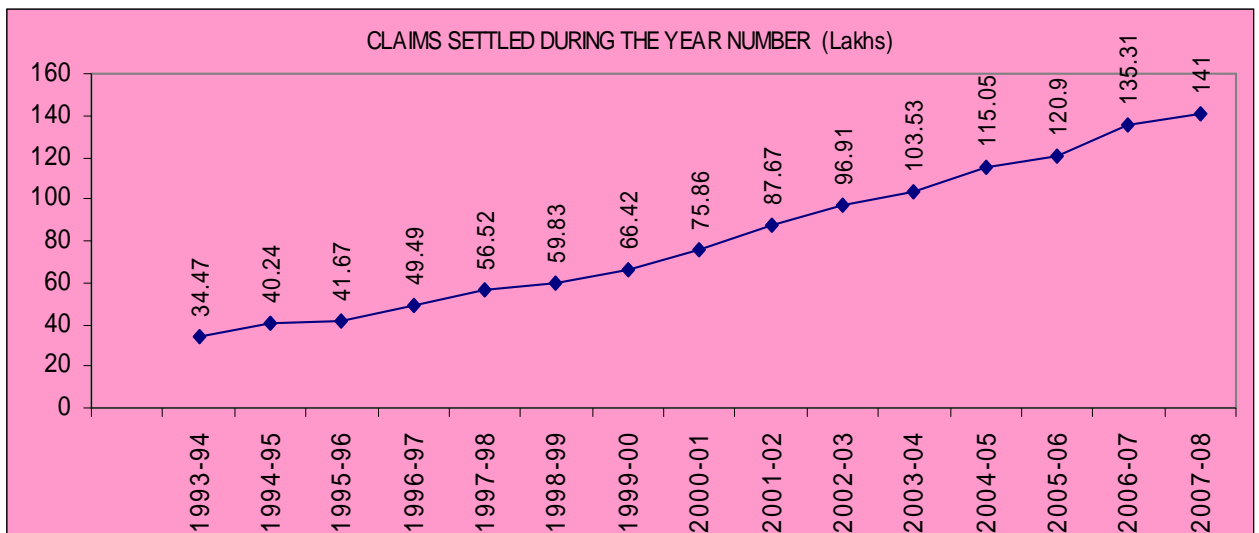


Table No: 4.29

TRENDS IN CLAIMS SETTLED DURING THE YEAR

Claims	R ²	D. F	F Value	Trend Coefficients			
				b ₀	b ₁	b ₂	b ₃
Number (in lakhs) Y1	0.997	10	1126**	32.978	1.773	0.571	-0.013
Amount (Rs.in Crores) Y2	0.274	10	1.26	-16914	17279.2	-2530.9	112.839

** Significant at 1% level

Number of claims settled $Y1 = 32.978 + 1.773 t + 0.571 t^2 - 0.013 t^3$

Claims settled in terms of amount $Y2 = - 16914 + 17279.2 t - 2530.9 t^2 + 112.839 t^3$

The Coefficient of determination R^2 indicates that the trend equations b1, b2 and b3 put together explain the variations of Y1 to the extent of 99.7 percent, Y2 to the extent of 27.4 percent which shows the adequacy of the model fitted to forecast the trend values. The forecasted value for any 't' value-(year) can be obtained from the above trend equation. The above significant cubic trend equations indicates positive trend in the future years in number of claims and amount settled.

4.1.1(p) Percentage of Net Lapses to Mean Life Insurance Business in Force

When the premium is not paid within the days of grace, the policy lapses. A grace period of one month but not less than thirty days is allowed for payment of yearly, half yearly and quarterly premiums and fifteen days for payment of monthly premiums. The policy can however be revived within five years from the date of maturity, if applicable. Net lapses refers to the total number of policies lapsed minus the total number of policies revived.

$\text{Net lapses} = \text{Lapses} - \text{revivals}$

The performance of LIC was evaluated on the basis of net lapses. For this the percentage of net lapses to mean life insurance business in force is calculated for the period of the study. Mean life insurance business in force is the average of the business in force during the last five years. The increase in the percentage of net lapses to mean business in force shows the poor performance of LIC and vice versa. Table 4.30 depicts the percentage of net lapses to mean life insurance business in force for different years of the study period.

From the table it is clear that LIC has shown a consistent percentage of net lapses. However during 2007-08 an increase in percentage has been observed. LIC should take steps to reduce lapsation of policies

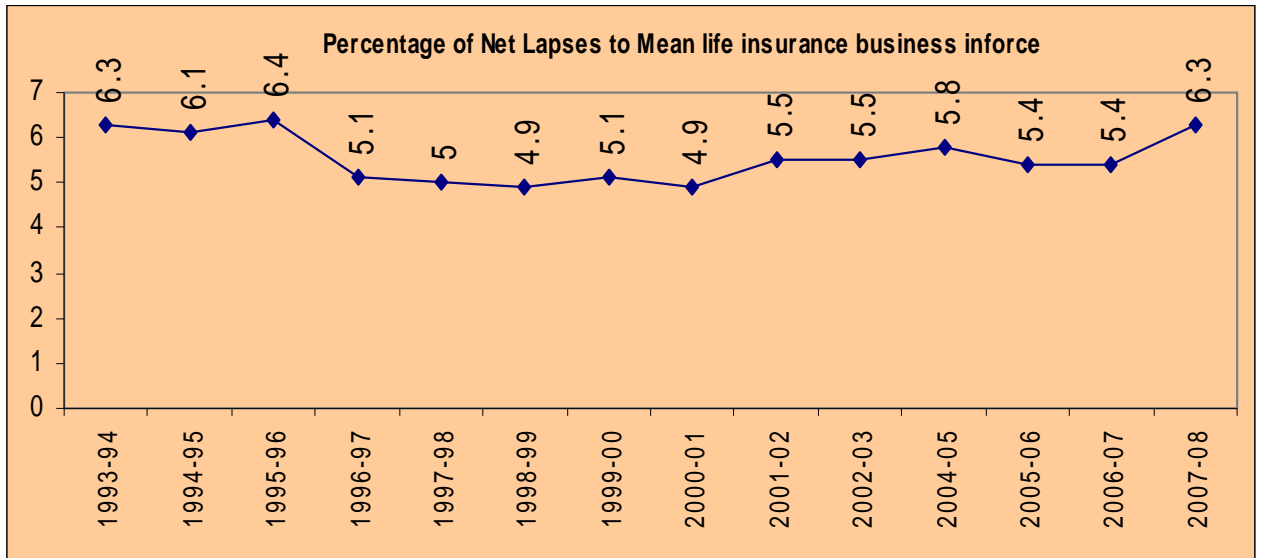
Table No: 4.30

**TABLE SHOWING THE PERCENTAGE OF NET LAPSES TO MEAN LIFE INSURANCE
BUSINESS IN FORCE**

YEAR	PERCENTAGE
1993-94	6.30
1994-95	6.10
1995-96	6.40
1996-97	5.10
1997-98	5.00
1998-99	4.90
1999-00	5.10
2000-01	4.90
2001-02	5.50
2002-03	5.50
2004-05	5.80
2005-06	5.40
2006-07	5.40
2007-08	6.30

Chart No: 4.16

**CHART SHOWING THE PERCENTAGE OF NET LAPSES TO MEAN LIFE INSURANCE
BUSINESS IN FORCE**



4.1.1(q) Analysis of Utilisation of Income

Table No:4.31

TABLE SHOWING ANALYSIS OF UTILISATION OF INCOME(IN PERCENTAGE)

YEAR	A. CLAIMS BY MATURITY	B. CLAIMS BY DEATH	C. ANNUITIES	D. SURRENDERS	E. COMMISSION TO AGENTS Etc	F. SALARY AND OTHER BENEFITS TO EMPLOYEES	G. OTHER Mgt. EXPENSES	H. OTHER OUTGO (TAXES, TRANSFER TO RESERVES)	I. Govt. SHARE OF VALUATION SURPLUS	J. EXCESS OF INCOME OVER OUTGO ADDED TO LIFE INSURANCE FUND
1993-94	18.04	4.14	0.83	2.27	6.15	5.85	1.96	3.00	0.78	56.98
1994-95	18.91	3.91	0.82	2.14	5.88	5.93	1.82	2.85	0.77	56.97
1995-96	16.99	3.85	1.31	2.13	5.45	6.33	1.59	3.55	0.73	58.07
1996-97	18.21	3.95	1.19	2.21	5.62	6.31	1.65	2.19	0.66	58.01
1997-98	17.92	3.79	1.25	2.49	5.55	5.63	1.69	2.23	0.65	58.80
1998-99	17.16	3.79	1.29	2.81	5.51	5.68	1.65	2.17	0.64	59.30
1999-00	17.05	3.66	1.33	2.93	5.6	5.85	1.54	1.92	0.59	59.53
2000-01	18.08	3.54	1.2	3.16	6.03	5.18	1.39	1.57	0.59	59.26
2001-02	16.79	2.95	1.38	3.15	6.31	4.35	1.26	1.56	1.12	61.13
2002-03	17.84	3.14	1.48	3.17	6.18	4.09	1.56	12.39	0.60	49.55
2003-04	19.31	3.4	1.63	3.65	6.65	4.02	2.00	2.65	0.63	56.06
2004-05	18.73	3.04	1.52	3.06	5.75	3.18	2.33	6.39	0.64	55.36
2005-06	20.36	3.1	1.63	3.07	5.84	2.96	2.01	3.51	0.52	57.00
2006-07	21.29	2.95	1.45	10.58	6.08	2.70	1.99	3.42	0.50	49.04
2007-08	19.16	3.16	1.43	10.8	5.73	3.02	1.95	2.31	0.50	51.94

The income is generated by LIC from various different sources such as total premium income, income from investments, etc. The income generated during the year is to be utilized in different years. The analysis of utilization of income is done in order to evaluate the performance of the corporation. The percentages of utilization of income in different activities are calculated in order to analyze the share of each activity in the total income.

The utilization of income of LIC is done in the form of making various payments such as payment of claims both maturity as well as death payment in case of surrender of a policy, commission to agents, salary to employees, management expenses, taxes, transfer to reserves etc. Table 4.31 shows the percentage of various components in which the total income of LIC is utilized every year during the period of the study.

Factor Analysis

Factor analysis is a multivariate statistical technique used to condense and simplify the set of large number of variables to smaller number of variables called factors. This technique is helpful to identify the underlying factors that determine the relationship between the observed variables and provides an empirical classification scheme of clustering of statements into groups called factors. Using all the ten items of utilization of income namely claims by maturity -A, claims by death -B, Annuities -C, Surrenders -D, Commission to agents –E, salary and other benefits - F, Other Management Expenses– G, Other Outgo – H, Government share of Valuation Surplus- I, Excess of income over outgo added to Life Insurance Fund –J factor analysis was performed in order to simplify, condense and extract groups called Factors on priority basis. The following table 4.32(a) clusters the ratios into the factors and the results were presented as below:

Table No: 4.32(a)
ROTATED FACTOR LOADINGS

Utilization of Income	FACTORS				Communality
	1	2	3	4	
A-Claims by maturity	0.893	-0.249	-0.032	0.142	0.881
B-Claims by death	-0.179	0.910	-0.152	-0.256	0.948
C-Annuities	0.073	-0.898	0.161	-0.107	0.849
D-Surrenders	0.656	-0.492	-0.159	-0.010	0.698
E-Commission to agents	0.121	-0.191	0.119	0.899	0.874
F-Salary & other benefits to employees	-0.537	0.770	-0.133	-0.228	0.951
G-Other Mgt. expenses	0.796	-0.006	0.131	-0.012	0.651
H-Other outgo	0.029	-0.161	0.981	0.052	0.993
I-Govt share of valuation surplus	-0.651	0.184	-0.196	0.576	0.828
J-Excess of income over outgo	-0.682	0.279	-0.567	-0.070	0.869
Eigen value	3.091	2.705	1.447	1.297	8.541
% Of variance	30.915	27.051	14.473	12.973	85.412
Cumulative % variance	30.915	57.965	72.438	85.412	

The above table 4.32(a) depicts the rotated factor loadings, communalities, eigen values and the percentage of variance explained by the factors. Out of the ten variables four factors have been extracted. The variables were grouped on the basis of values, which explains how closely the variables were related to each one of the factors discovered. As such under Factor – I, the variables Claims by maturity of LIC scores the

highest value 0.893, followed by Other management expenses (0.796), Surrenders with (0.656), Government share of valuation surplus (-0.651) and excess of income over outgo (-0.682) are grouped together. Again under factor II three variables namely, Claims by death (0.910), Annuities (-0.898), Salary and other benefits to employees (0.770) are grouped. Only one source namely other outgo (0.981) constitutes factor III and Commission to agents (0.899) constitutes factor IV. These four factors put together explain the total variance of these ratios to the extent of 85.412 percent.

Factor loadings help the researcher to explain how closely the variables are related to each one of the factors. In order to reduce the number of factors and enhance the interpretability, the factors were rotated. The rotation increases the quality of interpretation of the factors. There are several methods of the initial factor matrix to attain simple structure of the data. The varimax rotation is one such method. To obtain better results for interpretation it was employed and the results were given in table 4.32(b).

Table No: 4.32(b)
Clustering of Items of utilization of income into factors

Factor	Sources of Income	Rotated factor loadings
I. (30.915%)	A-Claims by maturity	0.893
	D-Surrenders	0.656
	G-Other Management expenses	0.796
	I-Govt share of valuation surplus	-0.682
	J-Excess of income over outgo	-0.682
II.(27.051 %)	B-Claims by death	0.910
	C-Annuities	-0.898
	F-Salary & other benefits to employees	0.770
III.(14.473 %)	H-Other outgo	0.981
IV.(12.973 %)	E-Commission to agents	0.899

Five factors were identified as being maximum percentage variance accounted. The five items of utilization of income A, D, G, I and J under one group as factor I accounts 30.913 percent of the total variance. The three items of utilization of income B, C and F constituted the factor II and accounts 27.051 percent of the total variance. One item of utilization of income H constituted the factor III and accounts 14.473 percent of the total variance. The one financial ratio E constituted the factor IV and accounts 12.973 percent of the total variance. The factor analysis condensed and simplified ten items of utilization of income of LIC and grouped into four factors explaining 85.412 percent of the variability of all the ten items of utilization of income.

Majority of the income of LIC was utilized in the form of claims by maturity, management expenses, surrenders, Government share of valuation surplus and excess of income over outgo. This is followed by Claims by death, Annuities, Salary and other benefits to employees.

Intercorrelation and Regression analysis

There are many indicators of the performance of LIC out of which few major parameters were taken and an attempt was made to test the inter relations and correlation existing between the variables considered for the study: It includes:

- a) New business in India
- b) New business out of India
- c) Business in force In India
- d) Business in force out of India
- e) Premium Income and
- f) Life insurance fund.

a) New Business in India

In assessing the performance of LIC, New business in India is considered to be a significant parameter. The components used to measure New business in India are annual premium, number of policies and sum assured. The Intercorrelation between the three variables is computed and are given in the following Table 4.33 (a)

Table No: 4.33 (a)

INTER-CORRELATION MATRIX NEW BUSINESS IN INDIA

	Annual premium (Rs.in Crores)-Y	No. of Policies-X1	Sum Assured (Rs. in Crores)-X2
Annual premium (Rs.in Crores)-Y	1.000		
No. of Policies-X1	0.944**	1.000	
Sum Assured (Rs. in Crores)-X2	0.955**	0.952**	1.000

** - Significant at 1% level

The correlation matrix shows that all the correlation coefficients between the independent variables and between the dependent and independent variables were significant at one percent level. This indicated strong relationship between the variables considered. In way of preceding the analysis, multiple regression was applied and the estimated equation was as under :

REGRESSION MODEL FOR Y-ANNUAL PREMIUM

Variables	Regression Coefficient	Standard Error	t- value (d.f = 12)	R²
Constant	-2245.752	1846.189	-1.216	0.926
No. of Policies-X1	0.000	0.000	1.436	
Sum Assured-X2 (Rs. in Crores)	0.039	0.017	2.352*	

* - Significant at 5 % ** : significant at 1% level.

Regression Fitted : $Y = -2245.752 + 0.000 X1 + 0.039 X2$.

Analysis of variance for regression

Source	SS	DF	MS	F
Regression	2.99E+08	2	149588350.89	74.73**
Residual	24021019	12	2001751.579	

** - Significant at 1 % level

The multiple regression model indicated that out of the 2 explanatory variables, X2 the sum assured has significantly contributing to Y the premium income. The analysis of variance of multiple regression model for Y indicates the over all

significance of the model fitted. The coefficient of determination R^2 value showed that these variables put together explained the variations of Y to the extent of 92.6 percent.

b) New Business Out of India

In assessing the performance of LIC under this parameter Annual premium income is considered to be a function of variables Number of policies (X1) and Sum assured (X2). The intercorrelations between these variables are given in the following Table 4.33(b)

Table No: 4.33(b)

INTER-CORRELATION MATRIX NEW BUSINESS OUT OF INDIA

	Annual premium (Rs.in Crores)	No. of Policies	Sum Assured (Rs. in Crores)
Annual premium (Rs.in Crores)	1.000		
No. of Policies	0.326	1.000	
Sum Assured (Rs. in Crores)	0.984**	0.401	1.000

**Significant at 1% level

The correlation matrix shows that only the independent variable Sum assured (X2) is positively correlated and was significant at one percent level. This indicates that relationship is more influencing between sum assured and premium income in respect of New Business out of India.

REGRESSION MODEL FOR ANNUAL PREMIUM

Variables	Regression Coefficient	Standard Error	t- value (d.f = 12)	R^2
Constant	0.987	1.638	0.602	0.974
No. of Policies-x1	0.000	0.000	-1.602	
Sum Assured-x2 (Rs. in Crores)	0.069	0.003	19.986**	

** : significant at 1% level.

Regression Fitted : $Y = 0.987 + 0.000 X_1 + 0.069 X_2$

Analysis of variance for regression

Source	S S	D F	M S	F
Regression	374.535	2	187.268	224.16**
Residual	10.025	12	0.835	

** - Significant at 1 % level

The multiple regression model indicated that out of the 2 explanatory variables, X2 Sum assured has significantly contributed to Y the premium Income. The analysis of variance of multiple regression model for Y indicates the over all significance of the model fitted. The coefficient of determination R^2 value showed that these variables put together explained the variations of Y to the extent of 97.4 percent.

c) Business In force in India

In assessing the performance of LIC under this parameter Annual premium income is considered to be a function of variables Number of policies (X1) and Sum assured (X2) .The intercorrelations between these variables are given in the following Table 4.33(c)

Table No: 4.33 (c)

INTER-CORRELATION MATRIX -BUSINESS IN FORCE OF INDIA

	Annual premium (Rs.in Crores)	No. of Policies	Sum Assured (Rs. in Crores)
Annual premium (Rs.in Crores)	1.000		
No. of Policies	0.995**	1.000	
Sum Assured (Rs. in Crores)	0.989**	0.995**	1.000

** -Significant at 1% level

The correlation matrix shows that all the correlation coefficients between the independent variables and between the dependent and independent variables were significant at one percent level. This indicated strong relationship and all the variables are influencing one another. In way of preceding the analysis, multiple regression was applied and the estimated equation was as under:

REGRESSION MODEL FOR ANNUAL PREMIUM

Variables	Regression Coefficient	Standard Error	t- value (d.f = 12)	R^2
Constant	-33313.9	7200.242	- 4.627	0.990
No. of Policies-x1	65.262	16.924	3.856**	
Sum Assured-x2 (Rs. In Crores)	-0.007	0.018	- 0.392	

** : significant at 1% level.

$$\text{Regression Fitted : } Y = -33313.9 + 65.262 X1 - 0.007 X2$$

Analysis of variance for regression

Source	SS	DF	MS	F
Regression	1.04E+10	2	5199876687.9	604.82**
Residual	1.03E+08	12	8597426.974	

** - Significant at 1 % level

The multiple regression model indicated that out of the 2 explanatory variables, X1 has significantly contributed to Y. The analysis of variance of multiple regression model for Y indicates the over all significance of the model fitted. The coefficient of determination R^2 value showed that these variables put together explained the variations of Y to the extent of 99.0 .

d) Business In force out of India

In assessing the performance of LIC under this parameter Annual premium income is considered to be a function of variables Number of policies (X1) and Sum assured (X2) .The intercorrelations between these variables are given in the following Table 4.33(d)

Table No: 4. 33(d)

INTER-CORRELATION MATRIX BUSINESS IN FORCE OUT OF INDIA

	Annual premium (Rs.in Crores)	No. of Policies	Sum Assured (Rs. in Crores)
Annual premium (Rs.in Crores)	1.000		
No. of Policies	0.955**	1.000	
Sum Assured (Rs. in Crores)	0.947**	0.963**	1.000

** - Significant at 1% level

The correlation matrix shows that all the correlation coefficients between the independent variables and between the dependent and independent variables were significant at one percent level. This indicated strong relationship between the variables considered. In way of proceeding the analysis, multiple regression was applied and the estimated equation was as under :

REGRESSION MODEL FOR ANNUAL PREMIUM

Variables	Regression Coefficient	Standard Error	t- value (d.f = 13)	R²
Constant	-250.155	30.270	-8.264	0.912
Sum Assured (Rs. in Crores)	391.894	33.829	11.584**	

** : significant at 1% level.

Regression Fitted : $Y = -250.155 + 391.894 X_1$

Analysis of variance for regression

Source	S S	D F	M S	F
Regression	14186.76	1	14186.76	134.19 **
Residual	1374.328	13	105.7176	

** - Significant at 1 % level

The simple regression model indicated that Sum Assured X₁ has significantly contributed to Y the annual premium. The analysis of variance of multiple regression model for Y indicates the over all significance of the model fitted. The coefficient of determination R² value showed that these variables put together explained the variations of Y to the extent of 91.2 percent.

e) Premium Income

Premium income (Y) was considered to be a function of X₂ –Number of policies, X₃ – Sum assured ,X₄- Number of Active agents and X₅- loans advanced .The multiple regression model between these variables are given in the following Table 4.33 (e)

Table No: 4. 33 (e)

REGRESSION MODEL FOR PREMIUM INCOME

Variables	Regression Coefficient	Standard Error	t- value (d.f = 14)	R²
Constant	-611.331	2011.079	-0.304	0.965
X ₂	0.000	0.000	-1.519	
X ₃	0.096	0.022	4.380**	
X ₄	0.009	0.004	2.010*	
X ₅	-0.531	0.164	-3.248**	

* - :Significant at 5 %

** : significant at 1% level.

Regression Fitted : $Y = -611.331 + 0.000 X_2 + 0.096 X_3 + 0.009 X_4 - 0.531 X_5$

Analysis of variance for regression

Source	S S	D F	M S	F
Regression	3.12E+08	4	77967336.929	68.825**
Residual	11328373	14	1132837.301	

** - Significant at 1 % level

The multiple regression model indicated that X3, X4 and X5 have significantly contributed to Y. The analysis of variance of multiple regression model for Y indicates the over all significance of the model fitted. The coefficient of determination R^2 value showed that these variables put together explained the variations of Y to the extent of 96.5 percent. Hence the premium income of LIC largely depends on sum assured, number of active agents and loans advanced and LIC has to strive increasing these factors for its improved performance.

f) Life Fund

Life fund indicates the balance of income of LIC after all the expenses are met. Following relationship was considered in this case :

$$Y = f(x_1, x_2, x_3, x_4, x_5)$$

Where Y = Life Fund

X1 = Annual premium

X2 = Number of policies

X3 = Sum assured

X4 = Number of active agents

X5 = Loans advanced

The inter-correlation matrix of explanatory variables namely X1-Annual premium, X2-No of policies, X3-Sum assured, X4- No of active agents and X5-Loans advances with dependent variable Y-Life fund is furnished in the table 4.33 (f) given below.

TABLE No: 4. 33 (f)
INTER-CORRELATION MATRIX

	X1	X2	X3	X4	X5	Y
X1	1.000					
X2	0.944**	1.000				
X3	0.955**	0.952**	1.000			
X4	0.812**	0.813**	0.884**	1.000		
X5	0.540**	0.521**	0.708**	0.851**	1.000	
y	0.690**	0.639**	0.797**	0.942**	0.951**	1.000

** Significant at one percent level

It is seen from the above table the correlation between all the explanatory variables are significant at one percent level and was positive. Further it is also seen that all these explanatory variables are, significantly and positively correlated with the dependent variable connected load. This indicated strong relationship between the selected variables. In way of proceeding the analysis, multiple regression was applied and the estimated equation was as under:

REGRESSION MODEL FOR LIFE INSURANCE FUND

Variables	Regression Coefficient	Standard Error	t- value (d.f = 14)	R²
Constant	-122820.4	54504.401	-2.253	0.986
X1	7.655	8.531	0.897	
X2	-0.020	0.008	-2.584**	
X3	0.917	1.007	0.911	
X4	0.627	0.143	4.381*	
X5	11.595	6.325	1.833	

*- :Significant at 5 % ** : significant at 1% level.

Regression Fitted: $Y = -122820.4 + 7.655 X_1 - 0.020 X_2 + 0.917 X_3 + 0.627 X_4 + 11.595 X_5$

Analysis of variance for regression

Source	S S	D F	M S	F
Regression	5.35E+11	4	1.0702E+11	129.798**
Residual	7.42E+09	14	824475331.61	

** - Significant at 1 % level

The multiple regression model indicated that X2- Number of policies and X4- Number of active agents have significantly contributed to Y-the life Fund. The analysis of variance of multiple regression model for Y indicates the over all significance of the model fitted. The coefficient of determination R^2 value showed that these variables put together explained the variations of Y to the extent of 98.6 %. Thus LIC have to concentrate on the number of policies and number of active agents to increase the flow to life fund so that it is able to play more meaningful role in the development of the country.

Path Coefficient Analysis

The direct effect of each of the explanatory variables on the dependent variable and the indirect effect of each explanatory variables on the dependent variable through other explanatory variables are explained by path coefficient analysis and the results are furnished in the table 4.33 (g) given below:

TABLE No: 4. 33 (g)

DIRECT & INDIRECT EFFECT OF EXPLANATORY VARIABLES ON CONNECTED LOAD DURING 1998-2007

	X1 (Annual Income)	X2 (Number of Policies)	X3 (Sum Assured)	X4 (Number of active agents)	X5 (Loans advances)	Y (Life Fund)
X1	0.187	-0.573	0.332	0.570	0.175	0.690**
X2	0.176	-0.607	0.331	0.570	0.169	0.639**
X3	0.179	-0.578	0.348	0.620	0.229	0.797**
X4	0.152	-0.494	0.307	0.701	0.275	0.942**
X5	0.101	-0.317	0.246	0.597	0.323	0.951**

It was seen from the above table that among the five explanatory variables X1- Annual premium, X2-Number of policies, X3-Sum assured, X4- Number of active agents and X5-Loans advances, three explanatory variables namely X3, X4 and X5 have higher

positive direct effect on the dependent variable Y -Life fund. The variable X3 (sum assured) also has a higher positive indirect effect on Y through X4 (Number of active agents). Similarly the variable X4(Number of active agents) also had positive indirect effect on the dependent variable Y through X3 (Sum assured). The variable X5 (Loans advances) also had higher positive indirect on the dependent variable Y through X4(Number of active agents). Hence the three explanatory variables, X3-Sum assured, X4- Number of active agents and X5-Loans advances were substantially important as they contributes to variable to Y(Life Fund).

4.1.2 Productivity of LIC

Productivity in general refers to the amount of output per unit of input. Productivity shows whether the activity of an organization is efficient and effective. Productivity requires both efficiency and effectiveness, because a certain activity will not be productive if it is only efficient, but not effective, or effective, but not efficient. Increasing productivity reduces the costs of output, which enables the producers to supply the goods and services at lower prices to the customers.

According to **I.L.O** productivity is defined as “In the broadest concept, productivity may be taken to constitute the ratio of available goods and services to the potential resources of the group, community or country.”

According to **Paul Mali**, “Productivity is the measure of how well resources are brought together in organization and utilized for accomplishing set of results”.

There are many different ways of measuring productivity. Many researchers argued that application of productivity concept in service sector is more complicated task than its application in manufacturing. Productivity concept in manufacturing is analyzed in the scope of organization, but in the service sector this scope is larger and involves an external element from the organizational position – customer. Quantity and quality aspects in the determination of productivity will differ in different spheres of service sector.

In the case of insurance sector, IRDA has defined following specific variables to measure the productivity:

- 4.1.2(a) New Business per branch
- 4.1.2(b) New Business per active agent
- 4.1.2(c) Number of policies per branch
- 4.1.2(d) Number of policies per active agent
- 4.1.2(e) Premium income per branch
- 4.1.2(f) Premium income per agent
- 4.1.2(g) Ratio of expenses to premium Income
- 4.1.2(h) Complaints per thousand mean number of policies in force
- 4.1.2(i) Outstanding claims to claims payable during the year
- 4.1.2(j) Membership of various agents club

4.1.2(a) New Business Per Branch

New business under individual insurance refers to the sum assured underwritten during the current financial year. In order to measure the productivity of LIC, the sum assured underwritten was considered as one of the important variable. Productivity of the branches can be measured by calculating sum assured per branch i.e. dividing the total sum assured in a year by the total number of branches in that year. The results would tell us the efficiency and effectiveness of various branches as of the LIC during various years. Table 4.34 reveals that the average business done by branches during different years.

The table shows a gradual increase in the productivity of LIC per branch from the year 1993-94 till 2001-02. Notably there was hike in the years 2001-02 and 2005-06 and downfall in the years 2002-03, 2004-05, 2006-07 and 2007-08 showing LIC has to improve its performance in this case.

The new business per branch ranges between Rs.2082.36 lakhs to Rs.13855.65 lakhs with a mean of Rs.6421.737 lakhs and a coefficient of variation of 56.57 percent, with a compound growth rate of 13.89 percent.

By comparing the new business per branch in a year with the actual new business of every branch in that year, LIC can take strategic decisions as to which branch need to

be paid more attention. Through this LIC can also identify the geographical pockets of concentration of its business.

Table No: 4.34

Table showing the New Business Per Branch

YEAR	NEW BUSINESS (Rs. in Lakhs)	TOTAL NUMBER OF BRANCHES	NEW BUSINESS PER BRANCH (Rs. in Lakhs)			
1993-94	4181383	2008	2082.36			
1994-95	5522850	2021	2732.73			
1995-96	5181554	2024	2560.05			
1996-97	5674050	2024	2803.38			
1997-98	6361769	2046	3109.36			
1998-99	7531628	2048	3677.55			
1999-00	9121425	2048	4453.82			
2000-01	12477162	2048	6092.36			
2001-02	19257227	2048	9402.94			
2002-03	17951222	2048	8765.24			
2003-04	19870712	2048	9702.49			
2004-05	17948139	2048	8763.74			
2005-06	28376374	2048	13855.65			
2006-07	20162074	2048	9844.76			
2007-08	17366272	2048	8479.63			
	Min.Val.	Max.Val.	Mean	SD	C.V (%)	C.G.R (%)
New business (Rs. in Lakhs)	4181383	28376374	13132256	7462514	56.83	14.02
Total number of branches	2008	2048	2040	13.55518	0.66	0.12
New business / branch (Rs. in Lakhs)	2082.36	13855.65	6421.737	3632.892	56.57	13.89

Source: Annual Reports,, 1993-94 To 2007-08.

Chart No: 4.17

New Business per Branch (Rs.in Lakhs)

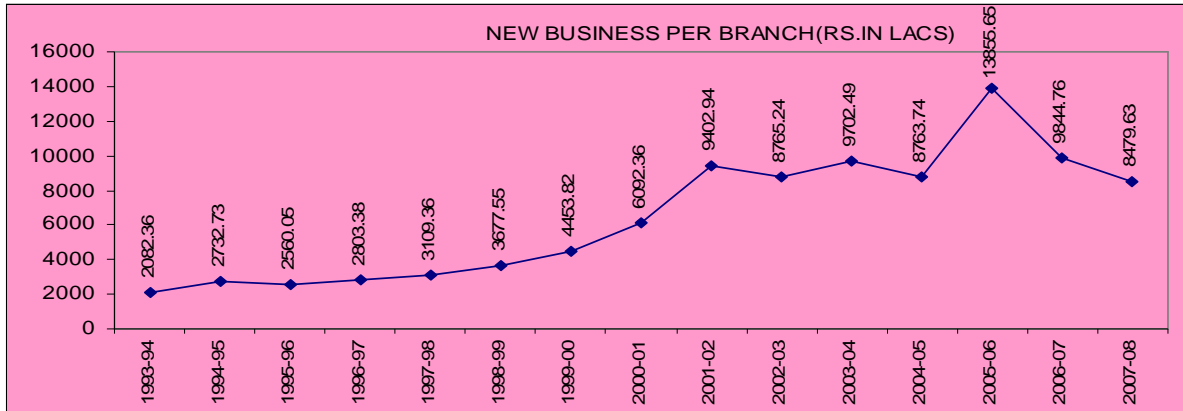


Table No: 4.35

TRENDS IN NEW BUSINESS PER BRANCH

	R ²	D. F	F Value	Trend Coefficients			
				b ₀	b ₁	b ₂	b ₃
New business (Rs. in Lakhs)	0.897	11	32**	8914744	-4.E+06	848295	-36489
Total number of branches	0.927	11	46**	1993.60	14.5976	-1.2472	0.0343
New business / branch Y	0.896	11	31**	4411.51	-1898.4	415.192	-17.839

** Significant at 1% level

$$\text{New business per branch } Y = 4411.51 - 1898.4 t + 415.192 t^2 - 17.839 t^3$$

The Coefficient of determination R² indicates that the trend equations b₁, b₂ and b₃ put together explain the variations of Y to the extent of 89.6 percent which shows the adequacy of the model fitted to forecast the trend values. The forecasted value for any 't' value-(year) can be obtained from the above trend equation. The above significant cubic trend equations indicates positive trend in the future years.

4.1.2(b) New Business Per Active Agent

Insurance sales agents, commonly referred to as “producers” in the insurance industry as they involve in selling and procuring new business. Productivity of the agents can be measured by dividing the total sum assured in a year by total number of active agents in that year, i.e. average business per active agents. It gives the average

productivity of agents. Table 4.36 shows the new business per active agent for the years 1992-93 to 2007-08.

The table 4.36 reveals that the new business per active agent ranges between Rs.7.97 lakhs to Rs.28.73 lakhs with a mean of Rs.16.076 lakhs and a coefficient of variation of 36.78 percent. The average business per agent and their productivity increases year by year till 2001-02 and reaches great hikes in the years 2001-02 and 2005-06 with Rs. 23.55 lakhs and Rs.28.73 lakhs respectively.

Table No: 4.36

Table showing the New Business Per Active Agent

YEAR	NEW BUSINESS (Rs. in Lakhs)		TOTAL NUMBER OF ACTIVE AGENTS		AVERAGE BUSINESS PER AGENT (Rs. in Lakhs)	
1993-94	41813.83		524427		7.97	
1994-95	5522850		519504		10.63	
1995-96	5181554		513897		10.08	
1996-97	5674050		533133		10.64	
1997-98	6361769		558517		11.39	
1998-99	7531628		598217		12.59	
1999-00	9121425		683190		13.28	
2000-01	12477162		743064		16.56	
2001-02	19257227		744003		23.55	
2002-03	17951222		902199		19.51	
2003-04	19870712		1003241		21.97	
2004-05	17948139		980836		18.30	
2005-06	28376374		987689		28.73	
2006-07	20162074		1028256		20.41	
2007-08	17366272		1117908		15.53	
	Min.Val.	Max.Val.	Mean	SD	C.V (%)	C.G.R (%)
New business (Rs. in Lakhs)	41813.83	28376374	12856285	7881927	61.31	27.94
Total number of active agents	513897	1117908	762538.7	220152.6	28.87	6.55
New business /active agent (Rs. in Lakhs)	7.97	28.73	16.076	5.913	36.78	7.18

Source: Annual Reports,, 1993-94 To 2007-08.

The graph shows ups and downs after the entry of private insurers from 2002-03 onwards due to intense competition. The overall compounded growth rate of LIC in case of average business per agent is 7.18 percent.

Chart No : 4.18
Chart Showing the New Business Per Active Agent

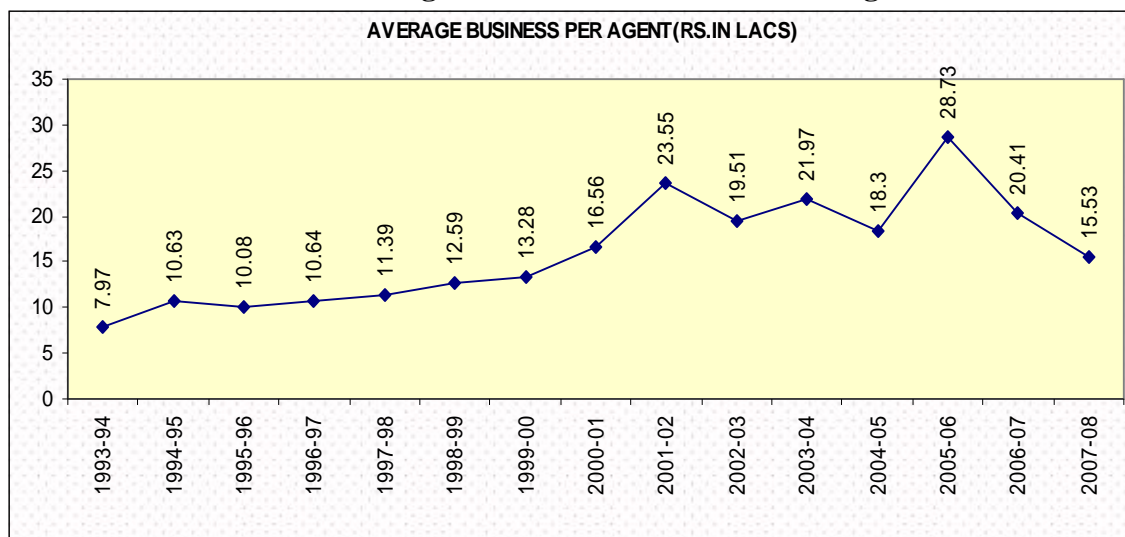


Table No: 4.37
TRENDS IN NEW BUSINESS PER ACTIVE AGENT

	R ²	D. F	F Value	Trend Coefficients			
				b ₀	b ₁	b ₂	b ₃
New business (Rs. in Lakhs)	0.885	11	28**	4499203	-2.E+06	628465	-28598
Total number of active agents	0.978	11	160**	576976	-60289	14305.5	-536.16
New business per active agent (Rs.in Lakhs) Y	0.797	11	14**	12.0026	-2.7945	0.6952	-0.0323

** Significant at 1% level

$$\text{New business per active agent } Y = 12.0026 - 2.7945 t + 0.06952 t^2 - 0.0323 t^3$$

The Coefficient of determination R² indicates that the trend equations b₁, b₂ and b₃ put together explain the variations of Y to the extent of 79.7 percent which shows the adequacy of the model fitted to forecast the trend values. The forecasted value for any 't'

value-(year) can be obtained from the above trend equation. The above significant cubic trend equations indicates positive trend in the future years.

4.1.2(c) Number of policies per Branch

The performance of the branches can be judged from the number of policies sold by them during a particular year by the branches. Thus, the productivity of the branches in a particular year is measured by dividing the total number of policies in a year by the total number of branches in that year. This indicates the average business done by each branch in terms of number of policies in different years.

Table No : 4.38

Table showing the Number of policies per Branch

YEAR	NUMBER OF POLICIES	TOTAL NUMBER OF BRANCHES	NUMBER OF POLICIES PER BRANCH			
1993-94	10725633	2008	5341			
1994-95	10874682	2021	5381			
1995-96	11020825	2024	5445			
1996-97	12268476	2024	6062			
1997-98	13311294	2046	6506			
1998-99	14843687	2048	7248			
1999-00	16976782	2048	7248			
2000-01	19656663	2048	9598			
2001-02	22491304	2048	10982			
2002-03	24268416	2048	11850			
2003-04	26456320	2048	12918			
2004-05	21817967	2048	10653			
2005-06	29284800	2048	14299			
2006-07	20910041	2048	10210			
2007-08	17961363	2048	8770			
	Min.Val.	Max.Val.	Mean	SD	C.V (%)	C.G.R (%)
Number of policies	10725633	29284800	18191217	5986907	32.91	6.66
Total number of branches	2008	2048	2040	13.55	0.66	0.12
Number of policies per Branch	5341	14299	8834	2925.129	33.11	6.58

Source: Annual Reports,, 1993-94 To 2007-08.

Table 4.38 shows the number of policies per branch for the years 1993-94 to 2007-08. The number of policies per branch ranges between 5341 to 14299 with a mean of 8834 and a coefficient of variation of 33.11 percent. The compounded growth rate of the same was 6.58 percent.

The performance of LIC in case of number of policies per branch was good till 2005-06 but towards the end years it declines. Notably the graph goes upward even after the entry of private insurers and this signifies that the decline was not due to competition in the insurance market.

Chart No: 4.19

Chart Showing the Number of policies per Branch

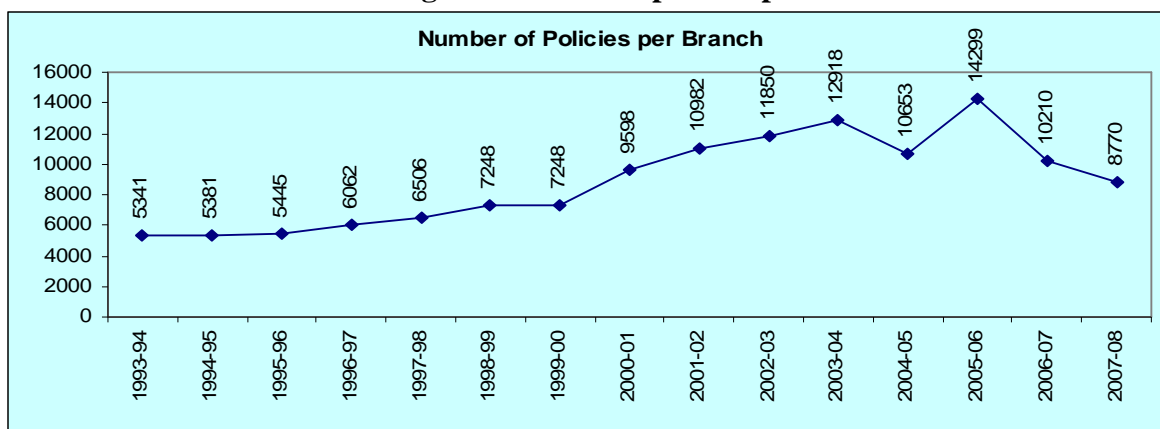


Table No: 4.38 (a)

TRENDS IN NUMBER OF POLICIES PER BRANCH

	R ²	D. F	F Value	Trend Coefficients			
				b ₀	b ₁	b ₂	b ₃
New business (Rs. in Lakhs)	0.916	11	40**	1.4E+07	-3.E+06	807521	-38058
Total number of branches	0.927	11	46**	1993.6	14.5976	-1.2472	0.0343
New business/Branch (Rs. in Lakhs) Y	0.902	11	33**	7231.72	-1786.6	415.8	-19.248

** Significant at 1% level

$$\text{New business per Branch } Y = 7231.72 - 1786.6 t + 415.8 t^2 - 19.248 t^3$$

The Coefficient of determination R^2 indicates that the trend equations b1, b2 and b3 put together explain the variations of Y to the extent of 90.2 percent which shows the adequacy of the model fitted to forecast the trend values. The forecasted value for any 't' value-(year) can be obtained from the above trend equation. The above significant cubic trend equations indicates positive trend in the future years.

4.1.2(d) Number of Policies per Active agent

An Insurance agent acts as a financial advisor in assessing the financial needs of his client and prepares a package of life insurance solution for him. It is only an insurance agent who is to make sure people have the coverage that is right for them at a price they can live with. He is expected to be professional in his approach so that whatever he does is customer focused. He cultivates long term relationship with client and family. Hence it is essential to measure the productivity of the agent.

The productivity of agents is calculated by dividing the total number of policies of a particular year by the number of agents in that year. The productivity for the period 1993-94 to 2007-08 is shown in the table 4.39

Table No: 4.39

Table showing Number of Policies per Active agent

YEAR	NUMBER OF POLICIES		NUMBER OF ACTIVE AGENT	NUMBER OF POLICIES PER AGENT		
1993-94	10725633		524427	20		
1994-95	10874682		519504	21		
1995-96	11020825		513897	21		
1996-97	12268476		533133	23		
1997-98	13311294		558517	24		
1998-99	14843687		598217	22		
1999-00	16976782		683190	25		
2000-01	19656663		713064	26		
2001-02	22491304		744003	30		
2002-03	24268416		902199	27		
2003-04	26456320		1003241	26		
2004-05	21817967		980836	22		
2005-06	29284800		987689	30		
2006-07	20910041		1028256	20		
2007-08	17961363		1117908	16		
	Min.Val.	Max.Val.	Mean	SD	C.V (%)	C.G.R (%)
Number of policies	10725633	29284800	18191217	5986907	32.91	6.66
Number of active agents	5,13,897	1117908	760538	220478.2	28.99	6.55
Number of policies/active agent	16	30	24	3.870	16.45	0.21

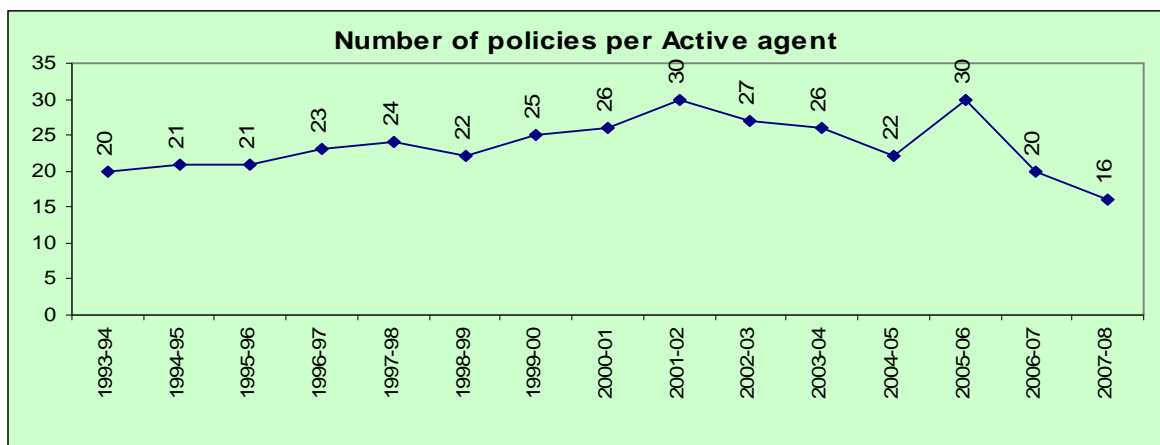
Source: Annual Reports,, 1993-94 To 2007-08.

The number of policies per active agent ranges between 16 to 30 with a mean of 24 policies and a coefficient of variation of 16.45 percent. The compounded growth rate of number of policies per agent for the entire period of study was 0.21 percent.

The results show that the number of policies per agent increased steadily from 20 policies in 1993-94 to 24 policies in 1997-98. Again from 1999- 2000, the number of policies per agent started increasing and reached 30 policies per agent in 2001-02.

Chart No: 4.20

Chart Showing the Number of policies per Active Agent



From 2002-03 onwards there was a downfall in the productivity of agents as it reached 16 policies per agent in the year 2007-08. The graph of number of policies per agent goes down towards the end. This indicates poor performance of LIC in this front and hence there arise the need to train the agents to handle the problems linked with rapid changes in the market scenario.

Table No: 4.40

TRENDS IN NUMBER OF POLICIES PER ACTIVE AGENT

	R ²	D. F	F Value	Trend Coefficients			
				b ₀	b ₁	b ₂	b ₃
Number of policies	0.916	11	40**	1.4E+07	-3.E+06	807521	-38058
Number of active agents	0.977	11	157**	581129	-62461	14441.3	-536.16
Number of policies per active agent Y	0.661	11	7.2**	21.3795	-1.1404	0.4128	-0.0238

** Significant at 1% level

$$\text{Number of policies per active agent } Y = 21.3795 - 1.1404 t + 0.4128 t^2 - 0.0238 t^3$$

The Coefficient of determination R^2 indicates that the trend equations b1, b2 and b3 put together explain the variations of Y to the extent of 66.1 percent which shows the adequacy of the model fitted to forecast the trend values. The forecasted value for any 't' value-(year) can be obtained from the above trend equation. The above significant cubic trend equations indicates positive trend in the future years.

4.1.2(e) Premium Income per Branch

An insurance premium is the actual amount of money charged by insurance companies for active coverage. The productivity of branches can be measured in terms of premium income received by all the branches during a particular year. It is calculated by dividing the total number of branches in that year. Table 4.41 shows the premium Income per branch for the years 1993-94 to 2007-08.

Table No: 4.41
Table showing Premium Income per Branch

YEAR	PREMIUM INCOME (Rs. in Crores)		NUMBER OF BRANCHES	PREMIUM INCOME PER BRANCH (Rs in Crores)		
1993-94	2507.73		2008	1.24		
1994-95	2533.90		2021	1.25		
1995-96	2813.63		2024	1.39		
1996-97	3345.39		2024	1.65		
1997-98	3841.12		2046	1.87		
1998-99	4863.41		2048	2.37		
1999-00	6008.28		2048	2.93		
2000-01	8851.89		2048	4.32		
2001-02	16009.44		2048	7.81		
2002-03	12505.38		2048	6.10		
2003-04	12540.00		2048	6.12		
2004-05	11224.19		2048	5.48		
2005-06	15157.76		2048	7.40		
2006-07	11672.72		2048	5.70		
2007-08	9871.89		2048	4.82		
	Min.Val.	Max.Val.	Mean	SD	C.V (%)	C.G.R (%)
Premium income (Rs. in Crores)	2507.73	16009.44	8249.782	4804.62	58.24	14.71
Number of branches	2008	2048	2040	13.55	0.66	0.12
Premium income per branch (Rs.in Crores)	1.24	7.81	4.03	2.340	58.07	14.62

Source: Annual Reports,, 1993-94 To 2007-08.

The table 4.41 reveals the premium income per branch ranges between Rs.1.24 crores to Rs. 7.81 crores with a mean of Rs.4.03 crores and a coefficient of variation of 58.07 percent with a compounded growth at 14.62 percent.

The graph was consistent in chart 4.21 with steady raise till 2001-02 but afterwards it started to fluctuate. From 2002-03 onwards there was declining trend except in the year 2005-06 with Rs.7.4 crores. LIC has to concentrate to improve its performance in this front.

Chart No: 4. 21
Chart Showing the Premium Income per Branch (Rs. in crores)

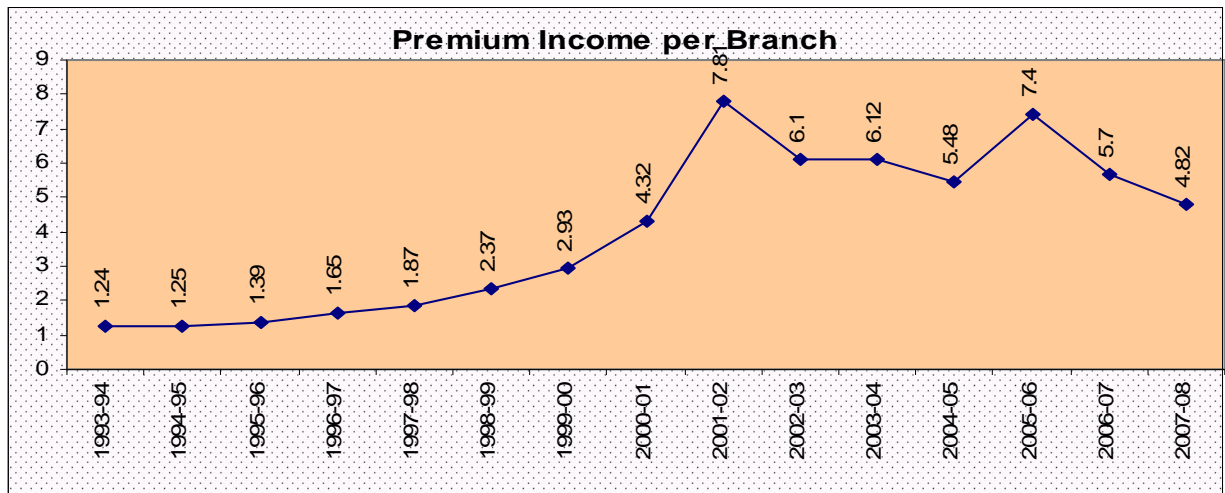


Table No: 4.42
TRENDS IN PREMIUM INCOME PER BRANCH

	R ²	D. F	F Value	Trend Coefficients			
				b ₀	b ₁	b ₂	b ₃
Premium income (Rs. in Crores)	0.878	11	26**	4644.42	-2290.9	575.532	- 26.713
Number of branches	0.927	11	46**	1993.60	14.5976	-1.2472	0.0343
Premium income/branch (Rs.in Crores) Y	0.877	11	26**	2.2926	-1.1245	0.2813	- 0.0130

** Significant at 1% level

$$\text{Premium income per branch } Y = 2.2926 - 1.1245 t + 0.2813 t^2 - 0.0130 t^3$$

The Coefficient of determination R² indicates that the trend equations b1, b2 and b3 put together explain the variations of Y to the extent of 87.7 percent which shows the adequacy of the model fitted to forecast the trend values. The forecasted value for any 't'

value-(year) can be obtained from the above trend equation. The above significant cubic trend equations indicates positive trend in the future years.

4.1.2(f) Premium Income per Agent

Agents of insurance companies are not salaried employees and they are remunerated by payment of commission as specified under section 40A of the Insurance Act,1938. Their performance is highly linked with premium they collect, which is the consideration paid by the policy holders in advance to the insurance company for an insurance contract. So the productivity of agents was calculated by dividing premium income in a particular year by the number of agents in that year. The premium income per agent for the study period is shown in the table 4.43

Table No: 4.43
Table showing Premium Income per Agent

YEAR	ANNUAL PREMIUM INCOME (Rs. in lakhs)	NUMBER OF AGENTS	PREMIUM INCOME PER AGENT (Rs. in lakhs)			
1993-94	250773	524427	0.47			
1994-95	253390	519504	0.48			
1995-96	281363	513897	0.54			
1996-97	334539	533133	0.62			
1997-98	384112	558517	0.68			
1998-99	486341	598217	0.81			
1999-00	600828	683190	0.87			
2000-01	885189	743064	1.19			
2001-02	1600944	744003	2.15			
2002-03	1250538	902199	1.38			
2003-04	1254082	1003241	1.25			
2004-05	1122419	980836	1.14			
2005-06	1515776	987689	1.53			
2006-07	1167272	1028256	1.13			
2007-08	987189	1117908	0.88			
	Min.Val.	Max.Val.	Mean	SD	C.V (%)	C.G.R(%)
Premium income (Rs. In Lakhs)	250773	1600944	824983.7	480467.3	58.24	14.71
Number of Agents	117908	1028256	695872	253706.1	36.46	0.72
Premium income/agent (Rs.in Lakhs)	0.47	2.15	1.507	1.953	129.5	14.02

Source: Annual Reports,, 1993-94 To 2007-08.

The premium income per agent ranges between Rs.0.47 lakhs to Rs.2.15 lakhs with a mean of Rs.1.507 lakhs and a coefficient of variation of 129.5 percent with a compounded growth rate of 14.02 percent.The performance of LIC in case of premium

income per agent was improving steadily till 2001-02 and was declining from 2002-03 onwards because of the competition with private insurers.

Chart No: 4.22

Chart Showing the Premium Income Per Agent (Rs. in lakhs)

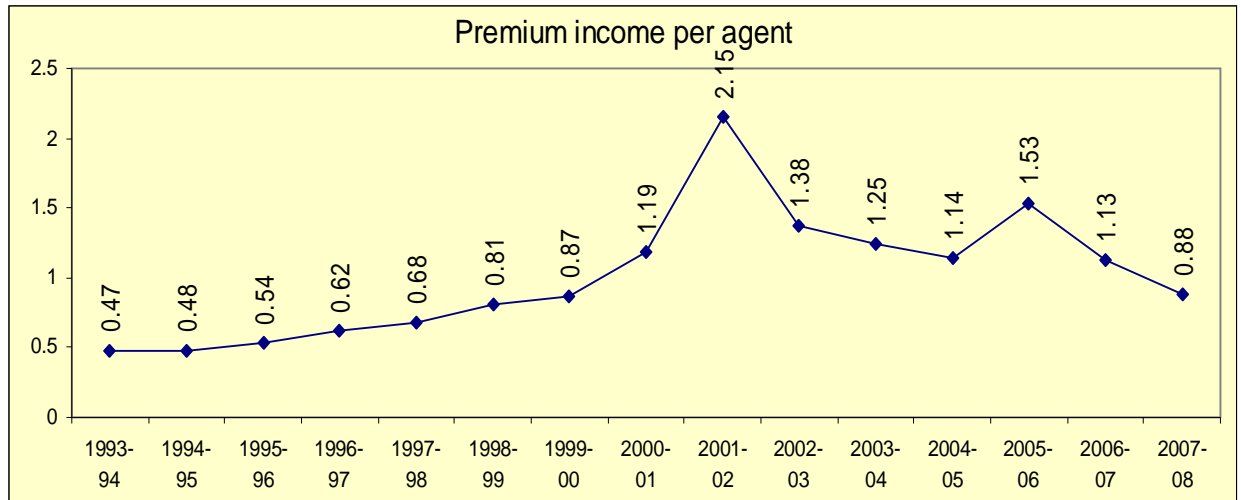


Table No: 4.44

TRENDS IN PREMIUM INCOME PER AGENT

	R ²	D. F	F Value	Trend Coefficients			
				b ₀	b ₁	b ₂	b ₃
Premium income (Rs. in lakhs)	0.878	11	26**	464457	-229102	57555.6	-2671.4
Number of Agents	0.700	11	8**	843642	-269984	52704.2	-2442.5
Premium income/agent (Rs. in lakhs) Y	0.626	11	6*	-1.4444	1.4385	-0.2410	0.0118

** Significant at 1% level

$$\text{Premium income per agent } Y = -1.4444 + 1.4385t - 0.2410t^2 + 0.0118t^3$$

The Coefficient of determination R² indicates that the trend equations b₁, b₂ and b₃ put together explain the variations of Y to the extent of 62.2 percent which shows the adequacy of the model fitted to forecast the trend values. The forecasted value for any 't' value-(year) can be obtained from the above trend equation. The above significant cubic trend equations indicates positive trend in the future years.

4.1.2(g) Ratio of Expenses to Premium income

The productivity of LIC can be measured by dividing the ratio of expenses of its management to the premium income collected during a particular year. The following are

the lists of management expenses made by LIC towards certain payments like commission to agents, salary and other benefits to employees. The figures depicting the ratio of various expenses to premium income was presented in the table No: 4.45.

Table No:4.45

Table showing Ratio of Expenses to Premium income

YEAR	COMMISSION TO AGENTS ETC.,	SALARY AND OTHER BENEFITS TO EMPLOYEES	OTHER EXPENSES OF MANAGEMENT	TOTAL EXPENSE RATIO		
1993-94	9.61	9.15	3.07	21.83		
1994-95	9.23	9.30	2.86	21.39		
1995-96	8.47	9.85	2.47	20.79		
1996-97	8.87	9.96	2.60	21.43		
1997-98	8.86	8.98	2.69	20.53		
1998-99	8.78	9.06	2.64	20.48		
1999-00	9.13	8.52	2.51	21.16		
2000-01	9.52	8.18	2.19	19.89		
2001-02	9.38	6.46	1.88	17.72		
2002-03	9.15	6.07	2.31	17.53		
2003-04	9.08	5.49	2.73	17.30		
2004-05	8.32	4.60	3.38	16.29		
2005-06	7.82	3.97	2.69	14.47		
2006-07	7.18	3.19	2.35	12.72		
2007-08	6.39	3.37	2.18	11.94		
	Min.Val.	Max.Val.	Mean	SD	C.V (%)	C.G.R (%)
Commission to agents	6.39	9.61	8.653	0.903	10.439	-0.65
Salary and other benefits to employees	3.19	9.96	7.077	2.459	34.746	-6.95
Other expenses of management	1.88	3.38	2.570	0.373	14.531	-0.45
Total expenses	11.94	21.83	18.365	3.280	17.859	-2.97

Source: Annual Reports,, 1993-94 To 2007-08.

Besides the individual proportion of expenses, it is worth mentioning the total expenses ratio of LIC and its trend during the period of the study. The ratio ranges between 11.94 to 21.83 with a mean of 18.365 and a coefficient of variation of 17.859 percent.

The overall expenses ratio shows a declining trend year after year starting from 21.83 percent in the initial year, gradually declined to 11.94 percent in the year 2007-08.

LIC strove hard to reduce its expenses ratio every year and this decrease reflects increase in the margins of LIC. The compounded growth rate of the overall expenses ratio was negative growth rate of 2.97 signifying better performance of LIC.

Table No: 4. 46

TRENDS IN RATIO OF EXPENSES TO PREMIUM INCOME

	R ²	D. F	F Value	Trend Coefficients			
				b ₀	b ₁	b ₂	b ₃
Commission to agents Y1	0.896	9	25**	10.444	-1.014	0.1837	-0.0094
Salary and other benefits to employees Y2	0.983	9	177**	8.2084	1.0099	-0.1841	0.0063
Other expenses of management Y3	0.434	9	2.3	3.1364	-0.1275	-0.0060	0.0012
Total expenses Y4	0.946	9	52**	21.6233	-0.0364	-0.0129	-0.0020

** Significant at 1% level

Commission to agents	$Y1 = 10.444 - 1.014t + 0.1837 t^2 - 0.0094 t^3$
Salary and other benefits to employees	$Y2 = 8.2084 + 1.0099 t - 0.1841 t^2 + 0.0063t^3$
Other expenses of management	$Y3 = 3.1364 - 0.1275 t - 0.0060 t^2 + 0.0012t^3$
Total expenses	$Y4 = 21.6233 - 0.0364 t - 0.0129 t^2 - 0.0020t^3$

The Coefficient of determination R² indicates that the trend equations b1, b2 and b3 put together explain the variations of Y1 to the extent of 89.6 percent, Y2 to the extent of 98.3 percent, Y3 to the extent of 43.3 percent, Y4 to the extent of 94.6 percent which shows the adequacy of the model fitted to forecast the trend values. The forecasted value for any 't' value-(year) can be obtained from the above trend equation. The above significant cubic trend equations of ratio of expenses to total premium income indicates negative trend in the future years.

4.1.2(h) Complaints per Thousand Mean Number of Policies in Force

In a vast organisation like LIC, catering to the various needs and aspirations of millions of policyholders, grievances of customers do arise occasionally. In order to redress these grievances LIC has established an elaborate Grievance Redressal Machinery. Grievance Redressal Officers have been designated at all levels of the Organisation say Branch, Divisional, Zonal and Central. Policyholders can personally contact these designated Officials and seek redressal of their grievances. The names of the Grievance Redressal Officers are displayed in the respective offices and are periodically published in the local newspapers.

The concept of Customer Relations Management (CRM) has been integrated in the grievance redressal mechanism by evolving a customer centric and proactive approach to the complaints of the policy holders. All the operating offices have complaint cells, which deal with Agents etc. Besides attending to complaints forwarded to them by other offices and government agencies. The complaints are generally disposed off within a month. For ensuring quick redressal of customer grievances the Corporation has introduced a customer friendly Complaint Management System through a Customer Portal on the website, where policy holder can directly register complaint/grievance and track its status.

The productivity of the corporation can be measured on the basis of the complaints received by them during a particular year. So the ratio was calculated by dividing the total number of policies in force in that year. The ratio was calculated in terms of complaints per thousand mean number of policies in force and was shown in the table 4.47.

In order to measure the productivity of LIC, complaints per thousand mean number of policies in force was calculated. It ranges between 0.11 to 0.23 with a mean of 0.1058 and a coefficient of variation of 23.2 percent. This has shown a negative growth rate of 4.43 percent.

Table No:4.47

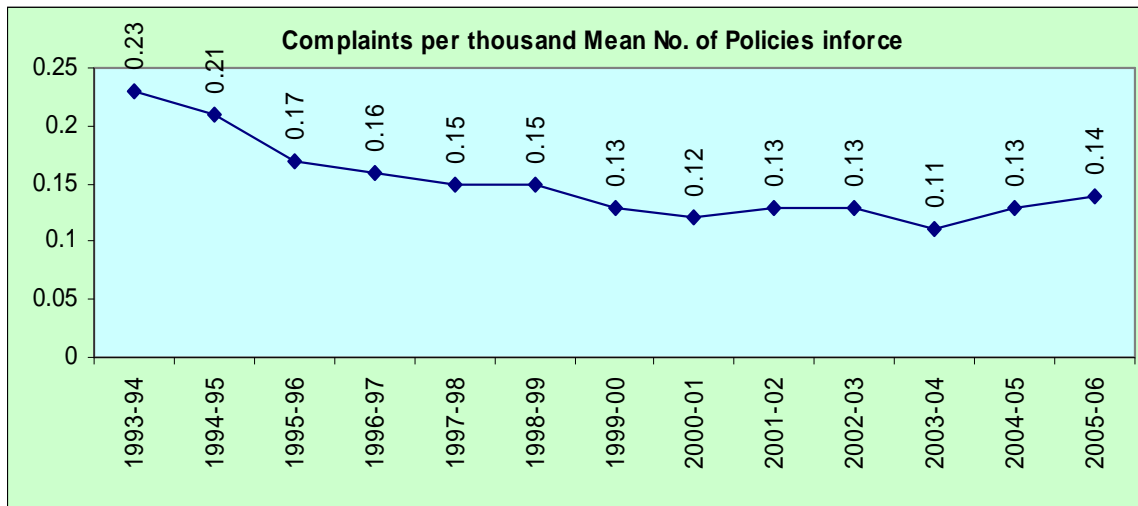
Complaints per Thousand Mean Number of Policies in Force

YEAR	NUMBER OF COMPLAINTS		COMPLAINTS PER THOUSAND MEAN NUMBER OF POLICIES IN FORCE			
1993-94	13730		0.23			
1994-95	13149		0.21			
1995-96	11999		0.17			
1996-97	11869		0.16			
1997-98	12694		0.15			
1998-99	13239		0.15			
1999-00	12832		0.13			
2000-01	13121		0.12			
2001-02	15561		0.13			
2002-03	17431		0.13			
2003-04	16232		0.11			
2004-05	20782		0.13			
2005-06	25624		0.14			
	Min.Val.	Max.Val.	Mean	SD	C.V (%)	C.G.R (%)
Number of Complaints	11869	25624	15251	4017.89	26.3	4.95
Complaint per 1000 mean number of policies in force	0.11	0.23	0.15	0.035	23.2	-4.43

Source: Annual Reports,, 1993-94 To 2007-08.

Chart No: 4.23

Chart Showing the Complaints per Thousand Mean Number of Policies in Force



This shows that the number of complaints was decreasing year by year as compared to the increase in the number of policies in force. It was 0.23 complaints per thousand mean number of policies in the initial years and gradually declined to 0.12 policies in the year 2000-01. LIC strove to maintain its ratio between 0.13 and 0.14 complaints per thousand mean number of policies during the later years.

Table No: 4. 48

TRENDS IN NUMBER OF COMPLAINTS

	R ²	D. F	F Value	Trend Coefficients			
				b ₀	b ₁	b ₂	b ₃
Number of Complaints	0.948	9	55**	13521.5	-119.35	-81.088	12.0463
Complaint per 1000 mean number of policies in force Y	0.952	9	59**	0.2587	-0.032	0.0022	-4.E-05

** Significant at 1% level

$$\text{Complaint per thousand mean number of policies in force } Y = 0.2587 - 0.032t + 0.0022 t^2 - 4.E - 05 t^3$$

The Coefficient of determination R² indicates that the trend equations b₁, b₂ and b₃ put together explain the variations of Y to the extent of 95.2 percent, which shows the adequacy of the model fitted to forecast the trend values. The forecasted value for any 't' value-(year) can be obtained from the above trend equation. The above significant cubic trend equations of number of complaints indicates positive trend in the future years whereas complaints per 1000 mean number of policies in force indicates negative trend.

4.1.2(i) Percentage of Outstanding claims to Total claims payable

The Corporation settles a large number of Death Claims every year. Only in case of fraudulent suppression of material information is the liability repudiated. This is to ensure that claims are not paid to fraudulent persons of the cost of honest policyholders. The number of Death Claims repudiated is, however, very small. Even in these cases, an opportunity is given to the claimant to make a representation for consideration by the Review Committees of the Zonal office and the Central Office. As a result of such review, depending on the merits of each case, appropriate decisions are taken. The

Claims Review Committees of the Central and Zonal Offices have among their Members, a retired High Court/District Court Judge. This has helped providing transparency and confidence in the operations of LIC and has resulted in greater satisfaction among claimants, policyholders and public.

The percentage of claims outstanding at the end of the year to claims payable includes both claims intimated as well as outstanding during the year. The claims outstanding at the end were calculated both in terms of amount and in number. The data including death claims and maturity claims in total claims outstanding have been shown in table 4.49.

Table No: 4.49

Table showing Percentage of Outstanding claims to Total claims payable

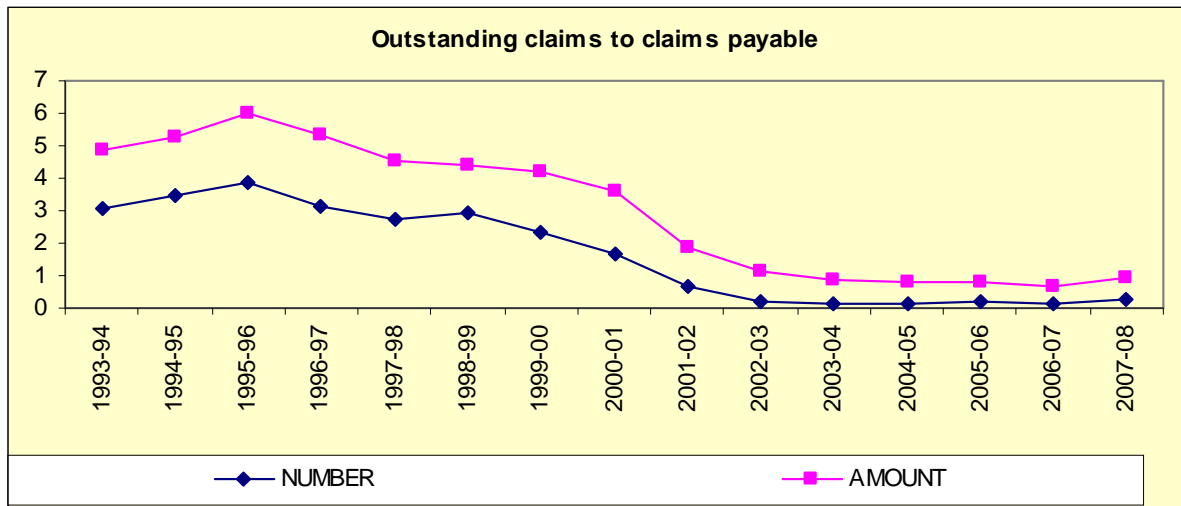
YEAR	Percentage of Outstanding claims to Total claims payable (In percentage)					
	Percentage of Number of claims			Percentage of Amount of claims		
1993-94	3.05			4.86		
1994-95	3.47			5.26		
1995-96	3.86			5.99		
1996-97	3.13			5.32		
1997-98	2.74			4.51		
1998-99	2.96			4.39		
1999-00	2.36			4.19		
2000-01	1.67			3.58		
2001-02	0.69			1.85		
2002-03	0.23			1.11		
2003-04	0.15			0.88		
2004-05	0.14			0.80		
2005-06	0.18			0.83		
2006-07	0.15			0.68		
2007-08	0.28			0.94		
	Min.Val.	Max.Val.	Mean	SD	C.V (%)	C.G.R(%)
Number	0.14	3.86	1.67	1.4517	86.9	-26.96
Amount	0.68	5.99	3.01	2.0251	67.2	-17.76

Source: Annual Reports, 1993-94 To 2007-08.

The table 4.49 reveals that the percentage of outstanding claims to total claims in terms of number ranges between 0.14 percent to 3.86 percent with a mean of 1.67 percent and a coefficient of variation of 86.9 percent and has shown a negative growth rate of 26.96 percent.

Chart No: 4.24

Chart showing the outstanding claims to total claims payable



The percentage of outstanding claims to total claims in terms of amount ranges between 0.68 to 5.99 with a mean of 3.01 and a coefficient of variation of 67.2 percent and has shown a negative growth rate of 17.76 percent.

Initially the graph of percentage of outstanding claims was in upward direction and was maximum in 1995-96 with 3.86% (number) and 5.99 % (in amount). From 1996-97 onwards it started declining showing the decrease in the number and amount of total outstanding claims to claims payable. In 2006-07 it reached its minimum percent of 0.15 (number) and 0.68(amount) of total claims payable. This shows the promptness and efficiency of the claim settlement operations of LIC.

Table No: 4.50

TRENDS IN NUMBER OF OUTSTANDING CLAIMS

	R ²	D. F	F Value	Trend Coefficients			
				b ₀	b ₁	b ₂	b ₃
Number of outstanding claims Y1	0.973	9	108**	2.2285	1.0208	-0.2171	0.0097
Outstanding claims (Amount) Y2	0.969	9	95**	3.6806	1.3843	-0.2824	0.0122

** Significant at 1% level

Number of outstanding claims $Y1 = 2.2285 + 1.0208 t - 0.2171 t^2 + 0.0097t^3$

Outstanding claims (Amount) $Y2 = 3.6806 + 1.3843 t - 0.2824 t^2 + 0.0122 t^3$

The Coefficient of determination R^2 indicates that the trend equations b1, b2 and b3 put together explain the variations of Y1 to the extent of 97.3 percent, Y2 to the extent of 96.9 percent which shows the adequacy of the model fitted to forecast the trend values. The forecasted value for any 't' value-(year) can be obtained from the above trend equation. The above significant cubic trend equations of number of outstanding claims indicates negative trend in the future years.

4.1.2(j) Members of various Agents' Club

In order to recognize agents who perform consistently year after year, clubs at five levels have been designated, namely Chairman, Zonal Manager, Divisional Manager, Branch Manager and Distinguished Agents. The membership in the respective clubs has been growing year after year which is a healthy trend, as the qualifying standards demand consistency over a period of 4 years. (Annual report of LIC, year 2007-08). Table 4.51 gives a detailed number of members of various agents club.

The distinguished agent's club was constituted in 1999-2000 with a view to provide a privileged position at branch level. The membership of this club was decreasing year by year. From 1999-2000 to 2003-04, its number falls from 73,566 to 34,370. There has been a negative growth every year. The major downfall occurred in 2003-04 when the growth was 33.75 percent. But afterwards LIC strove to sustain its number that it gradually increased to 37864 and 47634 in the year 2006-07 and 2007-08 respectively. The number of members in distinguished club ranges between 26094 to 73566 with a mean of 50337 and a coefficient of variation of 36.27 percent and has shown a negative annual growth at 9.59 percent.

In case of Branch Manager's club, the number of members of this club was also fluctuating with ups and downs. The number ranges between 24242 to 61329 with a mean of 45697 and a coefficient of variation of 27.82 percent. Starting from 12.01 percent in the initial year it touched 14.53 in the year 2004-05 at a declining rate. It gradually shoot up to 9.2 percent in 2005-06 but could not maintain the level that it

declined to 4.52 percent growth rate in the year 2007-08. The compounded growth rate of members of Branch manager's club was 6.53 percent.

The number of agents in case of Divisional Manager's Club has been increasing initially from 11.48 percent in 1993-1994 to 21.22 in the year 1997-98. Suddenly it declined to 18.31 and 18.08 in the next two consecutive years. From 2002-2003 onwards it gradually declined and touched 0.46 percent in the year 2003-04. It strived hard to increase its level to 7.93 percent but couldn't maintain that it again declined to negative rate of 0.58 percent in the year 2006-07. It was able to cope up with 11.08 percent in the year 2007-08 finally. Thus the number of members in divisional managers club ranges between 7139 to 30609 with a mean of 19658 and a coefficient of variation of 44.74 percent and has shown an annual growth at 11.94 percent.

The same scene followed in Zonal Manager's Club too with some stability between 1997-1998 and 2003-04 with 22 and 24 percent growth rate. But afterwards it started to decline till 2005-06 and sustained its growth rate again to 10.6 percent in the year 2007-08. Hence the number ranges between 2711 to 17792 with a mean of 9399 and a coefficient of variation of 57.89 percent and has shown an annual growth at 15.95 percent.

The most prestigious club among all the clubs is the chairman's club. The figures of this club was satisfactory. In 1993-94 there were only 3005 members which increased to 21941 in 2007-08. In the initial years of the study period the rate of increase of members of this club was very high later on it started decreasing. In 2003-04, the rate of growth of number of members was 14.06 over the previous year and there after it started to decline till 2.11 to the lowest level in the year 2005-06. But then in 2007-08 LIC was able to recapture its position back with 12.03 percent. The number of members of Chairman's Club ranges between 3005 to 21941 with a mean of 11025 and a coefficient of variation of 62.45 percent and has shown an annual growth at 17.58 percent.

On the whole the members of various agents club was increasing till 1999-2000 but thereafter it started to decline and was negative in all the subsequent years till 2005-06. This was the impact of the entry of private insurers during these years.

Table No: 4.51
Table showing the Members of various Agents' Club

YEAR	CHAIRMAN'S CLUB		ZONAL MANAGER'S CLUB		DIVISIONAL MANAGER'S CLUB		BRANCH MANAGER'S CLUB		DISTINGUISHED AGENT CLUB		TOTAL	
	No.	GROWTH RATE	No.	GROWTH RATE	No.	GROWTH RATE	No.	GROWTH RATE	No.	GROWTH RATE	No.	GROWTH RATE
1993-94	3005	-	2711	-	7139	-	24242	-	-	-	37097	
1994-95	3142	4.56	3118	15.01	7959	11.48	27155	12.01	-	-	41374	11.5
1995-96	3424	8.97	3453	10.74	9008	13.18	29674	9.27	-	-	45559	10.11
1996-97	4056	18.45	3746	8.48	10216	13.41	33370	12.45	-	-	51388	12.79
1997-98	4935	21.67	4575	22.13	12384	21.22	37202	11.48	-	-	59096	14.99
1998-99	6191	25.45	5686	24.28	14652	18.31	41533	11.64	-	-	68062	15.17
1999-00	7841	26.65	7020	23.46	17303	18.08	44280	6.61	73566	-0.75	150010	120
2000-01	9847	25.58	8410	24.07	20860	20.55	49636	12.09	73009	-2.39	162062	8.03
2001-02	12159	23.48	10700	22.84	24209	16.05	55301	11.41	71260	-27.19	173629	7.13
2002-03	15145	24.55	13362	24.87	27601	14.01	60730	9.81	51884	-33.75	168722	-2.82
2003-04	17275	14.06	14610	9.34	27729	0.46	61329	0.98	34370	8.68	155343	-7.9
2004-05	18223	5.49	14853	1.66	29943	7.98	52417	-14.53	37353	-30.14	152838	-1.61
2005-06	18608	2.11	14863	0.07	27717	-7.43	57238	9.2	26094	45.11	144574	-5.41
2006-07	19585	5.25	16087	8.24	27555	-0.58	54450	-4.87	37864	25.8	155609	7.63
2007-08	21941	12.03	17792	10.6	30609	11.08	56910	4.52	47634		174963	12.44
			Min.Val.	Max.Val.	Mean	SD	C.V(%)	C.G.R (%)				
Chairman's club			3005	21941	11025	6886.084	62.45	17.58				
Zonal Manager's club			2711	17792	9399	5441.326	57.89	15.95				
Divisional Manager's club			7139	30609	19659	8795.646	44.74	11.94				
Branch Manager's club			24242	61329	45697	12714.25	27.82	6.53				
Distinguished Agent club			26094	73566	50337	18261.66	36.27	-9.59				

Source: Annual Reports, 1993-94 To 2007-08.

Table No: 4. 52
TRENDS IN MEMBERS OF VARIOUS AGENT'S CLUB

	R ²	D. F	F Value	Trend Coefficients			
				b ₀	b ₁	b ₂	b ₃
Chairman's club Y1	0.993	11	500**	4476.36	-1539.2	404.37	-15.172
Zonal Manager's club Y2	0.987	11	270**	3831.92	-1103.	317.667	-12.364
Divisional Manager's club Y3	0.982	11	202**	7719.82	-1021.2	526.779	-24.415
Branch Manager's club Y4	0.935	11	77**	22002.3	1424.47	501.974	-10.413
Distinguished Agent club Y5	0.827	6	14**	213060	-20558	-	40.8863

S ** Significant at 1% level

Chairman's club $Y1 = 44476.36 - 1539.2 t + 404.37 t^2 - 15.172 t^3$

Zonal Manager's club $Y2 = 3831.92 - 1103 t + 317.667 t^2 - 12.364 t^3$

Divisional Manager's club $Y3 = 7719.82 - 1021.2t + 526.779 t^2 - 24.415 t^3$

Branch Manager's club	$Y4 = 22002.3 + 1424.47 t + 501.974 t^2 - 10.413 t^3$
Distinguished Agent club	$Y5 = 213060 - 20558 t + 40.8863 t^3$

The Coefficient of determination R^2 indicates that the trend equations b1, b2 and b3 put together explain the variations of Y1 to the extent of 99.3 percent, Y2 to the extent of 98.2 percent, Y3 to the extent of 98.2 percent, Y4 to the extent of 93.5 percent, Y5 to the extent of 82.7 percent which shows the adequacy of the model fitted to forecast the trend values. The forecasted value for any 't' value-(year) can be obtained from the above trend equation. The above significant cubic trend equations of members of clubs except distinguished agent club, indicate positive trend in the future years.

Thus on the basis of foregoing analysis it may be concluded that the productivity of the corporation has been increasing steadily till 2001-02 and with slight disturbance during 2002-03 and 2003-04. This was the year when all the private players were active in the insurance market. Notably in 2004-05 LIC restored its position with great hikes in its growth rates. On the whole LIC has to improve its productivity especially in terms of new business per branch, per agent, number of policies per agent and premium income per branch. This indicates the urgency on the part of LIC to open up new branches in suburban and rural areas and offer suitable products to the customers and provide better customer services.

4.1.3 Investment Portfolio of LIC

Investment Portfolio Management

Investment is a commitment of money that is expected to generate additional money in future(www.businessdictionary.com). In finance, an investment is a monetary asset purchased with the idea that the asset will provide income in the future or appreciate and be sold at a higher price.

An investor considering investment in securities is faced with the problem of choosing from among a large number of securities and how to allocate his funds over this group of securities. Again he is faced with problem of deciding which securities to hold and how much to invest in each. Investments are risky and as such investor has to be choosy and highly selective in making investments, so that risk taken is lowest possible while the returns are the highest feasible. The objective of portfolio management is thus

minimisation of risk and maximisation of returns. The investor tries to choose the optimal portfolio taking into consideration the risk return characteristics of all possible portfolios. Thus Portfolio management is a complex process which tries to make investment activity more rewarding and less risky.

Investment Policy of LIC

The aggregate funds of the LIC and their continuing turnover and growth are of great importance in the overall capital formation. In some sectors of the capital market the influence of the investment policy of the LIC may be regarded as decisive. It is therefore important that consistent with policyholder's interest, the funds must be employed in the large economic and social interest of the country. This was one of the main objectives behind the policy of nationalisation of life insurance business in our country. The LIC has over the years, been investing a major part of its funds primarily in the socially oriented sector.

The primary aim of LIC is to spread the message of life insurance and while pursuing this objective, the premium from policyholders are received which are in the nature of trust funds invested and administered in the best interest of policyholders as per guidelines of the regulator, IRDA. The investments of the corporation's fund are governed by section 27A of the Insurance act 1938, subsequent guidelines/instructions issued there under by the government of India from time to time and IRDA by way of regulations. As per the prescribed investment pattern approved by the IRDA, the norms for the investment of the controlled funds of LIC are as follows:

- Not less than 50% is invested in government securities or other approved investments.
- Not less than 15% is invested in infrastructural and social sector investments.
- Not exceeding 20% in others to be governed by exposure prudential norms.
- Not exceeding 15% is invested in investments other than approved investments.

The LIC provides funds to industries in three forms:

1. Direct lending to industry
2. Purchase of shares debentures in the stock market
3. Subscription to the shares and bonds of financial institutions.

LIC helps small scale and medium scale industries by granting loans for setting up of cooperative industrial estates. The Corporation also makes investment in the corporate sector in the form of long, medium and short –term loans. Apart from granting loans to companies, LIC also finances private industrial projects by directly subscribing to their shares and debentures. Securities are purchased by LIC in the new Issues market and secondary market. Till 1964 the LIC was the single largest buyer and holder of corporate securities in India. By the mid –eighties it was regulated to the second place and UTI emerged on the top.

LIC finances industry indirectly by investing in the shares and bonds of state level financial institutions and All India Financial Institutions like IDBI, IFCI, ICICI etc. The Corporation also provides financial assistance to State Electricity Board/Power Corporation for power generation by way of loans/subscription to bonds. The corporation's investment of Rs.702200 crores upto 31st March , 2008 in the power sector makes the Corporation the largest single contributing factor in the progress of electrification schemes in the country .

Since 1997-98 the Corporation finances infrastructure projects pertaining to ports, roads and airports. Now the LIC can also finance private sector in infrastructure projects. All these make a distinct contribution towards growth in industrialisation and generation of skilled and unskilled employment opportunities in the country. Thus LIC touches life enriching the nation by providing financial assistance of projects associated with power, water supply, transport, housing development, infrastructure development and industrial growth.

In order to evaluate the investment portfolio of LIC the analysis has been made on the basis of the following variables:

4.1.3 (a) Loans advanced to various Developmental activities :

It has been the constant endeavour of the Corporation to provide security to as many people as possible and to channelise the savings mobilised for the welfare of the people at large. To meet this end, the Corporation has been promoting social welfare through investments in infrastructure and social sector which includes:

- ❖ Projects/schemes for generation and transmission of power,
- ❖ Housing sector,
- ❖ Water supply and sewerage projects/schemes,
- ❖ Development of roads, bridges & road transport.

The data related to the loans advanced for the different years has been gathered and shown in the form of a table in order to make proper analysis as well as comparison of various years regarding the amount of loans advanced to various developmental activities like Electricity, Housing, Water supply and sewerage, Transport, Industrial Development. The details of the development activities for which loans are advanced by LIC have been presented in following table.

Developmental Activities of LIC

Development activities	Details
Electricity	State Electricity Boards/Electric power corporations
Housing	State government for housing schemes LIC Housing Finance Ltd Apex Cooperative Housing Finance societies Housing and Urban Development National Housing Bank
Water supply and sewerage	Municipal Committees /water Supply and sewerage Boards Zilla Parishads for Rural Piped water supply schemes Irrigation
Transport	State Road Transport Corporation
Industrial Development	Joint Stock Companies

Table 4.53 gives a detailed information regarding the loans advanced for various developmental activities.

It can be seen from the table that the total amount of loans advanced for various developmental activities showed increasing trend from 1993-94 to 1999-2000. The amount of loans advanced was Rs.2124.88 crores in 1993-94 which reached to Rs.3929.98 crores in 1999-2000. But in 2002, IRDA issued new regulations for investment, which lead to a huge increase in the amount of loans advanced to various authorities. Thus in 2002-03 the amount of loans was Rs.7852.24 crores and it touched Rs.17297.18 crores in 2006-07 and with slight decline of Rs.16765 crores in 2007-08.

Table No: 4.53

Table showing Loans advanced to various Developmental activities

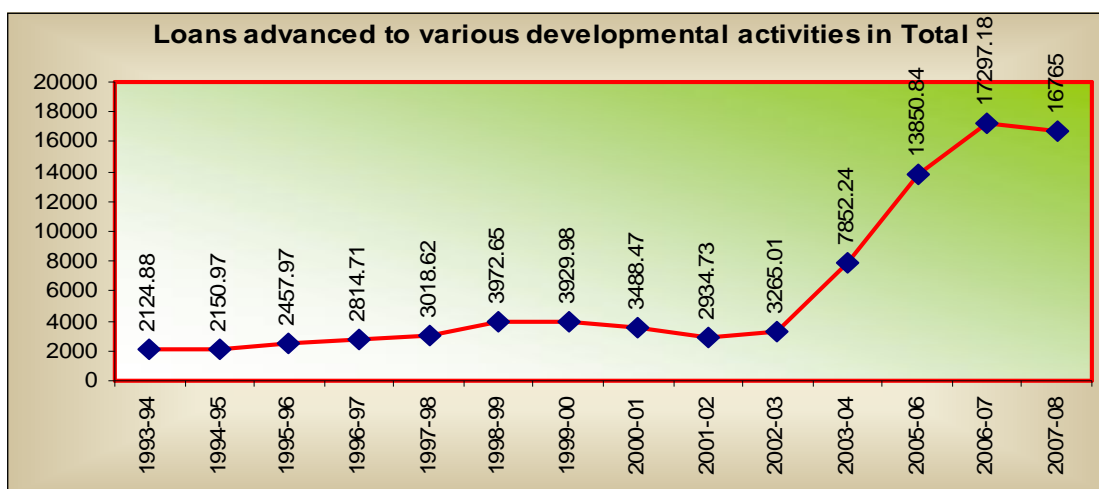
YEAR	ELECTRICITY		HOUSING		WATER SUPPLY & SEWAGE		TRANSPORT		INDUSTRIAL DEVELOPMENT		TOTAL
	(Rs. in Crores)	% SHARE	(Rs. in Crores)	% SHARE	(Rs. in Crores)	% SHARE	(Rs. in Crores)	% SHARE	(Rs. in Crores)	% SHARE	
1993-94	651.36	30.65	955.6	44.97	140.31	6.6	30.58	1.44	347.03	16.33	2124.88
1994-95	846.54	39.35	721.85	33.55	137.86	6.4	34.29	1.59	410.43	19.08	2150.97
1995-96	704.50	28.66	937.65	38.14	128.17	5.21	70.16	2.85	617.49	25.12	2457.97
1996-97	676.34	24.02	1146.17	40.72	146.86	5.21	62.94	2.23	782.40	27.80	2814.71
1997-98	965.10	31.97	1180.15	39.09	236	7.81	11.75	0.38	625.62	20.70	3018.62
1998-99	1479.23	37.23	1769.56	44.54	243.96	6.14	119.24	3.00	360.66	9.07	3972.65
1999-00	1366.11	34.76	1651.1	42.01	488.52	12.43	65.29	1.66	358.96	9.13	3929.98
2000-01	470.82	13.5	2113.31	60.57	526.82	15.1	48.05	1.37	329.47	9.44	3488.47
2001-02	1045.46	35.62	1056.25	35.99	342.87	11.68	108.84	3.70	381.31	13.00	2934.73
2002-03	1060.93	32.49	890.07	27.26	570.33	17.46	465.00	14.21	278.68	8.53	3265.01
2003-04	297.00	3.78	749.81	9.54	2511.22	32	15.00	0.19	4279.21	54.50	7852.24
2005-06	8471.90	61.17	493.6	3.56	26.16	0.19	128.00	0.92	760.81	5.49	13850.84
2006-07	9615.25	55.59	1962.91	11.35	65.34	0.38	601.82	3.48	3045.86	17.61	17297.18
2007-08	7022.00	41.88	465	2.77	14	0.08	45.00	0.27	5749.00	34.29	16765.00
Loans advanced to		Min.Val.	Max.Val.	Mean		SD	C.V (%)		C.G.R (%)		
Electricity (Rs. in Crores)		297	9615.25	2603.79		3169.84	121.74		18.14		
Housing (Rs. in Crores)		465	2113.31	1114.31		526.949	47.29		-2.77		
Water supply & sewerage (Rs. in Crores)		14	2511.22	456.47		651.720	142.773		-4.02		
Transport (Rs. in Crores)		11.75	601.82	125.16		171.326	136.88		10.27		
Industrial development (Rs. in Crores)		278.68	5749	1389.79		1708.392	122.924		16.48		

Source: Annual Reports, 1993-94 To 2007-08.

Considering the percentage share of each development activity to the total loan amount, housing holds the major share of the loans advanced throughout from 1993-94 to 2000-01 except in the year 1994-95. The second major share goes to electricity, followed by industrial development and water supply and sewerage. Thus the least share given by transportation. This followed till 2000-2001.

Chart No: 4.25

**Chart Showing the Loans advanced to various Developmental activities
(Rs.in Crores)**



As the new regulations were issued in 2002 by IRDA, LIC made a change in the amount of loans advanced to various development activities. Hence in this year 2003-04 huge amount of loan was provided to irrigation as well as for the Industrial Development and that amounts to 54.5 percent. Water supply and sewerage has 32 percent, housing has 9.54 percent share, Electricity has 3.78 percent share and the least share goes to transport 0.19 percent. But that was also not sustained that in the following years Electricity tookup the majority share followed by industrial development, Housing, Transport and the least share by Water supply and sewerage.

Thus the figures can be summarized as the loans advanced to electricity ranges between Rs.297 crores to Rs.9615.25 crores with a mean of Rs.2603.79 crores and a coefficient of variation of 121.74 percent. This has shown a growth at 18.14 percent. The loans advanced to housing ranges between Rs.465 crores to Rs.2113.31 crores with a

mean of Rs.1114.31 crores and a coefficient of variation of 47.29 percent. This has shown a negative growth at 2.77 percent.

The loans advanced to transport ranges between Rs.11.75 crores to Rs.601.82 crores with a mean of Rs.125.164 crores and a coefficient of variation of 136.88 percent. This has shown a growth at 10.27 percent. The loans advanced to electricity ranges between Rs. 278.68 crores to Rs.5749 crores with a mean of Rs.1389.79 crores and a coefficient of variation of 122.924 percent. This has shown a negative growth at 16.48 percent.

On the whole it can be concluded that there was huge increase in the total amount of loan advanced for various development activities after the issue of new investment regulations by IRDA in 2002.

Table No: 4. 54

TRENDS IN LOANS ADVANCED TO VARIOUS DEVELOPMENTAL ACTIVITIES

	R ²	D. F	F Value	Trend Coefficients			
				b ₀	b ₁	b ₂	b ₃
Electricity Y1	0.788	11	13.7**	897.031	58.887	-52.366	5.796
Housing Y2	0.245	11	1.2	139.672	525.291	-64.067	2.154
Water supply & sewerage Y3	0.409	11	2.5	690.606	-487.68	99.046	-4.709
Transport Y4	0.192	11	0.9	72.302	-29.506	6.450	-0.255
Industrial development Y5	0.648	11	6.76*	154.92	269.582	-59.948	4.202

** Significant at 1% level

Electricity	$Y1 = 897.031 + 58.887 t - 52.366 t^2 + 5.796 t^3$
Housing	$Y2 = 139.672 + 525.291 t - 64.067 t^2 + 2.154 t^3$
Water supply & sewerage	$Y3 = 690.606 - 487.68 t + 99.046 t^2 - 4.709 t^3$
Transport	$Y4 = 72.302 - 29.506 t + 6.450 t^2 - 0.255 t^3$
Industrial development	$Y5 = 154.92 + 269.582 t - 59.948 t^2 + 4.202 t^3$

The Coefficient of determination R^2 indicates that the trend equations b1, b2 and b3 put together explain the variations of Y1 to the extent of 78.8 percent, Y2 to the extent of 24.5 percent, Y3 to the extent of 40.9 percent, Y4 to the extent of 19.2 percent, Y5 to the extent of 64.8 percent which shows the adequacy of the model fitted to forecast the trend values. The forecasted value for any 't' value-(year) can be obtained from the above trend equation. The above significant cubic trend equations indicates positive trend in the future years.

4.1.3 (b) Composition of Investments as per IRDA guidelines

The investment of the Corporation funds is governed by section 27A of the insurance act, 1938. Subsequent guidelines were issued there after by the Government of India and IRDA by way of regulations. The analysis has been done in order to see the investment pattern of LIC as per IRDA regulations. The controlled funds are divided into four prescribed categories of investments, ie, 1) Government Securities or other approved investments, 2) Infrastructure and social investments, 3) investments in corporate sector ,and 4) other approved investments. The percentage of amount of investments in each category has been calculated for the period 1992-93 to 2007-08. Table 4.55 depicts the composition of investments of LIC for the different years.

The table 4.55 reveals the investment pattern of controlled funds of LIC. As per the regulations approved by IRDA, there must be minimum 50 percent investment in government securities or other approved investments. It was clear from table that from 1993-94 to 2007-08 there has been more than 50 percent of investment of the corporation in this sector. The percentage of Government securities ranges between 50.87 to 57.87 with a mean of 54.089 and a coefficient of variation of 3.91 percent and has shown a growth at 0.47 percent.

As per IRDA Guidelines the investment in infrastructure and social sector should not be less than 15 percent of total investments. Looking at the figures of this category, it was concluded that LIC has failed on this front. In the initial years of study from 1993-94 to 1996-97, the investments in this category were more than 15 percent, which satisfies the condition. But from 1997-98 onwards the percentage has been decreasing year-by-

year. It decreased from 14.52 to 11.79 percent. It again starts rising in 2002-03 slightly to 12.05 percent but faced heavy decline in the year 2007-08 and the percentage comes down to 7.02. Thus the percentage of investment in infrastructure and social sector ranges between 7.02 to 20 with a mean of 14.38 and a coefficient of variation of 17.398 percent and has shown a negative growth rate at 3.11 percent.

Table No: 4.55

Table showing the Composition of Investments as per IRDA guidelines

YEAR	GOVT. SECURITIES OR OTHER APPROVED INVESTMENTS	INFRASTRUCTURE AND SOCIAL INVESTMENTS	INVESTMENTS GOVERNED BY PRUDENTIAL NORMS OR INVESTMENT IN CORPORATION SECTOR	OTHER THAN APPROVED INVESTMENTS	TOTAL	
1993-94	50.87	20	14.46	14.67	100	
1994-95	51.76	18.29	15.33	14.62	100	
1995-96	52.49	16.7	16.39	14.42	100	
1996-97	53.90	15.37	16.39	13.8	100	
1997-98	54.23	14.52	17.18	14.07	100	
1998-99	54.35	14.31	18.02	13.32	100	
1999-00	54.78	13.82	18.43	12.97	100	
2000-01	54.19	12.91	19.74	13.16	100	
2001-02	54.32	11.79	19.77	12.12	100	
2002-03	57.87	12.05	16.9	13.18	100	
2003-04	57.60	12.45	30.49	5.45	100	
2004-05	50.91	12.14	29.86	7.09	100	
2005-06	55.66	12.23	25.42	6.67	100	
2006-07	54.32	14.69	24.59	6.39	100	
2007-08	59.21	7.02	27.92	5.85	100	
Investments	Min.Val.	Max.Val.	Mean	SD	C.V (%)	C.G.R (%)
Government securities	50.87	59.21	54.09	2.116	3.91	.47
Infrastructure & social investment	7.02	20	14.38	2.501	17.398	-3.11
Investments governed by prudential norms	14.46	30.49	20.21	5.260	26.02	5.06
Other than improved investments	5.45	14.57	11.57	3.476	30.05	-6.98

Source: Annual Reports,, 1993-94 To 2007-08.

Under the investments governed by prudential norms, the requirement is not to exceed 20 percent of total investments. From 1993-94 till 2002-03 LIC was able to keep up its limit but there after from 2003-04 till 2007-08 LIC crossed its 20 percent limit. Thus the percentage of investments to be governed by prudential norms ranges between 14.46 to 30.49 with a mean of 20.21 and a coefficient of variation of 26.02 percent and has shown a growth of 5.06 percent.

IRDA has put a ceiling on the other than approved investments as not more than 15 percent of the controlled funds are to be invested. The investment of the Corporation in this category was kept below 15 percent throughout the study period. The percentage of other than approved investments ranges between 5.45 to 14.57 with a mean of 11.56 and a coefficient of variation of 30.05 percent and has shown a negative growth at 6.98 percent.

Table No: 4. 56

TRENDS IN COMPOSITION OF INVESTMENTS AS PER IRDA GUIDELINES

	R ²	D. F	F Value	Trend Coefficients			
				b ₀	b ₁	b ₂	b ₃
Government securities Y1	0.448	10	2.71	49.876	1.057	-0.0417	-0.0009
Infrastructure & social investment Y2	0.965	10	90.9**	21.088	-1.446	0.0224	0.0032
Investments governed by prudential norms Y3	0.698	10	7.7**	16.826	-4.4963	0.3566	-0.0143
Other than improved investments Y4	0.833	10	16.6**	13.656	0.7272	-0.1396	0.0033

** Significant at 1% level

Government securities	$Y1 = 49.876 + 1.057 t - 0.0417 t^2 - 0.0009 t^3$
Infrastructure & social investment	$Y2 = 21.088 - 1.446 t + 0.0224 t^2 + 0.0032 t^3$
Investments governed by prudential norms	$Y3 = 16.826 - 4.4963 t + 0.3566 t^2 - 0.0143 t^3$
Other than improved investments	$Y4 = 13.656 + 0.7272 t - 0.1396 t^2 + 0.0033 t^3$

The Coefficient of determination R² indicates that the trend equations b₁, b₂ and b₃ put together explain the variations of Y₁ to the extent of 44.8 percent, Y₂ to the extent of 96.5 percent, Y₃ to the extent of 69.8 percent, Y₄ to the extent of 83.3 percent,

which shows the adequacy of the model fitted to forecast the trend values. The forecasted value for any 't' value-(year) can be obtained from the above trend equation. The above significant cubic trend equations indicates positive trend in the future years.

Thus on the whole the performance of the corporation has been satisfactory but there was need to invest more controlled funds in infrastructure and social sector as it leads to the growth of the economy and generation of employment opportunities. Secondly LIC should control the increase in investments in the corporate sector as it was higher than the prescribed guidelines.

LIC's contribution towards Five year plans:

At this instance it is worth mentioning that in the matter of utilization of people's savings for national development, LIC's contribution towards five year plans was tremendous year after year and was given in the following table 4.57.

Table No: 4.57

Table showing LIC's contribution towards Five year Plans

Five year plan	Year	Contributions (Rs. in Crores)
II	1956-1961	184
III	1961-1966	285
IV	1969-1974	1530
V	1974-1979	2942
VI	1980-1985	7140
VII	1985-1990	12,969
VIII	1992-1997	56,097
IX	1997-2002	1,70,929
X	2002-2007	3,94,779
XI	2007-2009	2,18,510
	Continued	

The above table 4.57 has shown the continuous contribution by LIC towards five year plans.