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SOCIO-ECONOMIC DETERMINANTS OF TELECOMMUNICATION DEVELOPMENT IN INDIA: AN INTER-STATE ANALYSIS

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ABSTRACT

The paper investigates various socio-economic factors that determine the growth performance of telecom sector across the major 18 states in India. Panel data has been used over a period of 1991-2010. The study has deployed factor analysis at three points of time i.e., 1991, 2001, 2011. Coefficients of variation and growth rates have been calculated for measuring the growth performance of the telecom sector across the major states in India. The results of the compound annual growth rate and coefficient of variation indicate that telecom sector is growing rapidly in all the major states and specifically in the poor states. The higher value of CAGR in case of poor states indicates convergence in telecommunication development. The results of factor analysis revealed that during 1991 social factors like literacy, population density, number of villages electrified, proportion of urban population were more significant in terms of their contribution to the development of telecom services. The results of factor analysis 2001 as well as that of 2011 have shown the role of both social as well as economic factors in development of telecommunication. Step-wise regression analysis has identified the most significant factors have taken up most significant factors in telecom development in major states of India. These include Per Capita NSDP, Per Capita Electricity Consumption, Per capita NSDP generated from Transport, Communication and Storage Services, Per Capita NSDP generated from Trade, Hotels And Services.

KEYWORDS

Telecommunication, Economic Development, Telecom Services.

JEL CLASSIFICATION

L96, O10, O14

INTRODUCTION

Telecom services have been recognized the world-over as an important tool for socio-economic development of a nation. Telecommunication is one of the prime support services needed for rapid growth and modernization of various sectors of the economy. It has become especially important in recent years because of enormous growth of information technology and its significant potential for the impact on the rest of the economy. (Government of India:2008-09). The spill-over effects and externalities generated by telecommunication infrastructure investment are transmitted throughout the economy. There is need to determine the inter-sectoral linkage impact of telecommunications infrastructure on the economy. This is because infrastructure, apart from serving as a direct input, can also be an intermediate input in the production process. Thus, activities of the real and monetary sectors (manufacturing, industry, banking etc) of the economy and even those of services are influenced by infrastructural investment and consequently their contributions to economic growth are also influenced. (Tella et.al:2012).

Telecommunications is one of the few sectors in India, which has witnessed the most fundamental structural and institutional reforms since 1991. The end of the restrictive domestic and external policies in 1991 led to the broad policy changes, the most important of which was the liberalization of the industrial policy. The main objective was to introduce competition in some industries that had been previously served by government-owned monopolies. Telecom was one of those sectors which grew tremendously due to policy changes in Indian economy. This rapid growth has been possible due to various proactive and positive decisions taken by the government and contribution of public and the private sector. With the liberalization measures, Indian telecommunication sector has emerged as a strong growth engine for the Indian economy. India has the second largest network in the world after China with its 965.52 million telephone connections in 2012. Teledensity has increased from merely 2 percent or so in 1999 to around 76.86 percent in 2012. Wireless has been the principal engine for telecom growth in the country. The wireless subscriber base has grown from 0.88 million in 1999 to 687.71 million in 2010-11 and further to 965.52 million in 2012. (Government of India:2011)

The relationship between services sector and telecom sector has wide implications in the era of liberalization and globalization. Within the services sector, the telecom sector has been the major contributor to India's growth, accounting for nearly 3.6 percent of total GDP in 2010. (Earnest & Young and FICCI: 2011). It has reshaped both social and business contacts. Telecom services have revolutionized the business of entrepreneurs. It sets and structures their daily life routine with wake-up rings, agenda alerts, 24-hours calls, tricky uses in business bargaining, performing business management tasks, self-management, SMS and news feeds. The features available on mobile handsets, such as caller identification, voice mail, call forwarding, call waiting and the facility of receiving and transmitting short text messages, data, and graphic with nominal charges is very much relevant. (Chaudhry.et.dl:2009). In order to promote equitable and sustainable development as well as political and social cohesion, narrowing access gaps and removing barriers to information dissemination are prerequisites. Therefore, increasing connectivity is highly instrumental in improving governance, business communication, security, response to emergencies and in the overall strengthening of the socio-cultural ethos of the country. (Earnest & Young and FICCI:2011)

Therefore, not only telecom sector is contributing to the growth of other sectors but also sectors like industry, manufacturing, hotel and tourism services, financial services are contributing to the growth of telecommunication itself. As the usage of telephones is crucial in all such services and sectors mentioned above.

The present study has two main objectives

1. To measure the growth and performance of telecom sector across the major states in India.
2. To identify various factors which contribute to the telecom sector development across the major states in India.

DATABASE AND METHODOLOGY

Panel Data has been used for the study over a period of 1992-2010 in order to analyze the growth performance of telecom sector across the states. For the purpose of factor analysis, data has been used at three points of time i.e., 1991, 2001, 2011. Data for the study has been collected from the various sources like CMIE Report On Infrastructure, Census Of India, Statistical Abstract Of India, Annual Reports Of TRAI, Handbook Of Indian Economy, RBI, Planning Commission Reports.

Growth rate

To explain the growth performance of telecom sector across the states in India, compound annual growth rates have been calculated for periods 1996-97 to 2003-04 and 2004-05 to 2010-11. The growth rates were computed using the following formula:

$$Y_t = ab^t e^{u_t}$$

Under the logarithmic transformation the above equation can be expressed as:

$$\text{Log} y_t = \text{log} a + t \text{log} b + u_t$$

Where y_t is the value of dependent variable in the year t , and t is trend variable, u_t is disturbance term and a and b are constants. From the estimated value of regression coefficient b the growth rate r can be calculated as:

$$R = \text{antilog}(b-1) \times 100$$

Coefficient of variation

In order to examine the nature of change in the degree of disparity in telecom development among the States in India, coefficient of variation as a measure of disparity is used.

$$\text{CoV} = \frac{\sigma}{\bar{x}} \times 100$$

Factor analysis

To examine the contribution of various factors to the telecommunication growth across the states in India, factor analysis has been used. For the purpose of analysis, 18 major Indian states have been selected. These variables with high inter-correlations could well measure one underlying variable, which is called a 'factor'. In factor analysis, a given set of n variables are grouped into p number of groups called factors which are less in numbers than original variables. The variables within a group or (factors) are of the same nature or are complimentary with respect to phenomenon under study but between two groups or 'factor' variables are independent. Thus, factors f_i and f_j orthogonal.

The data was normalized using Nagar-Basu(2002) methodology. The selected variables were normalized by subtracting the minimum value of particular variable from its actual value and dividing it by the range, which is the difference between maximum and minimum value of the selected variables. The given formula is ;

$$\text{Actual value}_{ij} - \text{Minimum value}_{ik} \\ \text{Maximum value}_{ik} - \text{Minimum value}_{ik}$$

Where, Z_{ij} = normalized value of i th variable for j th state

i = variables

j = state

k = specific value

The technique of factor analysis as used in the present study is as under:

$$X = LF + U$$

Where X is vector of all the original variables.

$$X' = [X_1, X_2, X_3, \dots, X_n]$$

F is the vector of factors derived

$$F' = [F_1, F_2, F_3, \dots, F_p]$$

U is the vector of error terms

$$U' = [E_1, E_2, E_3, \dots, E_n]$$

X' , F' and U' are respective transposes

L is the matrix of factor loading (loading coefficient matrix)

$$\begin{matrix} a_{11} & a_{12} & a_{13} & \dots & a_{1p} \\ a_{21} & a_{22} & a_{23} & \dots & a_{2p} \\ a_{31} & a_{32} & a_{33} & \dots & a_{3p} \\ \dots & \dots & \dots & \dots & \dots \\ a_{n1} & a_{n2} & a_{n3} & \dots & a_{np} \end{matrix}$$

The coefficient (factor loadings) a_{ij} belongs to i th variable and j th factor which is similar simple correlation coefficient and shows the extent to which the variable X_i is related to F_j factor. "A salient loading is one which is sufficiently high to assume that a relationship exists between the variable and the factor. In addition, it usually means that relationship is high enough so that variable can aid in interpreting the factor and vice-versa.

The sum of square of factor loadings of X_i original variables under the derived p factors is called the communalities for X_i variables.

$$(a_{i1})^2 + (a_{i2})^2 + (a_{i3})^2 + \dots + (a_{ip})^2 = (C_i)^2$$

Communality in factor analysis is something like R^2 in the regression analysis and it shows the extent to which the derived factors explain the i th variables.

Derived communality value should be larger generally (more than 70 percent) to be sure that each variable has been explained well. By definition, the communality of a variable is that proportion of its variable which can be accounted for the common factor. The principal component (factor analysis) produces components (factors) in descending order of their importance and factor loadings which explain the relative importance of different variables in explaining variance in the phenomenon.

COMPOSITE INDEX

The statistical technique employed to develop the weighted composite index involves finding out the 'principal components of the groups consisting of these selected 17 variables and derive the implicit weights based thereon. The composite index is then constructed by combining various indicators whose implicit weights are already determined through the technique of 'principal component analysis'.

$$\text{Composite Index of } i\text{th State} = \frac{\sum W_i Z_{ij}}{\sum W_i}$$

Where, Z_{ij} is the normalized value of the i th variable for the j th country

W_i is the weight of i th country (Field: 2000)

STEP-WISE REGRESSION

In order to decide the "best" set of explanatory variables for a regression model step-wise regression is used. The decision to add or drop a variable is usually made on the basis of the contribution of that variable to the ESS (Explained Sum of Squares) as judged by the F-test. (Gujrati:2004). At each step, independent variables not in the equation that has the smallest probability of F is entered, if that probability is sufficiently small. Variables already in the regression equation are removed if their value of F becomes sufficiently large.

$$Y = \beta_0 + \beta_1 X_1 + \mu$$

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \mu$$

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 + \mu$$

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \mu$$

Where,

Y = dependent variable

$x_1+x_2+x_3...x_i$ are independent variables

μ is the disturbance term

RESULTS AND DISCUSSION

GROWTH PERFORMANCE OF TELECOMMUNICATION ACROSS THE STATES IN INDIA

With its 926.55 million Telephone connection, it is the second largest network in the world after China. It is also the second largest wireless network in the world. (Government of India:2012) The phenomenal growth of the Indian telecom industry during the past few years has been backed by a confluence of factors such as progressive regulatory regime, favorable demographic features and conducive business environment. Mobile phones today have moved beyond their fundamental role of communications. Its applications are being used by the business class with the coming of value added services and 3G. Nowadays, customers use their cellular phones to play games, read news headlines, surf the Internet, keep a tab on astrology, listen to music or check their bank balance. Thus, there exists a vast world beyond voice that needs to be explored and tapped. (ASSOCHAM: 2006) Across the board, reduction in telecom tariff has been one of the primary factors behind the exponential growth experienced by the Indian telecom industry. The competition within the various segments of the telecom sector has intensified in the past few years and has led to a price war between the operators. (Government of India: 2007-08). Indian telecom rates are the lowest in the world at 1 cent per minute. The average revenue per user (ARPU) has declined from a high of US\$ 30 per month to US\$ 5 per month. (Ghosh and Prasad: 2012).

TABLE 1 (a): STATE-WISE TELEDENSITY 1991- 2000

States	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	CAGR% (1990- 2000)
Andhra Pradesh	0.51	0.56	0.64	0.72	0.89	1.08	1.26	1.56	2.21	3.13	20.25288
Assam	0.18	0.21	0.26	0.31	0.36	0.43	0.49	0.63	0.84	1.06	20.1616
Bihar	0.13	0.15	0.18	0.22	0.26	0.29	0.34	0.41	0.53	0.65	18.92837
Gujarat	1.08	1.17	1.33	1.5	1.74	2	2.32	2.81	3.41	4.26	15.47224
Haryana	0.69	0.77	0.89	1.1	1.34	1.59	1.89	2.27	2.79	3.36	19.77305
Himachal Pradesh	0.65	0.77	0.89	1.07	1.44	1.94	2.46	3.12	3.56	4.32	24.20455
J & K	0.37	0.40	0.42	0.49	0.54	0.59	0.75	0.95	1.14	1.31	14.65229
Karnataka	0.74	0.82	0.93	1.07	1.09	1.58	1.93	2.47	3.01	3.76	19.44576
Kerala	0.89	1.03	1.26	1.44	2.09	2.19	2.7	3.45	4.38	5.6	21.84833
Madhya Pradesh	0.32	0.41	0.51	0.64	0.74	0.84	0.92	1.04	1.25	1.54	18.62212
Maharashtra	1.33	1.49	1.67	1.92	2.29	2.71	3.26	3.92	4.63	5.4	16.76875
Orissa	0.21	0.25	0.29	0.35	0.40	0.48	0.56	0.75	0.97	1.21	20.56892
Punjab	1.00	1.10	1.23	1.47	1.89	2.48	3.09	3.79	4.74	5.67	21.46867
Rajasthan	0.35	0.41	0.51	0.65	0.81	0.99	1.19	1.47	1.80	2.11	22.23547
Tamil Nadu	0.81	0.87	0.96	1.11	1.34	1.66	2.16	2.75	3.56	4.52	20.28201
West Bengal	0.47	0.49	0.53	0.58	0.66	0.79	1.01	1.30	1.68	2.09	17.15047
Uttar Pradesh	0.24	0.27	0.33	0.36	0.43	0.52	0.64	0.86	1.08	1.33	20.65856
Delhi	5.53	6.17	6.74	7.65	8.72	10.11	12.64	14.1	14.14	15.4	13.06481
Mean	0.861111	0.963333	1.087222	1.258333	1.501667	1.792778	2.200556	2.647222	3.095556	3.706667	
SD	1.214064	1.352375	1.472488	1.667115	1.906309	2.206775	2.765113	3.076336	3.079974	3.366545	
CV	140.9881	140.3849	135.4358	132.486	126.9462	123.0925	125.6552	116.21	99.49664	90.82405	

Source: Department of Telecom, Statistical Abstract of India (various issues)

TABLE 1 (b): STATE-WISE TELEDENSITY 2001- 2011

States	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	CAGR% (2001-11)
Andhra Pradesh	4.1	4.93	5.66	7.85	9.48	13.45	19.62	28.25	39.59	57.23	74.35	35.50217
Assam	1.33	1.67	1.94	2.13	2.79	5.67	9.74	14.74	20.65	29.99	38.98	44.71514
Bihar	1.15	1.08	1.32	1.67	2.36	5.34	7.32	12.64	22.18	37.96	42.32	51.79611
Gujarat	5.37	6.37	7.77	10.14	12.73	16.98	24.14	33.63	45.16	58.46	81.90	32.32251
Haryana	4.25	5.08	6.21	8.38	10.83	14.47	23.11	30.39	43.75	59.70	82.59	36.07307
Himachal Pradesh	5.31	7.48	8.5	10.14	13.12	18.78	28.67	41.16	55.50	79.35	111.11	36.05007
J&K	1.72	2.15	2.48	3.01	5.09	12.18	16.08	21.84	32.76	49.91	50.90	46.99278
Karnataka	4.7	5.58	6.67	9.46	12.19	17.06	25.05	34.53	45.21	67.81	87.76	35.81819
Kerala	7.51	9.51	11.33	14.87	18.77	25.54	33.54	45.34	54.48	80.36	100.01	30.16923
Madhya Pradesh	1.81	2.49	3.02	3.99	5.21	7.12	12.22	20.29	30.08	45.23	48.88	42.6558
Maharashtra	6.6	5.14	6.08	8	10	13.1	18.78	27.42	37.90	50.30	68.97	30.68781
Orissa	1.52	1.88	2.29	2.95	3.96	7.57	9.51	15	23.30	39.3	56.37	45.58414
Punjab	6.95	9.15	11.76	17.33	21.91	27.61	37.05	47.89	58.25	75.49	104.09	30.55886
Rajasthan	2.57	3.02	3.47	4.50	6.12	9.65	15.49	23.74	37.15	52.7	65.35	42.53242
Tamil Nadu	5.91	5.37	6.22	8.54	11.37	14.70	22.55	35.09	50.46	74.3	97.73	36.62571
West Bengal	2.67	1.52	1.85	2.18	3	5.53	8.63	14.36	22.51	34.8	52.97	43.57429
Uttar Pradesh	1.66	1.86	2.15	2.96	4.06	6.87	10.77	16.19	24.91	38.5	53.43	45.435
Delhi	17.66	22.11	27.38	41.19	50.94	65.40	86.85	110.05	140.18	172.4	225.26	29.39067
Mean	4.59944	5.355	6.45	8.84944	11.3294	15.9455	22.7288	31.80833	43.55667	61.32167	80.165	
SD	3.88359	4.92938	6.12112	9.22629	11.3269	13.9600	18.2004	22.35167	27.04741	31.88796	42.505	
CV	84.4362	92.0520	94.9011	104.258	99.9775	87.5483	80.0760	70.26986	62.09706	52.00113	53.022	

Source: Department of Telecom, Statistical Abstract of India (various issues)

While India has made considerable progress in the telecom sector, there are wide disparities in the penetration of telecom facilities across the states. States such as Delhi, Tamil Nadu, Kerala, Himachal Pradesh and Punjab have relatively high teledensity. However, states such as Assam, Bihar, Madhya Pradesh, UP, Jammu and Kashmir have relatively low teledensity. Delhi has the highest teledensity in India throughout the study period. During the period 1991 to 2000 Himachal Pradesh has registered the highest growth rate, followed by Rajasthan, Kerala, Orissa, Uttar Pradesh, Tamil Nadu, Andhra Pradesh, Haryana. On the other hand, during the same period, Delhi has registered the lowest growth rate (13.06%) followed by the J&K, Gujarat, West Bengal, Maharashtra. The results

revealed that not only the states having higher income level have better telecom infrastructure but the poor states also have shown growth in teledensity during this period as shown in Table 1(a). During the period 2001-2011, Bihar, J&K, Orissa, Uttar Pradesh, Assam, Madhya Pradesh, West Bengal, Rajasthan, Tamil Nadu, Andhra Pradesh, Uttar Pradesh, Punjab, Himachal Pradesh, Madhya Pradesh, Rajasthan, Tamil Nadu, Haryana, Himachal Pradesh, Karnataka, registered the highest growth rate. During the same period, again Delhi, Kerala, Punjab, Maharashtra registered the lowest growth rate as these states already had higher teledensity (Table 1(b)). The results also indicate that growth of telecom sector is not only the factor of income level but it also depends upon the availability of mobile handsets at affordable prices, low tariff level and introduction of new technologies like 3G, Wi-Max. The overall results indicate convergence in telecommunication as poor states are growing at greater pace comparatively during both the time periods. Further, most of developed states have registered almost same growth rate with little difference. The coefficient of variation across the states has been quite high during the year 1991. The value of coefficient of variation has decreased throughout the period which indicates convergence in telecom sector across the states. It was 140.38 percent in 1991 which was decreased to 84.43 percent in 2001 and further decreased to 53.02 percent in 2011.

TABLE 2 (a): STATE-WISE DELS (000') 1991-2000

States	1991-1992	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-01	CAGR%(1991-92 to 1999-2000)
Andhra Pradesh	49	60	74	87	107	125	162	212	273	338	24.24921
Assam	132	166	203	247	280	333	399	502	627	892	21.89976
Bihar	497	576	658	781	916	1079	1292	1548	1922	2399	19.39249
Gujarat	130	153	195	242	295	355	428	525	642	794	22.30817
Haryana	41	48	59	80	110	142	182	225	285	347	28.85064
J&K	380	443	509	647	797	951	1167	1572	2227	2838	26.30945
Himachal Pradesh	32	34	42	47	53	69	89	108	130	174	22.34949
Karnataka	375	434	508	644	784	973	1228	1465	1829	2257	23.22535
Kerala	306	378	437	527	681	854	1084	1355	1705	2162	25.05145
Madhya Pradesh	278	351	453	541	623	698	801	941	1096	1263	16.43696
Maharashtra	432	503	611	767	985	1242	1530	1875	2332	2977	24.93752
Orissa	81	96	117	135	166	199	266	334	423	526	24.07435
Punjab	234	267	326	427	571	725	890	1084	1292	1543	25.13876
Rajasthan	184	234	309	394	494	608	756	927	1109	1326	24.00424
Tamil Nadu	313	354	418	524	671	881	1166	1523	1927	2477	28.51644
West Bengal	390	483	542	659	810	1027	1341	1682	2101	2629	24.64972
Uttar Pradesh	69	79	92	117	164	228	314	416	541	741	33.76677
Delhi	605	689	814	967	1167	1370	1551	1642	1818	1980	14.21823
Mean	175.0651	202.900	235.678	286.412	349.518	424.054	513.536	617.020	773.933	963.976	
SD	240	283.6842	337.7368	415.3684	513.1053	629.0526	776.9474	952	1182.842	1468.842	
CV	72.94378	71.5233	69.7817	68.9537	68.1183	67.4115	66.0966	64.8130	65.42997	65.6283	

Source: CMIE reports, various issues on infrastructure

TABLE 2 (b): STATE-WISE DELS (000') 2001-2010

States	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	CAGR%(2001-02 to 2009-10)
Andhra Pradesh	421	490	513	533	520	502	430	378	300	-4.1559
Assam	757	921	963	1042	1037	987	978	950	895	1.240182
Bihar	2834	2969	2899	2700	2614	2446	2277	2154	2103	-4.46047
Gujarat	984	1133	1234	1147	1098	1025	954	900	845	-3.16065
Haryana	436	474	477	492	479	457	418	400	389	-2.14882
Himachal Pradesh	223	264	289	308	303	295	259	245	200	-1.52461
J&k	3141	3521	3469	3667	3156	2970	2711	2567	2376	-4.50921
Karnataka	2587	2813	2949	2766	2695	2888	2844	2785	2719	0.233109
Kerala	2691	3021	3295	3514	3576	3679	3673	3634	3611	3.378513
Madhya Pradesh	1146	1483	1604	1362	1324	1589	1473	1456	1432	1.375723
Maharashtra	3643	4171	4057	4048	3992	3922	3643	3564	3456	-1.53722
Orissa	641	734	787	832	787	774	773	754	745	0.961106
Punjab	1923	2116	2189	2017	1999	1857	1694	1478	1406	-4.75715
Rajasthan	1591	1819	1917	1832	1889	1827	1757	1743	1678	-0.15341
Tamil Nadu	2780	2985	2949	2932	2766	2734	2502	2435	2378	-2.68722
West Bengal	2822	3054	3029	3014	2735	2582	2488	2367	2234	-3.67623
Uttar Pradesh	993	1146	1220	1296	1244	1211	1123	1034	1012	-0.77407
Delhi	2066	2273	2292	1720	1652	2273	2423	2487	2450	2.261465
Mean	1111.998	1213.955	1196.823	1198.54	1141.884	1136.21	1095.682	1081.782	1064.098	
SD	1682.526	1879.789	1920.737	1874	1801.421	1809.526	1724.316	1665.421	1606.105	
CV	66.09099	64.57933	62.31064	63.95624	63.38797	62.79045	63.54301	64.95546	66.25333	

Source: CMIE reports, various issues on infrastructure

States have shown lower growth rates of direct exchange line during 1991-2000 and most of them have registered negative growth rate during 2001-2010. This is because of the introduction of mobile telephony in 1995, which has replaced the wireline technology and dominates the market. Nowadays mobile phones account for nearly 96.6 percent of total telephone subscriptions as on dec. 2012 (TRAI: 2012). During the later period negative growth rates can be attributed to popularity of mobile phones with cheaper handsets. Table 2(a) shows that during the period 1991-92 to 1999-2000, Uttar Pradesh has registered the highest growth rate of direct exchange lines followed by the Tamil Nadu, Haryana, J&K, Punjab, Kerala, Maharashtra, West Bengal, Andhra Pradesh, Orissa, Rajasthan, Karnataka, Himachal Pradesh. On the other hand, during the same period, Delhi has registered the lowest growth rate followed by the Madhya Pradesh, Bihar. Table 2(b) shows that during the period 2000-01 to 2009-10 most of the States have registered negative growth rate. Kerala has registered the growth rate of 3.37 percent followed by the Delhi, Madhya Pradesh, Assam, Orissa, Karnataka. During the same period, Punjab has registered the negative growth rate (-4.75%) followed by the J&K, Bihar, Andhra Pradesh, West Bengal, Kerala, Gujarat, Tamil Nadu, Haryana, Maharashtra, Himachal Pradesh. The coefficient of variation throughout the period has been quite high. The value of coefficient of variation has shown mixed trend for all the years. But overall results show that value of coefficient of variation has decreased which further indicates convergence in telecom sector across the states. It was 72.94 percent in 1992 which decreased to 64.81 percent in 1998-99 but further increased to 66.23 percent in 2010

CORRELATION MATRICES

Keeping in view the various social, economic and demographic factors contributing to the telecommunication growth, 17 variables are used in partial correlation analysis. Correlation matrices of the 17 variables are given in the tables 3, 4 and 5 for the years 1991, 2001 and 2011 respectively.

1. Teledensity (no. of telephones per 100 population)
2. Number of villages electrified (%)
3. Proportion of urban population (%)
4. Literacy (%)
5. Population(in millions)
6. Per capita electricity consumption(KWh)
7. Per Capita NSDP
8. No. of persons below poverty line (%)
9. Population density(per square km)
10. Per capita NSDP generated by Transport. Communication and Storage Services
11. Per capita NSDP generated by Fishing
12. Per capita NSDP generated by Industry
13. Per capita NSDP generated by Trade, Hotels and Restaurants Services
14. Per capita NSDP generated by Banking and Insurance Services
15. Per capita NSDP generated by Real Estate ,Business Services
16. Per capita NSDP generated by Public Administration
17. Per capita NSDP generated by Other Services.

Table 3 shows correlation coefficient of teledensity with sixteen variables for the year 1991. The correlation coefficient of teledensity is highest with proportion of urban population. The correlation coefficient is higher with per capita electricity consumption, literacy, population, per capita NSDP generated from services of Trade, Hotels and Restaurants. On the other hand, coefficient of correlation of teledensity is lower with the variables including per capita NSDP generated from Industry, per capita NSDP generated from Real Estate, Business Services , per capita NSDP generated from services of Banking and Insurance, per capita NSDP generated from Public Administration, per capita NSDP generated from Fishing, per capita NSDP generated from Other Services, No. of persons below poverty line(%), Per capita NSDP. Therefore, results of correlation matrices indicate that economic factors are contributing less to the telecommunication growth in comparison to the social and demographic factors in pre- reform period.

Table 4 shows that for the year 2001, correlation coefficient of teledensity is highest with per capita NSDP generated from services of Trade, Hotels and Restaurants followed by Per capita NSDP, Literacy, per capita electricity consumption, proportion of urban population, per capita NSDP generated from transport communication and storage, number of villages electrified,. On the other hand, coefficients of correlation of teledensity is lower with number of persons living below poverty line , per capita NSDP generated from Public Administration, per capita NSDP generated from Fishing, per capita NSDP generated from Industry, per capita NSDP generated from Real Estate ,Business Services and Other Services. Therefore, the results indicate that various socio-economic variables are responsible for the telecommunication growth during this period.

Table 5 shows that for the year 2011, correlation coefficient of teledensity is highest with the variables including per capita NSDP generated from Banking and Insurance, per capita NSDP generated from Real Estate and Business Services , Per capita NSDP generated from Transport, Communication and Storage, Per capita NSDP generated from Other Services, Per capita NSDP, per capita electricity consumption. On the other hand, coefficient of correlation of teledensity is lower with per capita NSDP generated from Industry. The results indicate that most of the socio-economic variables are highly significant and responsible for telecommunication development.

TABLE 3: CORRELATION MATRIX OF 17 VARIABLES: DATA FOR 18 MAJOR STATES FOR 1991

Variables	Teledensity no. of telephones per 100 of persons	Number of villages electrified	Literacy (in %)	Population (in millions)	Per capita electricity	PCNSDP	BPL(in %)	Population density(per square km)	Proportion urban population	Per capita NSDP generated from fishing	Per capita NSDP generated from industry	Per capita NSDP generate from Transport, communication and storage services	Per capita NSDP generate from Trade, Hotels and restaurants services	Per capita NSDP generate from Banking and Insurance services	Per capita NSDP generate from Real estate, Business services	Per capita NSDP generated from Public Administration	Per capita NSDP generated from other services
Teledensity (no.of telephones per 100 persons)	1.000	.412**	.313**	.311***	.409**	.109	-.159	.239	.755*	.032	.073	.241	.391***	.073	.058	.041	-.094
Number of villages electrified		1.000	.521**	-.326	.821*	.519*	-.528	.951*	-.038	-.217	-.059	.962*	.920*	-.062	-.058	-.081	-.115
Literacy (%)			1.000	-.500	.416**	.545*	-.495	.426**	-.170	.200	-.254	.380	.640*	-.254	-.076	-.266	-.221
Population (in millions)				1.000	-.416	-.592	.518**	-.264	.831*	.432*	.691*	-.297	-.372	.689*	.628*	.684*	.107
Per capita electricity					1.000	.554*	-.648	.676*	-.075	-.425	-.154	.708*	.820*	-.154	-.187	-.176	-.039
Per Capita NSDP						1.000	-.409	.386***	-.373	-.154	-.135	.418**	.436**	-.135	-.143	-.148	-.176
No.of persons below poverty line (%)							1.000	-.386	.205	.089	.173	-.398	-.704	.170	.124	.174	.195
population density (per square Km)								1.000	-.097	-.115	-.019	.991*	.848*	-.025	-.020	-.037	-.099
Urban population (in millions)									1.000	.325	.481**	-.117	-.067	.480**	.424**	.459**	.069
Per capita NSDP generated from fishing (crores)										1.000	.529*	-.204	-.143	.527*	.631*	.534*	-.228
Per capita NSDP generated from industry (crore)											1.000	-.043	-.111	1.000	.962*	.999*	-.080
Per capita NSDP generate from Transport, communication and storage services												1.000	.840*	-.048	-.061	-.061	-.070
Per capita NSDP generate from Trade, Hotels and restaurants services													1.000	-.111	-.051	-.127	-.108
Per capita NSDP generate from Banking and Insurance														1.000	.964*	.999*	-.080
Per capita NSDP generate from Real estate, Business services															1.000	.964*	-.097
Per capita NSDP generated from Public Administration																1.000	-.079
Per capita NSDP generated from other services																	1.000

*indicates significance at 1%, **indicates significance at 5%

TABLE 4: CORRELATION MATRIX OF 17 VARIABLES: DATA FOR 18 MAJOR STATES FOR 2001

Variables	Teledensity no. of telephones per 100 of persons	Number of villages electrified	Literacy (in %)	Population (in millions)	Per capita electricity	PCNS DP	BPL(jin %)	Population density(per square km)	Proportion urban population	Per capita NSDP generated from fishing	Per capita NSDP generate from industry	Per capita NSDP generate from Transport, communication and storage services	Per capita NSDP generate from Trade, Hotels and restaurants services	Per capita NSDP generate from Banking and Insurance	Per capita NSDP generate from Real estate, Business services	Per capita NSDP generated from Public Administration	Per capita NSDP generated from other services
Teledensity (no. of telephones per 100 persons)	1.000	-.358	.483*	.0948*	.483**	.483**	-.432	.356**	.495**	-.402	.595*	.609*	.742*	.534*	.681*	.537*	-.053
Number of villages electrified		1.000	-.313	-.358	-.313	-.313	.474*	-.193	-.140	.319	-.046	-.134	-.336	-.189	-.237	-.515	.016
Literacy (%)			1.000	.483**	1.00*	1.00*	-.599	.405**	.706*	-.280	.716*	.726*	.629*	.594*	.538*	.621*	-.119
Population (in millions)				1.000	.483**	.483**	-.432	.356**	.495**	-.402	.595*	.609*	.742*	.534*	.681*	.537*	-.053
Per capita electricity					1.000	1.00*	-.599	.405**	.706*	-.280	.716	.726*	.629*	.594*	.538*	.621*	-.119
Per Capita NSDP						1.000	-.599	.405**	.706*	-.280	.716	.726*	.629*	.594*	.538*	.621*	-.119
No. of persons below poverty line (%)							1.000	-.220	-.390	.224	-.259	-.361	-.495	-.305	-.405	-.650	.290
population density(per square Km)								1.000	.842*	-.287	.291	.747*	.836*	.925*	.816*	.636*	-.045
Urban population(in millions)									1.000	-.256	.576	.915*	.833*	.937*	.858*	.630*	-.015
Per capita NSDP generated from fishing(crores										1.000	-.128	-.375	-.442	-.305	-.416	-.291	.053
Per capita NSDP generated from industry(crore)											1.000	.589*	.523**	.562*	.405**	.535*	-.102
Per capita NSDP generate from Transport, communication and storage services												1.000	.871*	.883*	.910*	.591*	-.147
Per capita NSDP generate from Trade, Hotels and restaurants services													1.000	.886*	.917*	.746*	-.103
Per capita NSDP generate from Banking and Insurance														1.000	.903*	.725*	-.078
Per capita NSDP generate from Real estate, Business services															1.000	.650*	-.077
Per capita NSDP generated from Public Administration																1.000	-.268
Per capita NSDP generated from other services																	1.000

*indicates significance at 1%, **indicates significance at 5%

TABLE 5: CORRELATION MATRIX OF 17 VARIABLES: DATA FOR 18 MAJOR STATES FOR 2011

Variables	Teledensity no. of telephones per 100 of persons	Number of villages electrified	Literacy (in %)	Population (in millions)	Per capita electricity	PCNSDP	BPL(jin %)	Population density(per square km)	Proportion urban population	Per capita NSDP generated from fishing	Per capita NSDP generate from industry	Per capita NSDP generate from Transport, communication and storage services	Per capita NSDP generate from Trade, Hotels and restaurants services	Per capita NSDP generate from Banking and Insurance	Per capita NSDP generate from Real estate, Business services	Per capita NSDP generated from Public Administration	Per capita NSDP generated from other services
Teledensity (no. of telephones per 100 persons)	1.000	.484**	.623*	-.407	.684*	.377	-.442	.837*	.833*	-.254	.334	.801*	.805*	.888*	.878*	.624*	.812*
Number of villages electrified		1.000	.499*	-.308	.534*	.143	-.735	.232	.577*	-.199	.432**	.616**	.505**	.375**	.435**	.469**	.505*
Literacy (%)			1.000	-.372	.437**	.392**	-.341	.344***	.578*	-.387	.450**	.827*	.688**	.518**	.530**	.392***	.655*
Population (in millions)				1.000	-.490	-.375	.544*	-.190	-.187	.273	-.221	-.337	-.277	-.222	-.187	-.461	-.520
Per capita electricity					1.000	.415**	-.532	.344**	.551*	-.270	.798*	.545*	.593*	.536*	.481**	.499*	.557*
Per Capita NSDP						1.000	-.353	.069	-.095	-.043	.276	.144	.121	.134	.058	.270	.296
No. of persons below poverty line (%)							1.000	-.150	-.309	.133	-.343	-.403	-.319	-.233	-.228	-.566	-.493
population density(per square Km)								1.000	.794*	-.138	-.025	.618*	.703*	.924*	.882*	.610*	.816*
Urban population (in millions)									1.000	-.244	.340	.850*	.872*	.903*	.934*	.590*	.797*
Percapita NSDP generated from fishing(crores)										1.000	-.119	-.194	-.118	-.145	-.146	-.244	-.244
Percapita NSDP generated from industry(crore)											1.000	.436**	.529*	.270	.230	.127	.201
Per capita NSDP generate from Transport, communication and storage services												1.000	.921*	.752*	.826*	.472**	.816*
Per capita NSDP generate from Trade, Hotels and restaurants services													1.000	.844*	.887*	.471**	.760*
Per capita NSDP generate from Banking and Insurance														1.000	.957*	.688*	.858*
Per capita NSDP generate from Real estate, Business services															1.000	.586*	.837*
Per capita NSDP generated from Public Administration																1.000	.711*
Per capita NSDP generated from other services																	1.000

TABLE 6: RESULTS OF FACTOR ANALYSIS 1991, ROTATED FACTOR LOADINGS

Variables	Factors				Communalities	Weights
	1	2	3	4		
Teledensity	0.981				.945	6.864
Literacy(%)	0.481				.976	4.995
Per capita electricity consumption	0.645				.786	6.812
Per Capita NSDP	0.430				.962	5.131
population density(per square Km	0.948				.806	6.34
Proportion of urban population(in millions	0.832				.555	4.14
Per capita NSDP generated from transport, communication and Storage	0.987				.555	6.39
Per capita NSDP generated from Trade, Hotels and restaurants	0.888				.861	6.90
Population(milllins)		0.840			.984	6.64
Percapita NSDP generated from fishing(crores		0.661			.730	5.62
Percapita Component of NSDP of real estate ,buisnass services(crore)		0.971			.981	2.82
Percapita Component of NSDP of public administration(crore)		0.975			.898	4.93
Number of persons living BPL(%)			0.356		.916	6.81
Percapita NSDP generated from Industry			0.907		.980	4.85
Percapita Component of NSDP of banking and insurance(crore)			0.937		.958	4.09
Number of villages electrified(%)				0.696	.982	1.54
Per capita Component of NSDP of other services(crore				0.757	.427	1.44
Percentage of variance	45.04	16.92	10.91	7.64		
Percentage of commutative variance explained	45.04	61.96	72.87	80.52		

TABLE 7: RESULTS OF FACTOR ANALYSIS 2001

Variables	Factors				Communalities	Weights
	1	2	3	4		
Population density (per square km)	.954				.926	9.55
Proportion of urban population(%)	.835				.656	9.09
Per capita NSDP generate from Transport, communication and storage services	.778				.960	8.75
Per capita NSDP generate from Trade, Hotels and restaurants services	.767				.926	8.85
Per capita NSDP generate from Banking and Insurance	.907				.960	9.65
Per capita NSDP generate from Real estate, Business services	.837				.960	9.15
Percapita Component of NSDP of public administration(crore)	.513				.755	6.70
Literacy(in %)		.879			.940	5.05
Per capita electricity consumption		.879			.942	5.05
Per capita NSDP		.478			.408	5.05
Numberof villages electrified(%)		.811			.789	4.25
Per capita NSDP generated from Industry		.493			.909	1.63
Teledensity			.844		.948	4.69
Population (in millions)			.844		.970	4.69
Percapita NSDP generated from fishing			.610		.931	3.34
BPL(in %)				.696	.785	2.98
Per capita NSDP generated from other services(crore)				.585	.366	1.59
Percentage of variance	56.40	10.72	8.92	7.05		
Percentage of commutative variance explained	56.40	67.12	76.05	83.11		

TABLE 8: RESULTS OF FACTOR ANALYSIS 2011

Variables	Factors					Communalities	Weights
	1	2	3	4	5		
Teledensity(no.Of telephones per 100of persons	.850					.933	9.10
Population density(per square km)	.955					.855	9.22
Proportion of urban population(%)	.883					.748	9.40
Percapita NSDP generated from transport, communication and storage	.753					.666	8.29
Percapita NSDP generated from oTrade,hotels and restaurants(crore)	.814					.781	8.50
Percapita NSDP generated from banking and insurance(crore)	.962					.867	9.38
Percapita NSDP generated from real estate ,buisnass services(crore)	.962					.907	9.39
Percapita NSDP generated from public administration(crore)	.588					.944	7.29
Per capita NSDP generated from other services(crore)	.837					.975	9.07
Number of villages electrified		.754				.908	5.12
Percapita electricity consumption		.618				.901	5.44
Percapita NSDP generated from Industry		.923				.875	3.38
Percapita NSDP			.901			.928	3.63
Population			.534			.961	2.40
Number of persons living BPL(%)			.674			.966	2.02
Literacy				.455		.770	1.71
Per capitaNSDP generated from Fishing					.943	.929	1.51
Percentage of variance	54.22	13.50	7.93	6.09	5.96		
Percentage of commutative variance explained	54.22	67.72	76.66	81.75	87.72		

The results of factor analysis with varimax rotation for the year 1991 are shown in the table 6. According to Eigen value criteria, all the factors with Eigen values larger than 1 should be retained in order to guarantee that each of them comprised at least variance of a single variable. So, four factors are retained based on the criteria .Factor 1 included variables like teledensity, Literacy, per capita electricity consumption, per capita NSDP, population density, proportion of urban population, per capita NSDP generated from Transport, Communication and Storage, per capita NSDP generated from Trade, Hotels and Restaurants. Factor 2 includes population, per capita NSDP generated from Fishing, per capita NSDP generated from Real Estate and Business Services, number of persons living below poverty line. Factor 3 includes per capita NSDP generated from Industry, per capita NSDP generated from Banking and Insurance Services, number of villages electrified. Factor 4 includes per capita NSDP generated from Other Services. Factor 1 explained 45.05 percent of variance, Factor2 explained 18.85 percent variance, factor 3 and 4 explains 15.26 and 11.23 percent of variation respectively. The four factors together explained 84.99 percent of variation. Communality values of all the variables were high and varied largely between 0.975 percent and 0.616 percent. Such high values indicate high quality results.

Table 7 shows the results of factor analysis with varimax rotation for the year 2001. Factor 1 included variables like population density, proportion of urban population, per capita NSDP generated from Transport, Communication and Storage, per capita NSDP generated from Trade, Hotels and restaurants, per capita NSDP generated from banking and insurance, per capita NSDP generated from Real Estate and Business Services and per capita NSDP generated from Public Administration. Factor 2 included literacy, per capita electricity consumption, Per capita NSDP, per capita NSDP generated from Industry, number of villages electrified. Factor 3 included teledensity, population, per capita NSDP generated from Fishing. Factor 4 included number of persons living below poverty line and per capita NSDP generated from Other Services. Factor 1 explained 56.40 percent of variation, Factor 2 explained 10.72 percent of variation, and Factor 3 and 4 explained 8.92 and 7.05 variation respectively.

Table 8 shows the results of factor analysis with varimax rotation for the year 2011. Five factors are retained based on the Eigen criteria. Factor 1 included teledensity, population density, proportion of urban population, per capita NSDP generated from Transport, Communication and Storage, Per capita NSDP generated from Trade, Hotels and Restaurants, Per capita NSDP generated from Banking and Insurance, Per capita NSDP generated from Real estate and Business services, Per capita NSDP generated from Public Administration .Factor 2 includes variables including number of villages electrified, per capita electricity consumption, per capita NSDP generated from Industry. Factor 3 includes variables per capita NSDP, population and number of persons living below poverty line. Factor 4 and Factor 5 includes literacy and per capita NSDP generated from Fishing. Factor 1 explains 54.22 variation, factor 2 explains 13.50 percent variation, factor 3 explains 7.15 percent variation and four and five explains 6.09 percent and 5.96 percent variation respectively. The five factors together explain 87.72 percent variation. Communality values of the variables were high and varied between 0.975 and 0.666.High values of communalities shows high quality results.

Table 9 shows the composite indices and corresponding ranks of 18 major States of India, as derived from factor analysis for the years 1991, 2001 and 2011 respectively. In 1991, Delhi was ranked no. 1 followed by Maharashtra, Kerala, Gujarat, while J&K, Rajasthan, Orissa and Himachal Pradesh were ranked at the bottom. In the year 2001, there was improvement in the ranks of 9 states (Punjab, Tamil nadu, Gujarat, Rajasthan, Andhra Pradesh, Haryana, Uttar Pradesh, Himachal Pradesh)and deterioration in the rest of the states .In 2001 again Delhi has scored the first rank followed by Tamil nadu , Gujarat and Punjab while Bihar, J&K, Assam and Rajathan were ranked at the bottom .In the year 2011, ranks have changed only a few positions in comparison to the position of ranks from 1991 to 2001. Results of 2011 indicates that again Delhi was ranked first followed by Maharashtra, Kerala, Tamil nadu while Bihar, Assam, Uttar Pradesh and Rajasthan have scored bottom positions in 2011.

TABLE 9: COMPOSITE INDEX DERIVED ON THE BASIS OF FACTOR ANALYSIS FOR 1991, 2001 AND 2011

States	Composite Index (1991)	Rank	Composite Index (2001)	Rank	Composite Index (2011)	Rank
Andhra Pradesh	0.163	11	0.247	8	0.281	9
Assam	0.149	14	0.121	16	0.115	17
Bihar	0.151	13	0.069	18	0.069	18
Gujarat	0.265	4	0.363	3	0.327	5
Haryana	0.159	12	0.282	7	0.326	6
HP	0.148	15	0.211	12	0.282	8
J&K	0.065	18	0.108	17	0.193	12
Karnataka	0.147	5	0.242	9	0.263	10
Kerala	0.272	3	0.297	6	0.390	3
MP	0.178	9	0.218	11	0.155	13
Maharashtra	0.318	2	0.360	5	0.391	2
Orissa	0.154	16	0.195	13	0.144	14
Punjab	0.190	8	0.362	4	0.310	7
Rajasthan	0.114	17	0.173	14	0.134	15
Tamilnadu	0.236	6	0.363	2	0.352	4
Uttar Pradesh	0.482	10	0.1700	15	0.137	16
West Bengal	0.229	7	0.219	10	0.239	11
Delhi	0.512	1	0.593	1	0.886	1

Source: Author's calculations

TABLE 10: STEP-WISE REGRESSION ANALYSIS WITH TELEDENSITY AS A DEPENDENT VARIABLE 1991

Steps	Constant	Per capita NSDP generated from Transport, communication and storage services	Per capita NSDP generated from Trade, Hotels and Restaurants services	Number of villages Electrified (%)	Per capita NSDP	R ²	Adjusted R ²	F-Statistics
Step1	0.557	14.00(0.000*)	-	-	-	.925	.920	196.26
Step2	0.021	7.68(0.000*)	4.52(0.000*)	-	-	.968	.964	227.90
Step3	-0.176	6.22(0.000*)	2.82(0.014*)	2.36(0.031**)	-	.977	.972	200.25
Step4	-3.83	7.71(0.000*)	2.91(0.04**)	3.49(0.005*)	3.421(0.005*)	.988	.984	267.96

Note: Values in parenthesis are p-values of t-statistics

TABLE 11: STEP-WISE REGRESSION ANALYSIS WITH TELEDENSITY AS A DEPENDENT VARIABLE 2001

Steps	Constant	Per capita NSDP generated from Trade, Hotels and Restaurants services	Per capita NSDP generated from Banking and Insurance	Proportion of urban population (in%)	Per capita NSDP generated from Transport, communication and storage services	R ²	Adjusted R ²	F-Statistics
Step1	-1.54	13.22(0.000*)	-	-	-	.916	.911	174.80
Step2	0.000	4.85(0.000*)	2.78(0.000*)	-	-	.945	.937	128.30
Step3	0.120	2.83(0.013*)	2.832(0.013*)	2.32(0.036**)	-	.960	.952	112.38
Step4	-0.22	-2.24(0.043**)	3.906(0.002*)	3.381(0.005*)	-2.243(0.043**)	.971	.971	109.81

Note: values in parentheses are p-values of t-statistics

TABLE 12: STEP-WISE REGRESSION ANALYSIS WITH TELEDENSITY AS A DEPENDENT VARIABLE 2011

Steps	constant	Per capita NSDP generated from Banking and Insurance	Per capita NSDP	Per capita Electricity consumption	R ²	Adjusted R ²	F-statistic
Step1	0.808	8.893(0.0008)	-	-	0.832	0.821	79.08
Step2	-0.269	7.052(0.000*)	2.33(0.034**)	-	0.877	0.860	53.28
Step3	1.424	2.845(0.013*)	3.44(0.004*)	2.89(0.012**)	0.923	0.906	55.81

Note: values in parentheses are p-values of t-statistics

The step-wise regression analysis has been conducted at three points of time i.e., 1991, 2001, 2011 in order to identify those variables which are most significant to the growth of telecom services. At each step, the independent variable not in the equation that has the smallest probability of F is entered, if that probability is sufficiently small. Variables already in the regression equation are removed if their probability of F becomes sufficiently large. The method terminates when no more variables are eligible for inclusion or removal. All variables must pass the tolerance criterion to be entered in the equation, regardless of the entry method specified. The default collinearity tolerance level is 0.0001. Also, a variable is not entered if it would cause the tolerance of another variable already in the model to drop below the tolerance criterion. In step-wise analysis, teledensity is taken as a dependent variable. The analysis has been applied on cross-section data which comprise 18 major Indian states.

Table 10 shows the step-wise regression analysis 1991 with four independent variables i.e., per capita NSDP generated from Transport, communication and Storage services, Per capita NSDP generated from Trade, Hotels and Restaurant services, number of villages electrified, and per capita NSDP. Results indicate that in the 1991, when per capita transport, communication and storage was alone taken as independent variable, the results indicate a positive and significant (at 1% level) relationship between teledensity and per capita NSDP generated by transport, communication and storage. When the variable per capita NSDP generated by trade, hotels and restaurants was added as an independent variable in the second step the relationship is positive and significant (1% level) between the two variables. In the third step, number of villages electrified are added having significant (5% level) and positive relationship with the teledensity. Finally, in the fourth step, per capita NSDP was added and result indicate significant at (5% level) level relationship with teledensity. Higher value of R-square suggest us that model fit is good. Also F-statistic which is a measure of overall significance has been found significant.

Table 11 shows the step-wise regression analysis 2001 with four independent variables i.e. Per capita NSDP generated from Trade, Hotels and Restaurant services, Per capita NSDP generated from Banking and Insurance services, proportion of urban population and per capita NSDP generated from Transport, communication and Storage services. At the first step, when Per capita NSDP generated from Trade, Hotels and Restaurant services was alone taken as independent variable, the relationship was significant (1% level). In the second step, Per capita NSDP generated from Banking and Insurance services was added the relationship was significant (1% level). Further in the third step, when proportion of urban population was added as a third independent variable, the relationship was significant (at 5% level). With the addition of per capita NSDP generated from Transport, communication and Storage services as a fourth independent variable, the relationship of this variable with teledensity was significant (at 5% level). Higher value of R-square suggest us that model fit is good. Also F-statistic which is a measure of overall significance has been found significant for all variables.

Table 12 indicates the results for step-wise regression analysis for 2011, with three independent variables i.e., Per capita NSDP generated from Banking and Insurance services, per capita NSDP and per capita electricity consumption. At the first step, relationship between per capita NSDP generated from Banking and Insurance and teledensity was found significant (at 1% level). In the second step, when per capita NSDP was added as another independent variable, results revealed a significant relationship between the two variables. With the addition of third variable, relationship was significant (at 5% level). Higher value of R-square suggest us that model fit is good. The F-statistic is significant at 1 percent for all variables. The overall result of step-wise regression indicates that there are certain factors which are highly significant to explain the growth of telecom services.

CONCLUSION

Telecommunications can improve the efficiency and effectiveness of various economic, commercial, and administrative activities. Telecom services distribute the social, cultural and economic benefits of the process of development more equitably throughout the country. Telecommunications is thus considered to be both a cause and a consequence of economic growth. The results of the compound annual growth rate and coefficient of variation indicate that telecom sector is growing rapidly across the states and specially in poor states. The higher value of CAGR in case of poor states indicates convergence in telecommunication. The results of factor analysis revealed that during 1991, social factors like literacy, population density, number of villages electrified, proportion of urban population were more significant in terms of their contribution to the development of telecom services, but various services (including finance, hotel, tourism, banking and insurance) were non-significant. Reason being that it was just the beginning of liberalization and these services sectors had not grown much. The results of factor analysis in 2001 have shown the role of both social as well as economic factors in development of telecommunications. During the period 2011 also various socio-economic factors are contributing to the growth of telecommunication services. The most important factors identified by the step-wise regression during the 1991 includes Per capita NSDP generated from Transport, Communication and storage services, per capita NSDP generated from Trade, Hotel and Restaurant services, number of villages electrified and Per capita NSDP. Similarly, in 2001, the most significant factors identified includes NSDP generated from Trade, Hotel and Restaurant services, Per capita NSDP generated from Banking and Insurance, proportion of urban population and Per capita NSDP generated from Transport, Communication and storage services. The results of 2011 step-wise regression include the Per capita NSDP generated from Banking and Insurance, Per capita NSDP and Per capita electricity consumption.

REFERENCES

1. ASSOCHAM (2006), "Mobile Value Added Services-A Vehicle To Usher In Inclusive Growth and Bridge The Digital Divide, *Deolitte*
2. Chaudhary Imran Sharif, Malik Shahnawaz and Abbas Qaiser (2009), "Socio-Economic Impact of Cellular Phones Growth in Pakistan: An Empirical Analysis", *Pakistan Journal of Social Sciences*, Vol.29, No. 1, June, pp 23-37.
3. CMIE Report, *Infrastructure*, various issues, Mumbai
4. Earnest and Young (2011), *Enabling the Next Wave of telecom Growth in India*, Federation of Indian Chambers of Commerce and Industry.
5. Ghosh Sajal and Prasad Rohit(2012), "Telecommunications Penetration and Economic Growth: An Empirical Analysis, *Netnomics*,13,pp 25-43
6. Government of India, *Handbook of statistics of Indian Economy*, RBI, various issues
7. Government of India (2008), *Annual Report 2007-08*, Department of Telecommunications, New Delhi.
8. Government of India (2011), *Annual Report 2011*, Department of Telecommunications, New Delhi.
9. Government of India (2011-12), *Annual Report 2011-12*, Telecom Regulatory Authority of India, New Delhi
10. Government of India, *Census of India*, various issues
11. Government of India, *Planning commission Report for Deputy Chairman*, 2011
12. Government of India, *Statistical Abstract of India*, various issues
13. Gujrati. N Damoder and Sangeetha (2004), *Basic Econometrics*, Tata McGraw Hill Education Private Limited, New Delhi.
14. Isaksson Anders(2009), "Telecommunications and Industrial Development", *Working Paper 14*, UNIDO, Vienna
15. Lindeman, R.H, P.F., Merenda and R.Z.Gold (1980), *Introduction to Bivariate and Multivariate Analysis*, Scott Foresman Company, USA.
16. Telecom regulatory Authority of India (2012), *Telecom sector in India: A Decade profile*, New Delhi
17. Tella A. Sherifdeen and Adeseye Adesola Bolaji (2002), "Telecommunications Infrastructure and Economic Growth: Evidence from Nigeria", *Conference on sector led growth in Africa and Implications for Development*, Dakar, Senegal.

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