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## **TRENDS AND PATTERNS OF TELECOM SECOTOR IN INDIA**

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### **1. Introduction**

Telecom is an essential infrastructure for economic development and hence for the improvement of the quality of human life. The use of telephone is in different activities like social and economic, and gathering information and knowledge. From these the highest use goes to social activities. It is used for saving time and expenditure in social and financial contexts. In India people are interested in owning mobile phones. The mobile telephone connection is costly when compared with land phone connections, as the initial capital cost of handset purchase is more. Salaried and business people who are having comparatively high economic status were the most intensive users of mobiles. In the absence of cheaper fixed line services mostly in rural areas, there are increased use of WLL phones and mobile phones. But in such cases there arise problems in the case of range also. As the desired inter locator is reached through telephony, and the telephone is likely to be the quick way for communication, telephone has a considerable advantage over other communication channel in emergencies. Simplicity in access makes telephony more particular in the case of priority requirement for all socio-economic groups.

Telecom sector plays a vital role in boosting an economy thus it is important to understand the role and contribution of telecom sector to the growth of economy. Some studies identified that telecom industry increases revenue, lower production cost and increase



employment. With regard to the linkage between the telecommunication and economic growth, the existence studies found a positive relationship between telecommunication and economic growth. Increase telephone connections increases knowledge and information which leads to increase efficiency of production and improvement in service.

## 2. Review of literature

*Maneejuk and Yamaka (2020)* have investigated the impact of telecommunications technology and innovations on economic growth of developed and developing countries. Their investigation divided into two parts, namely cross country level and individual country level. The study selected 10 highest ICT development index countries namely Iceland, Switzerland, Denmark, United Kingdom and Netherlands are considered for developed countries and china, Thailand, Argentina and Malaysia for developing countries. They used yearly data for the period 1995 to 2017. They have applied Augmented Dickey-Fuller (ADF) unit root test for time series data and Levine-Lin-Chu (LLC) unit root test for panel data. They employed Panel kink regression model, Granger cointegration test (Engle and Granger 1987) and generalized measures of correlation test. The empirical findings for individual country show that mobile cellular subscriptions, fixed telephone subscriptions, R&D expenditure have significant non-linear impact on economic growth in developed and developing countries. The results from the panel kink regression show that fixed telephone subscriptions, mobile cellular subscriptions and fixed broadband subscriptions are affecting economic growth in developed countries. On the other hand, results confirm in the case of developing countries, fixed telephone subscriptions, mobile cellular subscriptions high technology exports are non-linear impact on economic growth. Their study confirms a



bidirectional causal relationship between economic growth and telecommunication technology and innovation.

*Tripathi and Inani (2020)* have examined the impact of information and communication technology on economic growth for SAARC countries including Bangladesh, India, Pakistan and Sri Lanka. The sample contains yearly observations for the period of 1990 to 2014. The study employed augmented Cobb-Douglas production function and empirical findings confirm information and communication technology have positive and significant effect on economic growth for these countries.

*Olalekan and David (2019)* have investigated robustness of the evidence on telecommunication infrastructure, economic growth and development of 46 countries in Africa. All the variables were measured at yearly frequencies over the period 2000 to 2015. They have employed panel cointegration test and panel causality test. The empirical findings confirm that there is a bidirectional causality relationship between the telecommunication infrastructures, economic growth and development. Their study concluded that telecom industry infrastructures promote economic growth and development in Africa.

*Tanyai (2019)* investigates the causal relationship between telephone connection and economic growth in Kenya. The sample contains yearly observations for the period 1988 to 2018. He adopts augmented Solow Swan model. The study also employed cointegration test for long run relationship and error correction model for short run. The results confirm that all the variables are co integrated. The speed of adjustment in the short run and long run was 65.4 %. The study concludes that promotes the telecommunication sector would increase economic growth in Kenya.



*Butt (2018)* has examined the effect of motivational factors on job satisfaction of administrative staff in telecom sector of Pakistan. The sample size of the study was 150 administrative staff members and 75 for Telenor and 75 for U-Fone. The study employed correlation and linear regression method. The empirical findings reveal that the job satisfaction was same in Telenor and U-Fone. The study also found that telecom motivation factors are positive impact on job satisfaction in Pakistan.

*Kiani (2018)* has investigated the causal relationship between telecommunication and economic growth in Pakistan. The sample includes yearly data from 1996 to 2016. He employed Ordinary Least Square (OLS) method to explore the relationship between the variables. The empirical results confirm the positive relationship between telecom sector and economic growth in Pakistan.

*Sharif (2017)*'s study undertakes on extensive statistical investigation on telecommunication and its impact on the SAARC countries namely Bangladesh, India, Pakistan, Sri Lanka, and Nepal. The study covers the period from 1975 to 2015. He employed ordinary least square (OLS) method to predict the relationship between economic growth, teledensity, investment in telecommunication sector, revenue from telecom industry, revenue percentage of GDP and internet users. The empirical results reveal that the telecommunications industry has positive and strong relationship with economic growth in SAARC countries.



### 3. Data Source and Methodology

Secondary data used for the study are yearly observations from 2001 to 2019. The study uses time series data from various sources; TRAI Annual reports and World Development indicators, (WDI).

**Table- 1**  
**Number of landline and mobile subscribers (in Millions)**

Years	Mobile Phone subscribers	Y-O-Y growth rate	landline subscribers	Y-O-Y growth rate
2001	3.58	-	32.7	-
2002	6.68	87%	38.29	17%
2003	13.29	99%	41.32	8%
2004	35.62	168%	40.92	-1%
2005	56.95	60%	41.42	1%
2006	101.87	79%	40.22	-3%
2007	165.09	62%	40.77	1%
2008	261.08	58%	39.41	-3%
2009	391.76	50%	37.96	-4%
2010	584.32	49%	36.96	-3%
2011	811.6	39%	34.73	-6%
2012	919.18	13%	32.17	-7%
2013	867.81	-6%	30.21	-6%
2014	904.52	4%	28.5	-6%
2015	969.54	7%	26.59	-7%
2016	1034.11	7%	25.22	-5%
2017	1170.59	13%	24.4	-3%
2018	1188.99	2%	22.81	-7%
2019	1161.71	-2%	21.7	-5%
Total	10648.29		636.3	

Table 1 show that the land line and mobile subscribers' growth rate for nineteen years from 2001 to 2019. The mobile phone subscribers in 2001 (3.58 millions) and land line subscribers are (32.7millions) followed by 2010(584.32), (36.96) and 2019 (1161.71), (21.7) mobile



phone subscribers and landline subscribers. Total subscribers 10648.29, are belongs to mobile phones and 636.3 subscribers are belongs to landline subscribers.

The year wise mobile subscriber highest growth rate in the year 2004 (168%) and least growth rate in the year 2019 (-2%).Meanwhile land line subscribers highest in the year 2001 (17%) and least growth rate in the year 2004 (-1%).

**Table-2**  
**Telecom Sector Gross Revenue growth rate**

<b>Year</b>	<b>Telecom Sector Gross Revenue</b>	<b>Y-O-Y Growth Rate</b>
2009	40444	
2010	40265	0%
2011	45513	13%
2012	49242	8%
2013	54283	10%
2014	60716	12%
2015	65226	7%
2016	68335	5%
2017	63315	-7%
2018	62198	-2%
2019	58414	-6%
<b>CAGR</b>	<b>3%</b>	

Source: TRAI Annual Report

Table 2 reveals that the gross revenue growth rate of telecom sector for ten years from 2009 to 2019. The highest gross revenue in the year 2016 (68,335) and lowest gross revenue in the year 2010 (40265). Meanwhile Year wise revenue growth rate in the year 2011 (13%) and lowest growth rate is in the year 2018 (-2%).

Table-3 indication that the number of subscribers public and private sector operators from 2008 to 2019. The highest subscribers of public sector units was in the year 2008 (26.47millions) and lowest subscribers in the year 2015 (10.07 millions). Meanwhile private sector subscribers are highest in the year 2015 (89.93) and lowest subscribers in the year 2008 (73.53). The year wise growth rate of public sector units is highest in the year 2013



(6%) and least growth rate is in 2017 (-8%), meanwhile private sector growth rate is highest in 2009 (8%) and least growth rate in 2013 (-1%). and compound annual growth rate is public sector is negative growth rate -0.0686 and private sector is positive growth rate 0.01577.

**Table-3**  
**Number of Subscribers (Public & Private sector Operators)**

<b>Years</b>	<b>Total-PSUs</b>	<b>Y-O-Y growth rate</b>	<b>Total private</b>	<b>Y-O-Y growth rate</b>
<b>2008</b>	26.47		73.53	
<b>2009</b>	20.84	-21%	79.16	8%
<b>2010</b>	17.04	-18%	82.96	5%
<b>2011</b>	14.89	-13%	85.11	3%
<b>2012</b>	13.69	-8%	86.31	1%
<b>2013</b>	14.49	6%	85.51	-1%
<b>2014</b>	12.87	-11%	87.13	2%
<b>2015</b>	10.07	-22%	89.93	3%
<b>2016</b>	10.26	2%	89.74	0%
<b>2017</b>	10.22	0%	89.78	0%
<b>2018</b>	10.86	6%	89.14	-1%
<b>2019</b>	11.28	4%	88.72	0%
<b>Total</b>	<b>172.98</b>		<b>1027.02</b>	
<b>CAGR</b>	<b>-0.0686</b>		<b>0.01577</b>	

Source: TRAI Annual Report

Table 4 shows that the total telephones and Tele-density from 2001 to 2019. Total telephones 11284.6 and total Tele density. Hence, highest Tele phones in the year 2017 (1194.99) and lowest year 2001 (36.28) meanwhile Tele density in the year 2018 (93.27) and lowest density year 2001 (3.58). The Tele-density share with telephones in the year 2001 was (9.86) and in the year 2019 (7.61).



**Table-4**  
**Total Telephones and Tele-Density**

Years	Total Telephones ( in millions )	Tele-density ( % )	Tele density/total telephones
2001	36.28	3.58	9.86
2002	44.97	4.29	9.53
2003	54.61	5.11	9.35
2004	76.54	7.02	9.17
2005	98.37	8.95	9.09
2006	142.09	12.74	8.96
2007	205.87	18.22	8.85
2008	300.49	26.22	8.72
2009	429.72	36.98	8.60
2010	621.28	52.73	8.48
2011	846.33	70.89	8.37
2012	951.35	78.66	8.26
2013	898.02	73.32	8.16
2014	933.02	75.23	8.06
2015	996.13	79.36	7.96
2016	1059.33	83.4	7.87
2017	1194.99	93.01	7.78
2018	1211.8	93.27	7.69
2019	1183.41	90.1	7.61
<b>Total</b>	<b>11284.6</b>	<b>913.08</b>	<b>8.09</b>

**Source: TRAI Annual Report**

## **CONCLUSION**

The importance of infrastructure to economic growth (and development) was initially brought out by the World Bank Development Report (1994) which highlighted that growth as well as productivity is higher in countries that have an adequate and efficient supply of infrastructure services. In what follows, the India Infrastructure Report (1996) expressed a similar view towards the importance of (physical) infrastructure. The study examined the trends of telecommunication sector in India using annual data for the span 2001 to 2019. The Tele-density shows the total telephones from 2001 to 2019. Total telephones 11284.6 and total Tele density. Hence, highest Tele phones in the year 2017 (1194.99) and lowest year



2001 (36.28) meanwhile Tele density in the year 2018 (93.27) and lowest density year 2001 (3.58). The Tele-density share with telephones in the year 2001 was (9.86) and in the year 2019 (7.61).

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