IMPACT OF FOREIGN INVESTMENT ON TELECOMMUNICATION SECTOR SINCE 1991

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ABSTRACT

Foreign capital inflow to any country may be of different nature and type viz., grant, loan and direct investments. In recent years, the last *variant* of foreign capital i.e. direct investment has assumed an important and sizeable proportion particularly in developing countries.

However, the role of foreign direct investment in uplifting, upgrading and positively restructuring the economy of any country is not beyond controversy. On the one hand, in the planned economies like India, it is assigned a significant role considering it to be an engine to the development process of the country. On the other hand, the experiences like Mexican crisis, East Asian crisis and others are the testimony to the economic dependence on foreign direct investment and subsequent disastrous situations arising out of this dependence.

Further, the development of any economy is directly correlated with the development of infrastructure in that country. It is so because infrastructure provides a chain reaction to other developmental processes. Even within infrastructure, the telecommunication industry which was designated as one of the infrastructure sectors in 1996 has, in recent years, been emerged as one of

the key infrastructure sectors in India. Coupled with highly powerful information technology, it is being regarded as a vital lifeline and the main spring force to information revolution. Indian telecom network has over 36900 telephone exchanges having 70.5 million working connections and switching capacity of 58 million lines (as on December 31, 2003). In the present scenario, there seems to be an investment requirement of approximately US$ 37 billion by 2005 and approximately US$ 69 billion by 2010.

Though infrastructure in any country is very important, in India, it has not been strong, particularly because of the lack of adequate funds – both domestic as well as foreign. Further, though since independence, investment in telecom has constantly increased, till 7" plan investments never reflected the requirement and importance of the sector. In fact, as percentage of GDP, the share of telecom remained almost constant or declined. Even the plan documents noted that compared with many developing and developed countries, the share of investment in telecom to the GDP was low in India. In 7" plan, the resources allocated were increased considerably, though they fell short of requirement. In 8th plan, budgetary support was done away with. The 9th plan fund requirement was estimated at Rs. 77,856 crore, most of which was to come from internal resources and partly from the market and other means.

Statement of the Problem

With the liberalization policies adopted. there have been inflows of foreign capital. But their exact role in strengthening the infrastructure sector (specifically

telecommunication) is still not very clear. This could have led to taking stray and erroneous decisions in the past at the policy making level.

Objective of the Study

With the above premises in mind, the study has made an attempt **to assess the impact of foreign direct investment on the growth and development of telecommunication sector.**

In addition to the above basic objective, the study has also endeavored

1. To study the existing status of telecommunication sector in India.

2. To study the trends of foreign direct investments in telecommunication sector since 1991.

3. To examine the government's policies for foreign direct investment and for the development of telecommunication sector.

Research Methodology

Methodology to attain the above objectives includes, first of all, the identification of different parameters indicating the growth and development of telecommunication sector. These parameters have further been explained in terms of more specific quantitative variables. The impact of foreign direct investments on the development of Indian telecommunication sector has been carried out by using independently *three* different types of statistical measures which are generally used to find out the *mutual* and *cause and effect* relationship between two variables. These are as below:

A. *Correlation analysis* – Here, the attempt is to establish a correlation between the volumes of FDI in telecom sector on the one hand, and the variable identified on the other hand – one by one. In order to compute the correlation, a specific statistical measure namely, *Karl Pearson's Coefficient of correlation* has been used. The significance level of the coefficient has been determined to be 1% to signify the extent and magnitude of the correlation. In addition to this, the value of R2 which is considered a more scientific parameter for measuring the relationship between the variables has also been calculated.

If the correlation happens to be significantly high, the inference is that the FDI has contributed to the development of telecommunication sector at least in terms of that variable, and thus has exerted its impact.

B. *Time-series analysis* – This technique is useful for comparing the trends in the values of two variables plotted over a period of time on the same graph. Accordingly, the respective figures of FDI and the selected variable have been plotted corresponding to the given years. The trends reflected in the graphs have been used to make the comparison and then to draw the inferences based thereon.

C. *Index* **Number** *analysis (based on non-cumulative data)* - The index numbers are measures to compare the variables which have been represented in different units. They are considered good since they remove the unit disparity in the variables.

Under this method, the respective figures of FDI and the selected variable have been converted into index numbers. For this purpose, 1997 has been taken as the base year. It is done so because the year 1997 lies almost in the middle of the available data and hence chances of very high numbers appearing in the extreme figures are eliminated.

This methodology of using three measures has been adopted so as to ensure the objectivity of the results and also to assess the impact from three different perspectives. All the values have been calculated by using the **computer software namely *SPSS (Statistical Package for Social Sciences).***

The time period taken for the analysis is from the year 1991 – *the year India entered into a new era by adopting the policy of liberalization* – till 2002, the latest year of available data.

Parameters

Different parameters and their constituent variables identified as indicators of the growth and development of telecommunication sector have broadly been categorized as below. The entire impact analysis has been carried out in terms of these parameters only.

A. **Growth of FDI in telecom corresponding to total inflows of FDI**

B. Asset creation and physical growth

Under this head, the focus of analysis is on finding out as to how much FDI has contributed towards the asset creation and physical growth of the

telecommunication sector. For this purpose, the following variables have been analyzed:

- ➢ Direct exchange lines

- ➢ Value of production in telecom factories

- ➢ Equipped capacity

- ➢ Equipment manufacturing

- ➢ Export of telecom equipments

C. Profitability

Under this category, the following variable has been considered:

- ➢ Annual profit

D. Consumer-related Parameters *(Quantitative)*

The following consumer-related parameters have been analysed:

- ➢ Telephone waiting list

- ➢ Registered demand (BSNL + MTNL)

- ➢ Urban teledensity *(per 100 population)*

- ➢ Total teledensity *(per 100 population)*

- ➢ Gap between supply & demand (%)

- ➢ Phone faults *(per 100 stations per month)*

- ➢ Geographical coverage

Apart from this, a questionnaire has been developed to evaluate and assess the qualitative improvements in the services provided by the telecom sector to the ultimate users *I* consumers. To have an objective interpretation of the responses, technique of weighted average has been employed. Responses have been

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measured on a 1-5 point scale under five categories. To elaborate, the following steps have been followed to infer from the responses received:

Step 1:

Assign scores to all the five response categories on a 1-5 point scale as shown in the following table:

Response Categories	Highly satisfied	Satisfied	Can't say	Dis-satisfied	Highly Dis-satisfied
Scores	5	4	3	2	1

The order of the categories when compared with the original questionnaire has been rearranged with *'can't say'* category occupying the middle position. This has been done so as to have extreme scores for extreme response category like *'highly satisfied'* and 'highly *dissatisfied'*:

Step 2:

Multiply the number of the responses received against each question with the score assigned to the respective category, treating the response number as weights. In result, we get 'weighted score **(WS)'** for each response category. In other words:

WS = score of the category *x* no. of corresponding responses (weights)

Step 3:

Calculate **'average weighted score (AWS)'** as per the following formula:

AWS =   **Total of weighted score**
           Total of weights

$$= \frac{\Sigma \, (WS)}{\text{total of weights}}$$

$$= \frac{\Sigma \, \text{(score of the category x no. of corresponding responses)}}{\text{total of weights}}$$

Since the responses have been used as weights, the value of the denominator i.e. *'total of weights'* in the above equation will be 210 (total of all responses). In other words,

AWS = $\frac{\Sigma\text{(score of the category x no. of corresponding responses)}}{\text{(total of weights = total of responses =) } \textbf{210}}$

The AWS thus calculated has been used to determine the satisfaction level with regard to each question.

Size and Composition of Sample

The size of sample for the purpose of questionnaire is 210 which includes persons selected at random in the city of National Capital Territory of Delhi and representing different strata of the society on the basis of income-group, age- group, geographical location, nature of work, sex and so on.

Assumptions

The entire analysis is based on the following assumptions:

1. The FDI in telecom sector is assumed to be uniformly invested in all the investment areas of the sector.

2. The contribution of public sector to the growth of telecom sector is not substantial.

Chapter Scheme

Chapter 1 of the study is the introductory one which contains objectives of the study, research design & methodology, significance of the study and survey of literature. **Chapter 2** deals with the concept and government policy regarding Foreign Direct Investment. It also figures out the magnitude and direction of FDI to India. **Chapter 3** describes the status and policy framework of Indian Telecom Sector. It also details out the FDI inflows to Indian telecom sector. **Chapter 4** is devoted to the main subject-matter of the study i.e. analysis of Impact of foreign direct investments on telecommunication sector. The entire impact analysis has been done in the chapter 4 under three different sections with the following heads:

Section I: Telecom Related Parameters *(Quantitative)*
Section II: Consumer Related Parameters *(Quantitative)*
Section III: Questionnaire Based Parameters *(Qualitative)*

The last **chapter 5** summarizes various conclusions derived in the study. It also offers suggestions with regard to FDI vis-à-vis Indian telecom sector indicating the further research potential available in this field.

Conclusions

The study has highlighted the concept, motives and developmental impact of FDI. Data presented in the study reveal that the source and direction of FDI flows to India remained, by and large, unchanged during the 1990s; while volume-wise these have shown a remarkable growth during the same period. The Indian FDI

policy has moved over the years from a restrictive one to a cautiously regulated one to the present full-scale liberalised policy integrated with world economy. It has also demonstrated the ever-increasing significance of telecommunication sector in the developmental process of any country. As evident from the figures presented in the study, over the years, telecom policies have shifted from a *'protectionism'* regime to the present day *'liberalization'* regime leading to a spectacular growth of the sector. Section-wise conclusions of the analysis are summarised in the following paragraphs.

<u>Section I</u>: Telecom Related Parameters *(Quantitative)*

The following table summarizes the conclusions derived with respect to the impact of the FDI on the various telecom related quantitative parameters analyzed in Section I under the three groups.

PARAMETER	IMPACT OF FDI
A. GROWTH OF FDI IN TELECOMS CORRESPONDING TO TOTAL INFLOWS OF FDI	Positive
B. ASSET CREATION AND PHYSICAL GROWTH	Positive
➢ Direct exchange lines	Positive
➢ Value of production in telecom factories	Positive
➢ Equipped capacity	Not clear
➢ Equipment manufacturing	Positive
➢ Export of telecom equipments	Not clear
C. PROFITABILITY ➢ Annual profit	

The above table reveals that except two variables namely *'Equipment Manufacturing'* and *'Annual Profit',* all other variables have shown a positive impact - as substantiated by all the three different analyses undertaken - of the FDI in terms of growth and development. In respect to these two variables, the impact is not clear since the three analyses undertaken give contradictory results with regards to the impact of the FDI.

On this basis, we conclude:

1. That the total inflows of FDI to India have led to the growth of FDI in Indian telecom sector since 1991.

2. That FDI in Indian telecom sector has, by and large, been instrumental in asset creation and physical growth of Indian telecom sector since 1991. The only exception under this category is *'Equipment Manufacturing'*.

3. That the impact of FDI on profitability of Indian telecom sector cannot be determined due to contradictory evidences.

<u>Section II</u>: Consumer Related Parameters *(Quantitative)*

The following table summarizes the conclusions derived with respect to the impact of the FDI on the various telecom related quantitative parameters analysed in Section II.

PARAMETER	IMPACT OF FDI
CONUMER RELATED PARAMETERS *(Quantitative)*	
Telephone waiting list	Positive, but Weak
Registered demand (BSNL + MTNL)	Positive
Urban teledensity *(per 100 population)*	Positive
Total teledensity *(per 100 population)*	Positive
Gap between supply & demand (%)	Positive, but Weak
Phone faults *(per 100 stations per month)*	Positive
Geographical coverage	Positive

The above table reveals that except two variables namely *'Telephone Waiting List'* and *'Gap between Supply & Demand',* all other variables have shown a positive impact - as *substantiated by both the analyses undertaken* - of the FDI in terms of growth and development. In respect to these two variables also, the impact is positive, but not as strong as in the case of other variables.

On this basis, we conclude that since 1991, FDI in Indian telecom sector has, by and large. led to the improvement of consumer-related services (under study) which are quantitative in nature.

<u>Section III</u> : Questionnaire Based Parameters *(Qualitative)*

The following table summarizes the conclusions derived on the basis of the responses received with respect to the eight different qualitative parameters analyzed in section III.

PARAMETER	SATISFACTION STATUS OF RESPONDENTS	
	Category	Intensity
1. Time taken in		
(i). New Connection	Satisfied	Low
(ii). Closing	Indecisive	-
(iii). Shifting	Indecisive	-
2. Fault	Satisfied	Low
(i). Occurrence	Satisfied	Low
(ii). Rectification		
3. Billing	Satisfied	High
(i). Metering the calls	Satisfied	High
(ii). Billing the calls	Satisfied	Low
(iii). Settlement of disputed bills		
4. Conversation Quality	Satisfied	High
(i). Clarity of voice	Satisfied	High
(ii). Call completion		
5. Quality of Additional Services	Satisfied	High
6. Cost Structure	Satisfied	Low
7. System Performance		
(i). Performance of network	Satisfied	High
(ii). Maintenance of system	Satisfied	Low
(iii). Response of operators	Satisfied	Low
8. Overall Satisfaction Level	Satisfied	High

The above table reveals that out of the 8 different parameters representing a total of 16 sub-factors being enquired from the consumers, only with respect to two sub-factor - *time taken in shifting the phone and time taken in closing the phone* — respondents were 'Indecisive'. With respect to all other sub-factors, the respondents when assessed collectively reported as being 'satisfied'. However,

in all these cases their satisfaction level was not of similar intensity — *in some* cases *it was low while in other cases it was of high intensity.* Further, though the respondents were found *'satisfied',* in none of the cases, they were rated as *'highly satisfied'.* Similarly, in none of the cases, they were rated as *'dissatisfied'* or *'highly dissatisfied'.*

The above analysis suggests that the quality of telecom services, by and large, has come up to the satisfaction of the consumers of these services.

Conclusion

All the above three inferences suggest that foreign direct investment in India has led to the development of the Indian telecommunication sector particularly after 1991. Thus the boost in the telecom sector in the post-liberalization period is mainly attributed to the inflows of foreign direct investment, as evident from the data presented in the study.

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