

RELATIONSHIP BETWEEN ECONOMIC GROWTH AND FOREIGN DIRECT INVESTMENT IN TELECOMMUNICATIONS SECTOR IN INDIA – AN EMPIRICAL ANALYSIS

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ABSTRACT:

Over the last two decades, the world has experienced a significant increase in FDI, or foreign direct investment, into developing countries. Increasingly, emerging economies are competing with one another for this investment. Restrictions on these investments that were previously in place are now being lifted as the importance of FDI is recognized. Thus, the objective of this study is to research the empirical relationship between Gross Domestic Production and FDI equity inflows into telecommunication sector of India, as well as the study seeks to analyse the trend and pattern of foreign investment inflows in telecommunication sector economic growth of India. The time series data used in the study for period of analysis was 2000-01 to 2020-21. The study shows the tabular representations, line chart, regression, correlation and causality tests between the variables. The result shows there is a significant impact of FDI flows in telecommunication sector on Indian GDP.

Keywords: Foreign Direct Investment, gross domestic production, economic growth, telecommunications sectors.

1. INTRODUCTION:

Foreign Direct Investment (FDI) has emerged as a significant source of foreign capital flow and a major source of external finance for developing economies such as India. It consists of both inward and outward foreign direct investment. FDI is associated with globalisation, which can be defined as the opening of markets, the transfer of technology, capital, and people. Multilateralism is another important aspect of globalisation. It is obvious that the former cannot be effective without the latter. Multilateralism was one of the primary goals of international economic reforms.

India's telecommunications industry has become one of the world's fastest growing. The government's liberal and reformist policies, as well as strong consumer demand, have aided the Indian telecom sector's fast growth. It is also aided by a fair and proactive regulatory environment that ensures that users may obtain telecom services at reasonable pricing. As a consequence of the liberalisation of FDI rules, the industry has become an important contributor to India's economy and one of the top five job generators in the country.

India is presently the World's second biggest telecommunication market, with 1.2 billion subscribers, and has fast development over the period. As indicated by a report by the GSM Association (GSMA) in a joint effort with the Boston Consulting Group, India's versatile economy is expanding quickly and will make a critical commitment to the nation's Gross Domestic Product (GDP) (BCG). Application downloads in the nation expanded from 12.07 billion out of 2017 to 19 billion out of 2019 and is supposed to reach 37.21 billion by 2022F. FDI inflow in the telecom area was US\$ 37.97 billion for the time of April 2000 and June 2021.

2. LITERATURE REVIEW:

McKinsey Global Institute (2001) found that FDI had a much greater positive impact in sectors with higher competition in its study “India's Growth Imperative”. The abolition of FDI restrictions in the automotive industry fueled competition and investments, which resulted in significant increase in productivity transformed into a significant rise in output as a result of falling prices and employment both increased.

Wallsten, S. J. (2001) for the period 1984-1997, this study examines the impact of privatization, competition, and regulation on the telecom performance of 30 African and Latin American nations. A fixed-effects regression model was utilized by the researcher. It demonstrates that competition increases per-capita access to mainlines payphones and connection capacity, operational efficiency, and major advances in customer service a rise in the quality of telecom services and a reduction in the cost of local calls. The writer furthermore, it is discovered that privatization aids in enhancing telecom performance only if it is paired with efficient and self-contained regulations

16th Annual Report of **Videsh Sanchar Nigam Limited (VSNL) (2002)** India has chosen a gradual strategy to reshaping the telecommunications market, privatising and managing rivalry in several sectors of the telecom business. In 1992, India began allowing private competition in VAT facilities, as well as opening up local cellular and basic services to competitors. National Long Distance (NLD) and International Long Distance (ILD) competitions were also introduced at the start of the new decade (ILD).

Dutt and Sundram (2004) studied that new forms of communication are being implemented in different cities of the world in order to improve communication with enterprises. Mobile cell phones, radio paging, email and voice-mail are a boost to enterprise and industry. Video, text and video conferencing are also in service in several towns. Value-added high-tech facilities, Internet connectivity and the implementation of advanced digital services are launched in 70 separate locations in the world.

The research by **Sridhar, K. S., and Sridhar, V. (2004)** focuses on the relationship between telephone penetration and economic development in 68 developing countries from 1990 to 2001. Using the 3SLS equation, the study shows that main land line and mobile phone penetrations have significant influence on economic growth and national production.

Kottaridi is reporting (2005) that strong technology transfer relationships are formed between global corporations and local research bodies including government agencies and universities. However, the technology transformation would also have harmful results. This study indicates that participation in new technology growth is diminishing for local industries.

T. V. Ramachandran (2005) evaluated Indian Telecom Industry success focused on volumes and not margins. The Indian market is very susceptible to costs. Several socio-demographic trends have contributed to high GDP growth, increased wages, a thriving information market and increasing urbanisation. Three generation (3G) networks would be the vehicle for uniting these items and taking the motive revolution to the people.

Sinha, D. (2008) indicates that the rise of the service sector and the focus of FDI in the telecommunications industry are the main causes for the Indian economy's boom. The research spans the years 1991 through 2003. Foreign investment in telecommunications services has a number of advantages, including technology transfer, market access, improved voice and data quality, and organisational skills. According to the analysis, increasing the FDI restriction from 49 percent to 74 percent will enhance foreign investment in the Indian telecom industry by 20 percent in the following two years. When paired with strong and independent laws, FDI in telecommunications offers essential inputs to other productive activities, resulting in a rise in investment and competitiveness of an economy.

Hashim, S. (2009) evaluate the statistical significance of the factors influencing FDI inflows into Pakistan's telecom industry. The authors utilised regression analysis on quarterly data from 2000Q1 through 2006Q4 to accomplish this. Explanatory factors include market size, international trade, competitiveness, literacy rate, and per capita income. The Augmented Dicky Fuller test is used to determine the order of variable integration. However, due to the presence of serial correlation, the Error Correction Model (ECM) is used. Finally, the authors find that market size, international trade, competitiveness, literacy rate, and per capita income all have a significant beneficial influence on FDI flows into Pakistan's telecommunications industry.

Izuchukwu, O. O. (2010) The author examines the empirical link between foreign direct investment (FDI) and telecom industry growth in Nigeria from 2001 to 2008 using four proxy variables: number of subscribers, private investment, GDP, and technological value. The ordinary least squares approach was used in this investigation. Except for GDP, the data demonstrate that all other growth proxy indicators, such as the number of subscribers, private investment, and technology, have a substantial positive link with FDI.

Bhatnagar, V., Tomar, P. and Maheshwari, A. (2013) studied the relationship between FDI and EPS also PAT of highest capitalised five companies listed on Bombay Stock Exchange. The multiple regression analysis was used for the analysis. The result shows that FDI contributes in maximisation in PAT and EPS in telecom sector and indicating a positive relationship between FDI, PAT and EPS.

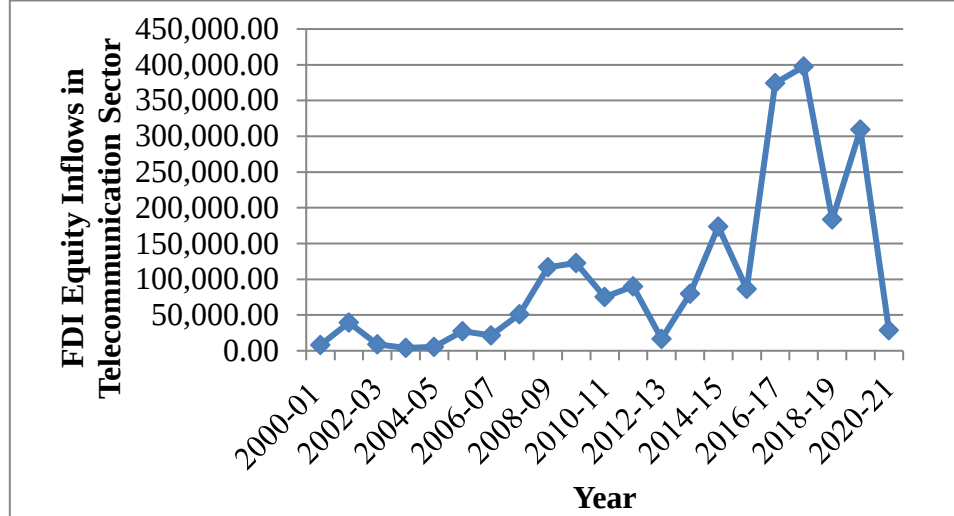
3. DATA AND METHODOLOGY:

This paper examines the flow of foreign direct investment into India's telecommunications industry and also growth of Gross Domestic Production of India and thereby studies the relationship between these two variables if any. To achieve the aforesaid objectives, the study employed tabular representations, line charts, regression and correlation analysis and causality tests. The necessary secondary data have been sourced from official website of World Bank, Department of Telecom (DOT) and Department of Promotion of Industry and Internal trade (DPIIT). The data are collected and analyzed from financial year 2000-01 to 2020-21 which consists of 21 years. Variables considered for this study are Gross Domestic Production and Foreign Direct Investment in telecommunication sectors in given periods. Further necessary assumption testing and data requirement are identified and reported such normality test for time series data. The data have been converted in natural logarithm to smoothen out the series.

4. EMPIRICAL ANALYSIS:

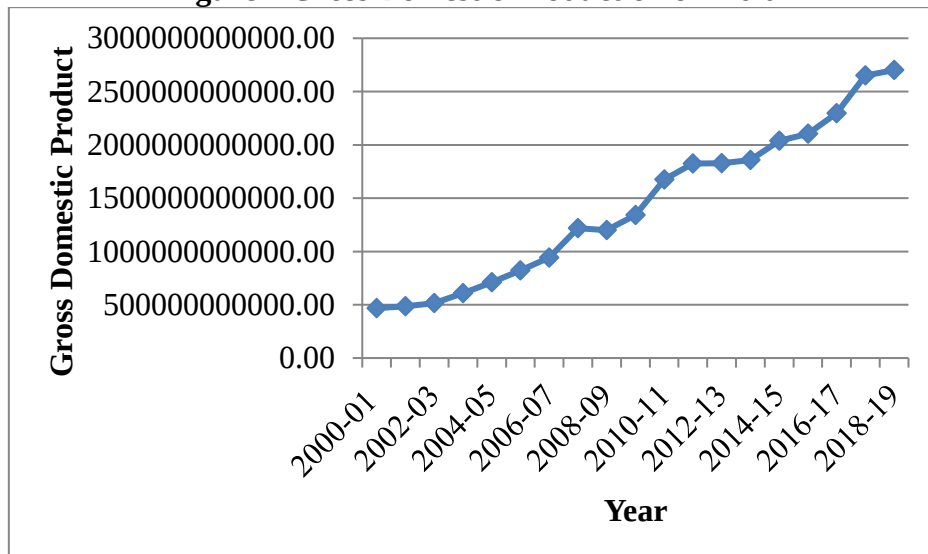
To achieve the above mentioned objective in the methodology section, the empirical analysis carried out on selected variables and necessary time series data analysis tools and techniques applied which are discussed in detail as follows:

Figure 1 Foreign Direct Investment in Telecommunication Sector in India



The above chart number 1 indicates the foreign direct investment held in last 21 years for Telecommunication sector in India. The line chart represents overall upward movement with lots of ups and downs. In initial years it has shown very less FDI flows and then it has started increasing from the year 2007-08 till 2010-11 then again it has shown downfall and then again rise exponentially. In recent years, FDI flows in telecommunication have decreased significantly.

Figure 2 Gross Domestic Production of India



The chart number 2 indicates gross domestic production of India since 2000-01 and it is showing positive trend and constantly increasing under the study period. There were slight downward movement seen in the year 2009-10 due to sub-prime mortgage crisis across the world and thereafter it has increased.

4.1. Normality Test:

Table 1 Normality Test for Time Series

Variable	GDP	FDI
Jarque Bera	7.463709	1.516815
Probability	0.023948	0.468412
Observations	21	21

Source: E-views Output

The table number 1 represents the normality test statistics for time series data used in this study. Jarque Bera is widely used statistics for time series normality testing where both variables' probability values are greater than 0.01 if we consider significance level at 1% and interpret that we fail to reject the null and interpret that data are not normally distributed. Further only FDI is normally distributed at 5% significance level.

4.2 CORRELATION AND REGRESSION ANALYSIS:

Table 2 Correlation Results

	LGDP	LFDI
LGDP	1	0.774495
LFDI	0.774495	1

Source: E-views Output

The table number 2 indicates correlation results for pair which is measuring the relationship between Gross Domestic Production and Foreign Direct Investments in telecommunication sector in India. Karl Pearson Correlation coefficient is 0.7745 which is high and indicates that there are high positive correlation between FDI in telecommunication sector in the country and GDP of India.

Table 3 Regression Statistics

Dependent Variable: LGDP				
Method: Least Squares				
Included observations: 21				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LFDI	0.344353	0.064524	5.336786	0
C	24.18314	0.705272	34.2891	0
R-squared	0.599842			
Adjusted R-squared	0.578781			
S.E. of regression	0.396727			

F-statistic	28.48128	
Prob. (F-statistic)	0.000038	
Durbin-Watson stat	0.938373	

Source: E-views Output

The table number 3 shows the regression results where dependent variable is taken as Gross Domestic Production in India and Ordinary Least Square method has been applied. Regression coefficient is statistically significant with intercept value as t value is high and probability values are 0.000 which is less than 0.05 so we reject the null and interpret that beta is different from zero. Thus beta for FDI is 0.344353 which indicates that 1% change in FDI flow will lead to 0.3443% changes in Gross Domestic Production of the country.

High F statistics indicates rejection of null hypothesis which can be seen from probability value which is less than 0.05 so we reject the null hypothesis and interpret that overall regression can be fit and significant. Further Adjusted R squared value indicates the variance explained by independent variable on dependent variable i.e. 57.88% means around 58% of variance explained by FDI in telecommunication sector in India on Gross Domestic Production of the country.

Unfortunately, Durbin Watson statistics indicates the presence of autocorrelation in the model and yes in this regression model, effect of positive autocorrelation is there as DW statistics is 0.9348 which is far away from standard value of 2.

4.3 GRANGER CAUSALITY TEST:

Table 4 Granger Causality Test Results

Null Hypothesis:	Obs.	F-Statistic	Prob.
LFDI does not Granger Cause LGDP	19	0.13089	0.8784
LGDP does not Granger Cause LFDI		2.50466	0.1175

Source: E-views Output

The above table number 4 indicates the granger causality test results for both selected variables. Both the F statistics values are very low and respective probability values are greater than 0.05 and even greater than 0.01 which means we fail to reject the null and interpret there FDI does not Granger cause GDP and GDP also does not Granger cause FDI. In other words, we can say that there is no directional causality between these two variables.

5. CONCLUSION:

The study aimed at identifying the flow of foreign direct investment into India's telecommunications industry and also growth of Gross Domestic Production of India and thereby studies the relationship between these two variables if any. To achieve the aforesaid objectives, the study employed tabular representations, line charts, regression and correlation analysis and causality tests. Variables considered for this study are Gross Domestic Production and Foreign Direct Investment in telecommunication sectors in given periods.

The study concludes that there is fluctuation observed in FDI flow in telecommunication sector in India while GDP is constantly increasing over a period of time. There is high positive correlation between FDI and GDP where regression analysis concludes that there is significant

impact of FDI flows in telecommunication sector on Indian GDP. Further study concludes that there is no directional causality which means GDP and FDI is no away causing each other.

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