AN EMPIRICAL ANALYSIS OF SPECIFIC DETERMINANTS OF FOREIGN DIRECT INVESTMENT IN THE INDIAN SERVICE SECTOR

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ABSTRACT

The prime objective of the paper is to examine the impact of specific determinants on Service Sector Foreign Direct Investment during the most recent 10 years i.e. 2006-07 to 2016-17. To achieve this objective of the research, multiple regression analysis is applied to find out the determinants which have the significant impact on Service Sector Foreign Direct Investment during study period. The research also compares the equity inflows of Foreign Direct Investment of Service sector with Construction and Development sector and Telecommunication sector in India. The result reveals that among specific determinants, Trade Openness, Trade Balance and Gross Domestic Products are the significant factors which are useful in prediction of FDI in Service sector.

Keywords: Foreign Direct Investment, Determinants, Service Sector, Construction and Development Sector and Telecommunication Sector.

INTRODUCTION

Foreign direct investment (FDI) is considered to be one of the important factors, which lead to the globalization of an economy. Foreign investment is increasingly moving towards the service sector. Many countries are affected by the rise of service sector in foreign investments and the broad based growth of service sector. The efficiency productivity and supply capacity of the industries of host countries can be enhanced either directly or indirectly through foreign investment in services. Most of the developing economies have opened their doors to foreign direct investment (FDI) in the recent years. The main reason behind this is to benefit from advanced production techniques and processes that accompany FDI. It is often argued that multinational enterprises (MNEs), through which majority of FDI is channelized, own firm-specific proprietary advantages like technical know-how, marketing and managerial skills, access to cheap raw materials, export markets etc.

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In this figure, trend is presented of Foreign Direct Investment from 2000-01 to 2016-17. In 2000-01, FDI inflows were 4029 million USD which reached to 48031 million USD in 2016-17. The highest growth was registered in the year 2006-07 when FDI increased from 8961 million USD to 22826 million USD with an annual growth rate of 154.73 per cent. The minimum growth was seen in the year 2011-12 when FDI was declined from 46556 million USD to 34298 million USD with a negative annual growth rate of 26.33 per cent. The negative growth rate was also recorded in 2016-17 when FDI declined from its peak i.e. 55457 million USD to 48031 million USD with a negative growth rate of 13.39 per cent.

Figure 2 depicts the share of the top countries in Foreign Direct Investment Equity Inflows in India. The Mauritius has the maximum share as its represent 39 per cent investment in the FDI of India followed by Singapore (22 per cent), Japan (13 per cent), Netherlands (8 per cent), USA (6 per cent) and U.K. (4 per cent) in the financial year 2016-17.
FOREIGN DIRECT INVESTMENT IN SERVICE SECTOR OF INDIA

The flow of FDI in Indian service sector is boosting the growth of Indian economy. This sector is contributing the large share in the growing GDP of India and attracting a significant portion of total FDI in Indian economy. In the contemporary Indian economy, service sector attracts the major share of Foreign Direct Investment (FDI) in the world. India being a part of this phenomenon also attracts most of its FDI in the service sector. The growth of FDI in services sector may be attributed to the changing pattern of Indian FDI. The high inflow of FDI has resulted in the growth of services sector.

Figure 3 describes the top sectors attracting highest Foreign Direct Investment Inflow in India for the year 2016-17. Service sector contributes the highest share in Foreign Direct Investment inflow (18 per cent) followed by construction development sector (7 per cent), Telecommunication (7 per cent), Computer Software (7 per cent), Automobile Industry (5 per cent), Drugs & Pharma (4 per cent), Trading (5 per cent), Chemical (4 per cent), Power (3 per cent) and Metallurgical Industries (3 per cent). Other Sector jointly contributes for 37 per cent of foreign direct investment equity inflows.

Figure 3 Share of Top sectors attracting highest Foreign Direct Investment Equity Inflow

REVIEW OF LITERATURE

Adhikary (2017) investigated the macroeconomic determinants of Foreign Direct Investment (FDI) for the top five South Asian economies (Bangladesh, India, Pakistan, Sri Lanka, and Nepal) to examine whether these factors are the same for each. This study employed fully modified ordinary least squares and two-stage least squares estimation methods. The result showed that South Asian economies have a number of FDI determinants in common such as market size and human capital are the two most common factors attracting FDI in each country (except for Nepal, which revealed a negative correlation between FDI and market size). Thakur & Burange (2016) studied productivity spillovers from foreign direct investment in the services sector of India. Using firm-level data for the period 2000–2010, horizontal and vertical spillovers were tested with the help of panel data fixed effects ‘within’ model. Spillovers across different industries of the services sector are also examined. It was inferred that horizontal spillovers positively affect total factor productivity of domestic firms in the services sector which is followed the
study of Barrios, Gorg & Strobl (2005). It can be observed from the analysis that the services sector has witnessed positive spillovers from horizontal channels during the underlying period. Elfakhani & Mackie (2015) identified the main drivers which can explain the relative success of BRIC countries (i.e. Brazil, Russia, India and China), collectively and individually, in attracting FDI. Three blocks of variables were examined i.e. economic, social and political variables through STATA statistical package and regression analysis. The result showed that the economic/financial variables block and social variables blocks contribute the most to FDI variations while political variables appear insignificant. Dixit & Sharma (2014) emphasized that on the implications of FDI in India specifically in services sector that distribution of FDI is uneven across sectors. The FDI Inflows to Service Sector has helped the development of several industries in the service sector of the Indian Economy, such as Tele Communication, Financial and Non-financial, Hotel & Tourism, and many others through related data. Bhasin (2014) identified the determinants of FDI in the services sector. The study examined the impact of GDP, GDP per capita, trade openness, FDI openness, and labour cost on FDI inflows for the period 1991-2010. He used ordinary least squares regression analysis. Using annual data for the period 1991 to 2010, he found that FDI inflows in the services sector in India are significantly determined by national income, GDP per capita, trade openness, Sumathy & Sridhar (2014) examined the Foreign Direct Investment (FDI) inflows in India and especially in service sector. They used time series data of FDI and GDP (Service Sector) for the period of study is from 2000 to 2014. The study estimated the relationship between FDI inflows and GDP in Service Sector by using correlation analysis and to measure the impact with regression analysis. The result showed that India is the one of most attracting developing country to receiving FDI Inflows. Service sector is getting highly attractive one. Saleena (2013) examined empirically the role of FDI on services export by using Granger Causality analysis and found that FDI has positively influenced the growth of services export in the Indian economy after the liberalization period. Lashmi & Kumar (2012) examined the Growth and Development of Service Sector. The Study showed the impact of Service Sector in Indian Economy and Economic policy over the period 1990-2012. They found that service sectors growth was fastest in communications, banking, hotels and restaurants, community services, trade and business services. Wong & Tang (2011) evaluated relationships among inward FDI and the host country's employment in manufacturing and services sectors and applied Autoregressive Distributed Lag (ARDL) framework to test the co-integration and causality patterns in Singapore. They found short-run causality showing strong FDI-employment and employment linkages, predominantly from the manufacturing to services. Rizvi & Nishant (2010) studied to undertake an empirical study regarding creation of employment opportunities by FDI in the continent of Asia during 1985-2008. The study consists of three Asian countries i.e., Pakistan, India and China. They used the panel data technique in order to overcome some econometric problems (i.e., autocorrelation in time series data and heteroscedasticity in cross-sectional data) from the data. They found that whatever other benefits may accrue from FDI it should not be expected to create employment opportunity in any of the three countries directly and enhancement policies must be supplemented by the other measure to stimulate employment growth. Kolstad & Villanger (2008) examined the host country determinants of FDI flows in services as a whole, and in the major service industries. The study used industry level foreign direct investment (FDI) data from 57 countries for the period from 1989 to 2000 and used estimated equations contain one to seven explanatory variables, including a time trend. They found that service sector is dominant in world foreign direct investment flows. They suggested that political economy variables may influence FDI flows in the service industries. Tomlin (2008) and Alfaro (2003) also provided a systematic examination of the FDI–exchange rate relationship with respect to services taking into account the degree of tradability across services. By using sensitivity analysis and correlation analysis they found that the manufacturing sector yet the service sector have been growing significantly over the last few decades. The study attempts to analyze the impact of specific determinants on FDI inflow in service sector which was uncovered area in the literature. This study is also different from earlier studies as it compares the FDI inflow in service sector with the FDI inflow in construction development sector and telecommunication sector.
OBJECTIVES AND HYPOTHESES OF THE STUDY

Objectives of the study
- To examine the relationship between specific determinants of foreign investment and inflow of foreign direct investment in service sector during study period.
- To compare the inflow of foreign direct investment in service sector and construction development sector during study period.
- To compare the inflow of foreign direct investment in service sector and telecommunication sector during study period.

Hypotheses of the study
- There is a significant impact of specific determinants on Inflow of Foreign Direct Investment in Indian Service Sector.
- There is a significant difference between the inflow of Foreign Direct Investment in Service Sector and Construction Development Sector of India.
- There is a significant difference between the inflow of Foreign Direct Investment in Service Sector and Telecommunication Sector of India.

RESEARCH METHODOLOGY

Sample Selection

In order to achieve first objective following variables are taken into consideration:

- **Service Sector FDI Equity Inflows**
  
  Service sector is the sector which attracts the highest Foreign Direct investment among all the sectors during study period. Service Sector accounts for 18 per cent of total Foreign Direct Investment equity inflows in India. In this study, Service Sector FDI is taken as dependent variable.

- **Gross domestic Product (GDP)**
  
  Gross Domestic Method (GDP) is the final value of the goods and services produced within the geographic boundaries of a country during a specified period of time, normally a year. Expenditure, Income and Output methods are used to compute the Gross Domestic Product. It also determined as market size of the economy. In this study Gross domestic product is taken as independent variables.

- **Trade openness**
  
  Trade openness is a measure of economic policies that either restrict or invite trade between countries. According to dominating economic theory, this restrictiveness, this lack of trade openness, will have an economic effect of slowing economic development/growth. Trade Openness is computed as sum of Export and Import to the ratio of GDP.

  \[
  \text{Trade openness} = \frac{E + I}{GDP}
  \]

  Where:
  
  \begin{align*}
  E &= \text{Export of goods and services from India} \\
  I &= \text{Import of goods and services to India} \\
  GDP &= \text{Gross Domestic Product of India}
  \end{align*}

  In this study, trade Openness is taken as independent variables.
Inflation Rate

Inflation is the percentage change in the value of the Wholesale Price Index (WPI) on a year-on-year basis. It effectively measures the change in the prices of a basket of goods and services in a year. Inflation occurs due to an imbalance between demand and supply of money, changes in production and distribution cost or increase in taxes on products. When economy experiences inflation, i.e. when the price level of goods and services rises, the value of currency reduces. In this study, Inflation rate is taken as independent variables.

Trade Balance

Trade Balance is called as Net Export which shows the trade relationship of a country with rest of the world in terms of buying and selling. It represents the difference between Export and Import of the country within a financial year. In this study, trade balance is taken as a predictor variable.

Sources of Data and Study Period

This study totally based on secondary data. Secondary data is mainly taken from reliable sources such as various reports and factsheets of Department of Industrial Policy Promotion (DIPP), Fact sheets of Reserve Bank of India and various government reports. The sources like magazines, journals, newspapers, articles, publications, books, Government sources, such as the business and professional associations, Media, including broadcast, print and Internet, Universities, Foundations are also taken into consideration. The study period is taken as most recent 10 years i.e. 2006-07 to 2016-17. This time frame reflects all the phases of economic cycle which pre-requisite to determine the performance of any sector.

TOOLS AND TECHNIQUES USED

Correlation matrix

A correlation matrix shows the interconnections between series of variables. It computes correlation coefficients between variables represented in the same sequence of rows and columns. Correlation matrix use to investigate the dependence between multiple variables at the same time. The correlation matrix is calculated through the sample variance of the data variables.

Multiple Regression analysis

Regression analysis is one of the most commonly used statistical techniques used in almost all Fields. Linear regression is the most basic type of regression and commonly used predictive analysis. Multiple regression estimates are used to explain the relationship between one dependent variable and multiple independent variables. The simplest form of the equation with one dependent and multiple independent variables are defined by the formula:

\[ Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \ldots + \beta_n X_n \]

Where
X indicates the independent variable,
Y indicates Dependent variable
(\(\alpha\)) And (\(\beta\)) be regression coefficients denote intercept and slope respectively.

Independent sample t-test

The Independent Samples t Test is a parametric test. It is an inferential statistical test that determines whether there is a statistically significant difference between the means in two unrelated groups. The Independent Samples t Test compares the means of two independent groups in order to determine whether there is statistical evidence that the
associated population means are significantly different. The Independent Samples \( t \) Test is commonly used to test the following:

- Statistical differences between the means of two groups
- Statistical differences between the means of two interventions
- Statistical differences between the means of two change scores.

**ANALYSIS AND INTERPRETATION**

This section starts with correlation matrix which shows the degree of relationship between the variables followed by testing of hypotheses.

Table-1 shows the correlation between multiple variable used in this paper such as Foreign Direct Investment, Gross Domestic Product, Service Sector FDI, Construction and Development sector FDI, Telecommunication sector FDI, Trade openness, Trade balance and Inflation rate. It can be observed from the table that there was a very high positive correlation found between FDI and GDP. It was also seen from the table that most of the correlations between the variable are found to be negative.

<table>
<thead>
<tr>
<th>FDI</th>
<th>GDP</th>
<th>SFDI</th>
<th>CFDI</th>
<th>TFDI</th>
<th>TRDOP</th>
<th>TB</th>
<th>IR</th>
</tr>
</thead>
<tbody>
<tr>
<td>FDI</td>
<td>Pearson Correlation</td>
<td>1</td>
<td>.906 (^*)</td>
<td>.709</td>
<td>- .465</td>
<td>.507</td>
<td>- .351</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>0.000</td>
<td>0.000</td>
<td>0.022</td>
<td>0.176</td>
<td>0.135</td>
<td>0.320</td>
<td>0.393</td>
</tr>
<tr>
<td>N</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
</tbody>
</table>

**Correlation is significant at the 0.01 level (2-tailed)**

**Correlation is significant at the 0.05 level (2-tailed)**

Table 1 Correlation Matrix
Testing of Hypothesis -1

➢ There is a significant impact of specific determinants on Inflow of Foreign Direct Investment in Indian Service Sector.

Table 2 Model Summary of Multiple Regression equation

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.948a</td>
<td>.899</td>
<td>.817</td>
<td>.07945</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), GDP, TRDOPNS, IR, TB

Model summary depicts the relationship between the dependent variable (SFDI) and independent variable (GDP, Trade openness, Inflation Rate and Trade Balance). The R value (.948) represents the multiple correlations between the dependent variable and independent variable which is found to be very high (.948) and positive correlation. The R square (.899) is also called as coefficient of multiple determination showed 89.9 per cent variations in the dependent variable (SFDI) is explained by independent variable The regression equation appears to be very useful for making predictions for growth of asset management companies since the value of $R^2$ are close to 1.

Table 3 ANOVA Analysis of the Model

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>Df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Regression</td>
<td>.280</td>
<td>4</td>
<td>.070</td>
<td>11.075</td>
</tr>
<tr>
<td></td>
<td>Residual</td>
<td>.032</td>
<td>5</td>
<td>.006</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>.311</td>
<td>9</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Dependent Variable: SFDI
b. Predictors: (Constant), GDP, TRDOPNS, IR, TB

The regression sum of squares shows the variability accounted for by the regression model, which is the fitting of the least-squares line. The residual sum of squares shoes the variability unaccounted for by the regression model. The table shows the p value (0.11) is less than 0.05 at 5 per cent level of significance, there exists enough evidence to conclude that the predictors are useful for predicting performance of Service sector FDI (SFDI) therefore the model us useful.

Table 4 Multiple Regression Analysis

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>T</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>(Constant)</td>
<td>21.205</td>
<td>3.730</td>
<td>5.685</td>
</tr>
<tr>
<td></td>
<td>TRDOPS</td>
<td>-.623</td>
<td>.122</td>
<td>-2.211</td>
</tr>
<tr>
<td></td>
<td>IR</td>
<td>-.627</td>
<td>.157</td>
<td>-.766</td>
</tr>
<tr>
<td></td>
<td>TB</td>
<td>-2.116E-007</td>
<td>.000</td>
<td>-2.441</td>
</tr>
<tr>
<td></td>
<td>GDP</td>
<td>-2.236</td>
<td>.514</td>
<td>-1.938</td>
</tr>
</tbody>
</table>

a. Dependent Variable: SFDI

Table examined the inferential statistics and hypothesis testing through multiple regression technique. It determines the regression coefficient i.e. intercept and slope. The intercept value (21.205) can be interpreted as the value of dependent variable value when independent value is zero. It is also called as constant value denote by alpha ($\alpha$). The slope coefficients show the value -0.623 for Trade openness, -0.627 for inflation rate, -0.000 for Trade balance and -2.236 for GDP. It shows the rate of change in dependent variable in respect of independent variable. The regression equation can be estimated as-

$$SFDI = 21.205 - 0.623 \times TRDOPS - 0.627 \times IR - 0.00 \times TB - 2.236 \times GDP$$
It can be observed from the result that Trade openness, Trade Balance and Gross Domestic Product are the significant determinants for predicting Service sector Foreign Direct Investment as their p value is less than 0.05 and Inflation rate is found to be an insignificant factor.

**Testing of Hypothesis-2**

- There is a significant difference between the inflow of Foreign Direct Investment in Service Sector and Construction Development Sector of India.

<table>
<thead>
<tr>
<th>Table 5 Group Statistics of Independent sample t-test between SFDI and CFDI</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Group</strong></td>
</tr>
<tr>
<td>-----------</td>
</tr>
<tr>
<td><strong>Service Sector</strong></td>
</tr>
<tr>
<td><strong>Construction</strong></td>
</tr>
</tbody>
</table>

This table shows the group statistics of the sample. The period of the test is ten year. The mean Service Sector FDI is 27352.17 million USD and the mean of the Construction and Development Sector FDI is 7003.47 million USD in the study period. The higher mean growth rate of Service sector FDI shows the better performance as compared to Construction and Development sector FDI.

<table>
<thead>
<tr>
<th>Table 7 Independent Samples Test of SFDI and CFDI</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Levene’s Test for Equality of Variances</strong></td>
</tr>
<tr>
<td>F</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td><strong>FDI</strong></td>
</tr>
<tr>
<td>Equal variances not assumed</td>
</tr>
</tbody>
</table>

The result of Independent sample t test is exhibited in the table. The significance p value of Levene’s test signifies the assumption of equal variance for t test. If the p value is greater than 0.05, the result for equal variance is taken into consideration, if the p value is less than 0.05, result of equal variance is not assumed, is taken into consideration. In this table, on the basis of Levene’s test, equal variance assumed as the p value is 0.06 which is greater than the critical value 0.05. The significance p value is 0.000 (two tails) which is lower than the value 0.05, shows the rejection of null hypothesis and acceptance of alternate hypothesis. The result indicates that there is a difference between Service sector FDI equity inflows and Construction and Development sector FDI.

**Testing of Hypothesis-3**

- There is a significant difference between the inflow of Foreign Direct Investment in Service Sector and Telecommunication Sector of India.

<table>
<thead>
<tr>
<th>Table 8 Group Statistics of Independent sample t-test between SFDI and TFDI</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Group</strong></td>
</tr>
<tr>
<td>-----------</td>
</tr>
<tr>
<td><strong>Service Sector</strong></td>
</tr>
<tr>
<td><strong>Telecommunication</strong></td>
</tr>
</tbody>
</table>
This table shows the group statistics of the sample. The mean Service Sector FDI is 27352.17 million USD and the mean of the Telecommunication Sector FDI is 12155.58 million USD during the study period. The higher mean growth rate of Service sector FDI shows the better performance as compared to Telecommunication sector FDI.

| Table: 4.10 Independent Samples Test of SFDI and TFDI |
|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
|                  | Levene’s Test for Equality of Variances | t-test for Equality of Means |
|                  | F    | Sig.  | T    | Df  | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference | Confidence of the |
|                  |      |       |      |     |                |                  |                          | Lower | Upper  |
| FDI              |      |       |      |     |                |                  |                          |       |        |
| Equal variances assumed | .681 | .420  | 3.15 | 18 | .005          | 15196.63         | 4813.12                      | 5084.62 | 25308.64 |
| Equal variances not assumed | 3.15 | 17.0  | 5   | .006 | 15196.63    | 4813.12          | 5044.23                      | 25349.03 |

This table represent the result of independent sample t-test between Service Sector FDI equity inflows and Telecommunication sector FDI equity inflows. In this table, on the basis of Levene’s test, equal variance assumed as the p value is 0.42 which is greater than the critical value 0.05. The significance p value is 0.005 (two tails) which is lower than the value 0.05, shows the rejection of null hypothesis and acceptance of alternate hypothesis. The result indicates that there is a difference between Service sector FDI equity inflows and Telecommunication Sector FDI.

CONCLUSION

In this research paper, an attempt has been made to analyze the impact of specific determinants on foreign direct investment of service sector in India for the most recent ten years i.e. 2006-07 to 2016-17. Multiple regression techniques is reveals that Trade openness, trade balance and Gross domestic product are found to be significant factors which have considerable impact on equity inflows of foreign direct investment in service sector whereas inflation rate is found to be an insignificant factor during study period. The study also compares the equity inflow of Service sector FDI (most attractive sector for FDI, contributes for 18 per cent of FDI) with construction and Development sector (Second place) and Telecommunication sector (third place). The result of independent sample t test revealed that mean of service sector FDI equity inflow is significantly different from mean of Construction and Development sector and Telecommunication sector. The result also implies that service sector enjoys the leading destination for the foreign investors in last decade as compare to other sector.

REFERENCES


