IMPACT OF FOREIGN DIRECT INVESTMENT ON EMPLOYMENT AND GROSS DOMESTIC PRODUCT IN INDIA
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Abstract
A substantial amount of development has been observed in the inflows of Foreign Direct Investment (FDI) in India over the last two decades. The extraordinary growth of FDI in 1990 around the world has made it an essential constituent of development strategy for both, developed and developing countries. However, the most profound effect has been observed in developing nations. Macroeconomists have performed various studies in order to prove that FDI plays an important role in generating employment and improving the economic development, in other words, increasing the level of gross domestic product (GDP) of host countries. A multiple-regression model will be used intensely in order to analyse whether FDI has an impact on the employment and GDP in India.

Introduction
The definition of FDI is not only limited to a simple transfer of money, but has now extended to being defined as a measure of foreign ownership of domestic productive assets such as factories, land and organizations and other intangible assets like technologies, marketing skills and managerial capabilities.

Economic literature has been dominated by FDI over the last 30 years, especially the developmental areas of economics due to the highly receivable potential benefits of a host country. The effects experienced spread over a wide range, from influencing production, generation of employment, change in income levels, import and exports, impact on economic growth, balance of payments and general welfare of the host country.

FDI was found to have emerged in India since the British rule but its presence was considered negligible. It was natural for India to consider foreign capital as one of fear and suspicion as the British played an exploitative role by ‘draining away’ resources from the country. Gradually, as India achieved independence, it became necessary for FDI to become a part of her national interest. FDI has observed to portray a different trend in India since 1991 as finally the national economy was opened to global trade. There has been an evident increase in the inflows of FDI in India which continued to rise to peaks till 2008. According to various studies, currently India is among the top 5 preferred destinations for FDI. (Ansari and Ranga, 2010)

There have been many arguments stating that inflows of FDI improves the economic growth, and consequently enhances employment opportunities. FDI provides technological advances (increasing GDP) and widens the scope for the domestic market (increasing employment). With the help of the regression tool, a multiple-regression analysis will be carried out in order to confirm the above statement and if not true then to study to what extent the employment and GDP are affected by FDI in India.

Objective
The objective of this study is to understand whether the creation of employment opportunities and an improvement in the GDP is dependent on the inflows of FDI in India. The conclusions of this study will help in understanding the involvement of FDI in increasing the GDP and improving employment opportunities in the country. This could also help in policy making for the currently tabled nation-wide debate on FDI laws in India, to form an effective policy to boost employment and growth opportunities.
Literature Review

Hooda (2011) through her study of FDI and Indian economy concluded that her results obtained from the Economic Growth Model and Foreign Direct Investment Model show that FDI enhances the financial position of India by providing a sound base for economic growth and development of the country. FDI not only contributes to the GDP but also to the foreign exchange reserves of the country.

In contrast to this, Rizvi and Nishat (2009) concluded their study of the impact of FDI on employment opportunities in India, China and Pakistan, by stating that it would not suffice to expect FDI to create a direct impact on employment opportunities in the above mentioned countries. They also suggest that in addition to FDI enhancement policies, other measures to boost employment growth should be generated.

However, another research performed by Craigwell (2006) on the Caribbean region whose empirical results suggested that an increase in FDI leads to the generation of increased employment. Even though there were significant gaps in the data of employment, the obtained results were supported by the evaluation of the conventional facts on FDI inflows over the past three decades. It is estimated that FDI has the greatest impact in the first year which is enhanced after the consideration of trade policies, absorption and financial development, implying that in a healthy and unwavering economic environment better returns of foreign investments are generated.

Adewumi (2006) conducted a study of the impact of FDI on growth in developing countries. Although his study was based on Africa, it can be extended to developing countries in general. His regression analysis led to the conclusion that the involvement of FDI with growth is estimated to be positive. However, he also argues that some selective countries do not show a positive contribution of FDI to growth because some impacts of the FDI in the host country like technology, knowledge acquisition, international image, etc cannot be measured quantitatively and may take a substantial amount of time to have an effect on growth.

A research carried out by Alfaro (2003) also analyzed the impact of FDI on growth, but in different sectors of the economy, namely primary, manufacturing and service. The study resulted in FDI having a negative impact on growth for the primary sector, which can be justified that industries like agriculture and mining have minimal scope for the host country. On the other hand, the manufacturing sector showed a positive result, implying that FDI does increase the GDP of host countries with respect to industries under this sector. Theoretically, the advantages of FDI seem to be more inclined towards the industrial sector. The results of this study show a positive but insignificant impact of FDI on growth which is regarded as an ambiguous effect. It may not be necessary that FDI is always beneficial to host economies as it is highly dependent on the economic nature of the country, hence attracting different forms of FDI flows into each sector distinctively.

According to the empirical study of Jayaraman and Singh (2007), the relationship between FDI and growth of Fiji was investigated through a multivariate modelling strategy. The ADF test showed results that all the variables, real GDP, real FDI inflows and employment were of order one. The bounds testing approach to cointegration depicted two cointegration relationships among the variables when the endogenous variables were formal sector employment and GDP. Based on this, the ARDL estimator showed that both FDI and GDP have a statistically positive and significant impact on the employment of Fiji. The Granger causality testing procedure was carried out which found a unidirectional causality running from FDI to GDP in the short run and a unidirectional causality running from FDI to employment in the long run. The study recommended that apart from continuing its current proactive policies to attract FDI inflows, Fiji should also retain these inflows by maintaining an appropriate political environment which includes political stability.
Data Set and Sample Period

The data for the multiple-regression model on FDI, employment and GDP will be obtained on an annual based frequency from the year 1970 to 2007, a total of 38 data points. The data collected will be secondary in nature and would be taken from the database of the Reserve Bank of India and the World Bank.

The sample period from 1970 to 2007 is taken into consideration due to the negligible existence of FDI in the pre 1991 phase of India and in view of liberalization brought in thereafter. The sample period has been limited only to 2007 due to the unavailability of data for employment and FDI for the next few years up to 2011. Data will be analysed on a yearly based frequency as GDP and employment are easier to analyze and would help to produce an accurate result of the impact of FDI inflows on employment and GDP in India through the regression analysis.

Methodology

The multiple-regression method will be used with the help of the SPSS software to empirically analyse the correlation of the data sets of FDI, employment and GDP.

In this study, four regression equations will be required. First, the impact FDI has on the GDP of India. Second, the impact FDI has on the employment generated in the public sector. Third, the impact FDI has on the employment in the private sector and lastly the impact of FDI on the total employment of the country.

The regression equations are:

\[ \log(GDP_i) = \alpha_1 + \beta_1 \log(FDI_i) + \mu_i \] (1)

Where,

- \( GDP_i \) = Gross Domestic Product of India
- \( \alpha_1 \) = The intercept for equation 1
- \( \beta_1 \) = Slope coefficient of Foreign Direct Investment
- \( \mu_i \) = Error term for equation 1

\[ \log(PUB_i) = \alpha_2 + \beta_2 \log(FDI_i) + \nu_i \] (2)

Where,

- \( PUB_i \) = Employment in the public sector
- \( \alpha_2 \) = The intercept for equation 2
- \( \beta_2 \) = Slope coefficient of Foreign Direct Investment
- \( \nu_i \) = Error term for equation 2

\[ \log(PRIL_i) = \alpha_3 + \beta_3 \log(FDI_i) + \omega_i \] (3)

Where,

- \( PRIL_i \) = Employment in the private sector
- \( \alpha_3 \) = The intercept for equation 3
- \( \beta_3 \) = Slope coefficient of Foreign Direct Investment
- \( \omega_i \) = Error term for equation 3

\[ \log(EMP_i) = \alpha_4 + \beta_4 \log(FDI_i) + \zeta_i \] (4)

Where,

- \( EMP_i \) = Total Employment of India
- \( \alpha_4 \) = The intercept for equation 4
$FDI_t$ = Foreign Direct Investment in India  
$\beta_4$ = Slope coefficient of Foreign Direct Investment  
$z_t$ = Error term for equation 4

Note: The significance level will be taken as 5% in this study.

**Hypothesis**
A null and alternative hypothesis will be taken for all the above mentioned regression equations, once the significance of each equation has been checked.

Equation 1
Null Hypothesis $H_0: \beta_1 = 0$ (implying that Foreign Direct Investment does not have a statistically significant impact on Gross Domestic Product)  
Alternate Hypothesis $H_a: \beta_1 \neq 0$ (implying that Foreign Direct Investment has a statistically significant impact on Gross Domestic Product)

Equation 2
Null Hypothesis $H_0: \beta_2 = 0$ (implying that Foreign Direct Investment does not have a statistical impact on Employment in the public sector)  
Alternative Hypothesis $H_a: \beta_2 \neq 0$ (implying that Foreign Direct Investment has a statistical impact on Employment in the public sector)

Equation 3
Null Hypothesis $H_0: \beta_3 = 0$ (implying that Foreign Direct Investment does not have a statistical impact on Employment in the private sector)  
Alternative Hypothesis $H_a: \beta_3 \neq 0$ (implying that Foreign Direct Investment has a statistical impact on Employment in the private sector)

Equation 4
Null Hypothesis $H_0: \beta_4 = 0$ (implying that Foreign Direct Investment does not have a statistical impact on Total Employment)  
Alternative Hypothesis $H_a: \beta_4 \neq 0$ (implying that Foreign Direct Investment has a statistical impact on Total Employment)

**Results**

**Descriptive Statistics**
The descriptive statistics table below shows the summary of the variables used in the regression equations.
### Descriptive Statistics

<table>
<thead>
<tr>
<th></th>
<th>FDI</th>
<th>GDP</th>
<th>PUB</th>
<th>PRI</th>
<th>EMP</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mean</strong></td>
<td>2.501175</td>
<td>6.01653</td>
<td>1.227563</td>
<td>0.889848</td>
<td>1.392317</td>
</tr>
<tr>
<td><strong>Standard Error</strong></td>
<td>0.158873</td>
<td>0.040149</td>
<td>0.011314</td>
<td>0.006935</td>
<td>0.009418</td>
</tr>
<tr>
<td><strong>Standard Deviation</strong></td>
<td>0.979362</td>
<td>0.247498</td>
<td>0.069747</td>
<td>0.042747</td>
<td>0.058056</td>
</tr>
<tr>
<td><strong>Sample Variance</strong></td>
<td>0.95915</td>
<td>0.061255</td>
<td>0.004865</td>
<td>0.001827</td>
<td>0.00337</td>
</tr>
<tr>
<td><strong>Kurtosis</strong></td>
<td>-1.1192</td>
<td>-1.10601</td>
<td>0.412758</td>
<td>-0.65811</td>
<td>-0.10918</td>
</tr>
<tr>
<td><strong>Skewness</strong></td>
<td>0.337158</td>
<td>0.298262</td>
<td>-1.22267</td>
<td>0.369964</td>
<td>-1.04315</td>
</tr>
<tr>
<td><strong>Range</strong></td>
<td>3.646681</td>
<td>0.819607</td>
<td>0.246046</td>
<td>0.165626</td>
<td>0.199867</td>
</tr>
<tr>
<td><strong>Minimum</strong></td>
<td>0.751279</td>
<td>5.675898</td>
<td>1.045323</td>
<td>0.827369</td>
<td>1.251151</td>
</tr>
<tr>
<td><strong>Maximum</strong></td>
<td>4.39796</td>
<td>6.495505</td>
<td>1.291369</td>
<td>0.992995</td>
<td>1.451018</td>
</tr>
<tr>
<td><strong>Sum</strong></td>
<td>95.04465</td>
<td>228.6282</td>
<td>46.64739</td>
<td>33.81422</td>
<td>52.90806</td>
</tr>
<tr>
<td><strong>Count</strong></td>
<td>38</td>
<td>38</td>
<td>38</td>
<td>38</td>
<td>38</td>
</tr>
</tbody>
</table>

**Kurtosis Analysis**

Kurtosis is defined as a statistical measure which is used to describe the distribution of observed data around the mean. The kurtosis values for Foreign Direct Investment, Gross Domestic Product, Private sector employment and Total Employment is observed to be negative. This indicates a low kurtosis implying that the distribution of the above mentioned variables is concentrated towards the mean and a chart with skinny tails. In comparison to the others, the only variable that has a positive kurtosis value is Public sector employment. This indicates a high kurtosis portraying that the variable has a low and even distribution and a chart with fat tails.

**Skewness Analysis**

Skewness is defined as an asymmetry from the normal distribution in a given set of statistical data. It can be negative or positive depending on whether the data points are skewed to the left (negative) or skewed to the right (positive) of the mean of the distribution. It can be observed from the table that the Public sector employment and the Total Employment are negatively skewed implying that it can be estimated that the future data points of the two variables will be less than the mean. The variables Foreign Direct Investment, Gross Domestic Product and Private sector employment show a positive skewness indicating that estimation can be made of the future data points of these variables will be more than the mean.
Regression Equations

SPSS Output for Equation 1

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>T - statistic</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>5.427</td>
<td>.041</td>
<td>133.524</td>
</tr>
<tr>
<td>logFDI</td>
<td>.236</td>
<td>.015</td>
<td>15.556</td>
</tr>
</tbody>
</table>

Dependent variable: logGDP

R Square  .870  F – statistic  241.974
Adjusted R Square .867  Sig. .000

The above obtained results show that the model is a relatively good one having 86.7% (Adjusted R²) of the data being explained by the regression equation. Since the result shows that the f – statistic is within the significance level of 5%, the null hypothesis is rejected and the alternate hypothesis is accepted. This means that Foreign Direct Investment does have a significant impact on dependent variable Gross Domestic Product.

Hypothesis Results for Equation 1:
Null Hypothesis for β₁ is rejected as the slope of the coefficient is significantly different from 0 and has a value of .236 which is observed to be completely significant. A 23.6% increase in Gross Domestic Product is caused by a 1% increase in Foreign Direct Investment.

SPSS Output for Equation 2

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>T - statistic</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>1.122</td>
<td>.026</td>
<td>43.479</td>
</tr>
<tr>
<td>logFDI</td>
<td>.042</td>
<td>.010</td>
<td>4.403</td>
</tr>
</tbody>
</table>

Dependent variable: logPUB

R Square  .350  F – statistic  19.388
Adjusted R Square .332  Sig. .000

The above obtained results show that the model is a relatively weak one having 33.2% (Adjusted R²) of the data being explained by the regression equation. This is because only the employment in the public sector is taken into consideration. The result of the f – statistic shows that the model is within the significance level of 5%, hence, the null hypothesis is rejected and the alternate hypothesis is accepted. This means that Foreign Direct Investment does have a significant impact on dependent variable Employment in the public sector.

Hypothesis Results for Equation 2:
Null Hypothesis for β₂ is rejected as the slope of the coefficient is significantly different from 0 and has a value of .042 which is observed to be completely significant. A 4.2% increase in Employment in the public sector is caused by a 1% increase in Foreign Direct Investment.
SPSS Output for Equation 3

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>T - statistic</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>.789</td>
<td>.008</td>
<td>100.189</td>
</tr>
<tr>
<td>logFDI</td>
<td>.040</td>
<td>.003</td>
<td>13.752</td>
</tr>
</tbody>
</table>

Dependent variable: logPRI

R Square  .840  F – statistic  189.115
Adjusted R Square  .836  Sig.  .000

The above attained results show that the model is a relatively good one having 83.6% (Adjusted R²) of the data being explained by the regression equation. The F statistic result shows that the model is within the significance level of 5% implying that the null hypothesis is rejected and the alternate hypothesis is accepted. This means that Foreign Direct Investment does have a significant impact on dependent variable Employment in the private sector.

Hypothesis Results for Equation 3:
Null Hypothesis for β₃ is rejected as the slope of the coefficient is significantly different from 0 and has a value of .040 which is completely significant. A 4% increase in Employment in the private sector is caused by a 1% increase in Foreign Direct Investment.

SPSS Output for Equation 4

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>T - statistic</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>1.290</td>
<td>.019</td>
<td>67.422</td>
</tr>
<tr>
<td>logFDI</td>
<td>.041</td>
<td>.007</td>
<td>5.748</td>
</tr>
</tbody>
</table>

Dependent variable: logEMP

R Square  .479  F – statistic  33.042
Adjusted R Square  .464  Sig.  .000

The above acquired results show that the model is a relatively weak one having 46.4% (Adjusted R²) of the data being explained by the regression equation. The F statistic results show that the model is within the significance level of 5%, hence, rejecting the null hypothesis and accepting the alternate hypothesis. This means that Foreign Direct Investment does have a significant impact on dependent variable Total Employment.

Hypothesis Results for Equation 4:
Null Hypothesis for β₄ is rejected as the slope of the coefficient is significantly different from 0 and has a value of .041 which is observed to be completely significant. A 4.1% increase in Total Employment is caused by a 1% increase in Foreign Direct Investment.
**Interpretation of Results**

is noted that all the regression equations fall under the significance level of 5% making them statistically significant.

After viewing the models statistically, it can be inferred that Foreign Direct Investment inflows have the maximum impact on the Gross Domestic Product of India. The country is estimated experience a growth of 23.6% with a 1% increase in the inflows of Foreign Domestic Investment.

The results obtained on the impact of Foreign Direct Investment on the public, private and total employment are not very satisfactory. There is negligible amount of employment generated in both, the public and the private sector, even though there is a large amount of FDI inflows in the economy. The total employment levels have also increased only by about 4.1% which is not adequate overall development of the country. This accounts for ‘jobless growth’ of the country. Even though the economy is growing, there is no improvement in the levels of employment, hence no increase in the per capita income.

Majority of FDI inflows are found in the services sector and a little less than that in the manufacturing sector. Since almost 70% of India is engaged in agricultural farming, there is hardly an improvement in the levels of employment generation by FDI, resulting in ‘jobless growth’. In fact, inflows of FDI also generate some amount of unemployment in the country. When investment is made in the manufacturing sector it is usually done with respect to better technology and operating systems. Introduction to new machinery reduces the amount of manual work required leading to labourers being unemployed. For employment in the services sector, the individual needs to have decently good educational qualifications which limits the opportunity for employment as the literacy rate in India is not at its peak.

Foreign companies usually prefer investing in states which have higher number of educational institutions, as they look for employees with good educational qualifications. There is negligible amount of investment in districts and towns of the country where majority of the population resides. Unemployment tends to reduce the per capita income, eventually giving rise to poverty in the country.

**Conclusion**

The multiple-regression analysis is showed a positive relationship between FDI and GDP but not necessarily between FDI and employment. The Indian economy mainly comprises of three sectors: Primary/Agricultural sector, Secondary/Industrial sector and Tertiary/Service sector. Majority of companies dealing with FDI are a part of the service and industrial sector, thus enhancing economic growth and generating some amount of employment in the country. India is an agricultural country and since there is barely much involvement of FDI in the primary sector, employment is not expected to increase substantially resulting in the economy growing without any significant improvement. Reduction of unemployment and increasing the level of GDP are some of the major macroeconomic goals of the government. Thus, the government should concentrate on other measures besides FDI to increase employment opportunities and enhance economic growth of the country.
Referencing

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