FOREIGN DIRECT INVESTMENT AND INDIAN ECONOMY

Dr. RAJESH DOGRA

ABSTRACT

Foreign capital played an important role in the early stages of industrialization of most of the advanced countries of today, like the countries of Europe (including the Russia) and North America. Though the problems of development of developing countries of today are not very much similar to those faced by the advanced countries in the past, there is a general view that foreign capital, if properly directed and utilized, can assist the development of the developing countries. Economic growth is a function of, among other things, capital formation. In the developing countries, the per capita income and savings rate being very low, domestic capital formation is inadequate to give a 'big push' to the economy to take it to the 'take-off stage. Hence the domestic resources may be supplemented with foreign capital to achieve the critical minimum investment to break the vicious circle of "low-income-low savings-low investment-low income."Another way by which foreign capital helps accelerate the pace of economic growth is by facilitating essential imports required for carrying out development programmes, like capital goods, know-how, raw materials and other inputs and even consumer goods. The machinery, the know-how, and other inputs needed may not be indigenously available; further, the demand spurt created by large-scale investments may necessitate import of consumer goods. Capital is stated as the engine of economic growth. This statement has gained more importance in the recent times.

Key words: FDI, FPI, GDP, GNP, OECD, SIA, UNCTAD, WTO.

OBJECTIVES OF THE STUDY:

The objective of the present study is to address the aforesaid issues in foreign direct investment in India. More specifically, the present study is conducted to achieve the following objectives:

1. To identify the major determinants of FDI flows to a country
2. To study the impact of determinants on Indian economy.

RESEARCH METHODOLOGY

In order to achieve the objectives of the study secondary data have been used. The prime source of secondary data include SIA Newsletter, DIPP, GOI, UNCTAD-World Investment Reports, World Development Reports, Human Development Reports, Reserve Bank of India Bulletins, FICCI Survey Reports, CII Survey reports, etc. Internet has also remained as an important source of secondary data .The reference period for the purpose of

***Professor, Govt. College Talwara, Punjab**

analyzing trends of FDI flows into India is primarily from August 1991 to December 2013. However, for analyzing global scenario of FDI according to region/economy, the data from 1991 through 2013 have been considered. Further, the reference period concerning determinants of FDI in developing countries is set in from 1991-2013.

DATA ANALYSIS

The collected data was arranged in the form of tables so that meaningful inferences could be drawn out of the collected data. The analysis was carried out by making use of both simple and advanced statistical tools including graphs, index members, multiple graphs, index numbers, percentages multiple regression analysis, correlation and t-test.

We analyzed the secondary data with the help of percentages, Index numbers and t-test. In order to achieve our objective of identifying the factors having influence on inward flow of FDI, we have taken a large sample size comprising of 50 countries.

TABLE 1.1

Expected Sign of Partial Regression Coefficients in Regression Analysis

S.No.	Variables (Abbreviation)	Expected sign.
1.	GDP per capita (GDPPC)	Positive
2.	GDP growth (GDPGR)	Positive
3.	Power consumption per capita (POWCOM)	Positive
4.	Export as a percentage of GDP (EXPGDP)	Positive
5.	External debt as a percentage to exports (EXDET)	Negative
6.	Adult Literacy (ADLIT %)	Positive
7.	Inflation rate (Inflation %)	Negative
8.	Secondary grade enrolment for females (SECEDFEM)	Positive

Considering per capita FDI as the dependent variable processes the data. SPSS software is applied to process the data pertaining to this study. The significance of regression effect is tested by computing the F-test statistic (ANOVA). In order to examine whether the cross-country data suffers from the problem of auto- correlation, Durbin Watson test is applied.

The independent variables considered for this study have been decided after reviewing the existing studies on the subject. These variables are briefly explained below:

Dependent variables; as stated earlier, Per-Capita FDI inflows are taken as dependent variable. The FDI inflows have been measured in millions of US dollar for each country and divided by the population in the beginning of the respective year for determining per capita FDI.

Independent variables: per capita GDP: While the first independent variable, per capita GDP in purchasing power parity terms shows the level of economic development

of a market and purchasing power of the people.

GDP growth rate: The second variable (GDP growth rate) represents the growth in markets of the host country.

Per capita power consumption (POWCOM): Per capita power consumption (POWCOM) is an independent variable considered as an indicator of the level of infrastructure development in the host country.

Exports as a percentage of GDP (EXPGDP): Exports as a percentage of GDP (EXPGDP) is a ratio between the export of a particular year and GDP of the same year. This variable is considered because it is representative of openness of the economy and the level of liberalization in the economy in terms of international trade and foreign transactions.

External debt as a percentage of Exports (EXDET): External debt as a percentage of Exports (EXDET) is the ratio of the amount of outstanding external debt of a country at the end of a particular year and the exports of that year. It is a variable that represents the debt burden of the country. Actually, this ratio may be revealed the pressure on the foreign exchange reserves.

Inflation level: As the inflation level of a particular country can influence the prices of inputs of production in the host country, this variable has been considered in this study. In fact unduly high inflation may affect the FDI inflows adversely.

Adult Literacy Rate (ADLIT): Adult Literacy Rate (ADLIT) refers to the literacy ratio among the adult population of the host country. This ratio is an indicator of the availability of skilled manpower in the host country.

Literacy rates of 1990, 1995 and 2000 have been considered for first, second and third data sets respectively.

Secondary School Enrolment for Females (SECEDFEM): Secondary School Enrolment for Females (SECEDFEM) is another independent variable considered in the present study. According to Human Development Report, the variable represents the percentage of girls, aged between 11 to 17, who are enrolled into secondary grade education.The assumption taken while selecting this variable is that higher the percentage of female education in a country, higher will be the potential for development in that country. This variable is also considered as an indicator of skilled labour supply and signal FDI attractiveness of a country.

Besides above, there are other variables, which are important determinants of FDI. Some of them include political risk, legal issues, corruption level, tariffs level, rail, road, and I.T. infrastructure. Due to the non-availability of the data on these variables for each year and each country, they were not considered for the application of regression model.

DATABASE AND METHODOLOGY

In order to achieve our objective of identifying the factors having influence on inward flow of FDI, we have taken a large sample size comprising of 50 countries. All the selected countries belong to the category of developing economies, as per the classification given in the World Investment Reports, 1991 - 2013. With a view to make the study useful and

interesting, the reference period has been taken 1991 to 2013. It also needs mention that the sample includes only those countries which could attract an average annual inward FDI of US $ 80 million during the period 1991 to 2013.

To determine the factors influencing FDI inward flows, the use has been made of the following step-wise multiple regression (backward elimination) equation:

$y = a + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + b_5x_5 + b_6x_6 + b_7x_7 + b_8x_8 + u$

In this equation, y is the dependent variable, x_1 to x_8 are independent variables, a is constant, b_1 are regression coefficients for various variables and u = error term. The independent variables include: x_1 + per capita GDP; x_2 = GDP growth, x_3 = power consumption per capita; x_4 = exports as percentage of GDP; x_5 = external debt as percentage to exports; x_6 = adult literacy; x_7 = inflation rate, x_8 = secondary grade enrolment of females. The data on both dependent and independent variables have been collected from the various issues of World development indicators, World Investment Reports, World Developments and Human Development Reports. Average of data for the respective durations on the various variables is being used for the analysis. The expected nature (i.e. +ve or –ve) of relationship between the various independent variables and the dependent variable is shown in Table 6.1.

The data is processed by considering per capita FDI as the dependent variable. SPSS software is applied to process the data pertaining to this study.

The significance of regression effect is tested by computing the F-test statistic (ANOVA). In order to examine whether the cross-country data suffer from the problem of auto-correlation, Durbin Watson test is applied.

The independent variables considered for this study have been decided after reviewing the existing studies on the subject. These variables are briefly explained below:

Dependent variables; as stated earlier, Per-Capita FDI inflows are taken as dependent variable. The FDI inflows have been measured in millions of US dollar for each country and divided by the population in the beginning of the respective year for determining per capita FDI.

Independent variables: While the first independent variable, per capita GDP in purchasing power parity terms) ($shows the level of economic development of a market and purchasing power of the people.

The second variable (GDP growth rate) represents the growth in markets of the host country.

Per capita power consumption (POWCOM) is an independent variable considered as an indicator of the level of infrastructure development in the host country.

Exports as a percentage of GDP (EXPGDP**)** are a ratio between the export of a particular year and GDP of the same year. This variable is considered because it is representative of openness of the economy and the level of liberalization in the economy in terms of international trade and foreign transactions.

External debt as a percentage of Exports (EXDET) is the ratio of the amount of

outstanding external debt of a country at the end of a particular year and the exports of that year.

Inflation level: As the inflation level of a particular country can influence the prices of inputs of production in the host country, this variable has been considered in this study. In fact unduly high inflation may affect the FDI inflows adversely.

Adult Literacy Rate (ADLIT) refers to the literacy ratio among the adult population of the host country. This ratio is an indicator of the availability of skilled manpower in the host country. Literacy rates of 1990, 1995 and 2000 have been considered for first, second and third data sets respectively.

Secondary School Enrolment for Females (SECEDFEM**)** is another independent variable considered in the present study. According to Human Development Report, the variable represents the percentage of girls, aged between 11 to 17, who are enrolled into secondary grade education. Besides above, there are other variables, which are important determinants of FDI. Some of them include political risk, legal issues, corruption level, tariffs level, rail, road, and I.T. infrastructure.

The GDP's per capita (GDPPC) expected relationship with FDI inflows is positive. The GDP growth (GDPGR) expected relationship with FDI inflows is positive. The Power consumption per capita (POWCOM) expected relationship with FDI inflows is positive.

The Power consumption per capita (POWCOM) expected relationship with FDI inflows is positive. The Export as a percentage of GDP (EXPGDP) expected relationship with FDI inflows is positive.

The External debt as a percentage to exports (EXDET) expected relationship with FDI inflows is positive. Adult Literacy (ADLIT %) expected relationship with FDI inflows is positive. The Inflation rate (Inflation %) expected relationship with FDI inflows is Negative. The Secondary grade enrolment for females (SECEDFEM) expected relationship with FDI inflows is positive.

TABLE 6.1

Expected Sign of Partial Regression Coefficients in Regression Analysis

Sr.No.	Variable (Abbreviation)	Expected relationship with FDI inflows
1.	GDP per capita (GDPPC)	Positive
2.	GDP growth (GDPGR)	Positive
3.	Power consumption per capita (POWCOM)	Positive
4.	Export as a percentage of GDP (EXPGDP)	Positive
5.	External debt as a percentage to exports (EXDET)	Negative
6.	Adult Literacy (ADLIT %)	Positive
7.	Inflation rate (Inflation %)	Negative
8.	Secondary grade enrolment for females (SECEDFEM)	Positive

TABLE 6.2

Model Summary and ANOVA (Dataset: 1991 -2013)

Model	R	R-Square	Adjusted R-Square	Std. Error of the Estimate	Durbin-Watson	F Sig.
a.	513a	.263	.135	459.1642	2.054	.061
b.	510b	.260	.149	455.3086	2.356	.038
c.	505c	.255	.162	451.9857	2.738	.023
d.	500d	.250	.173	448.9210	3.262	.013
e.	495e	.245	.185	445.8199	4.056	.006
f.	495f	.245	.200	441.5517	5.503	.002
g.	482g	.233	.203	440.7503	7.878	.001
h.	458h	.209	.194	443.1095 1.986	14.056	.000

1. Predictors: (Constant), SECEDFEM, GDPGR, EXDET, POWCOM, INFL, GDPPC, ADLIT, EXPGDP
2. Predictors: (Constant), GDPGR, EXDET, POWCOM, INFL, GDPPC, EXPGDP.
3. Predictors: (Constant), GDPGR, EXDET, POWCOM, GDPPC, EXPGDP.
4. Predictors: (Constant), GDPGR, POWCOM, GDPPC, EXPGDP.
5. Predictors: (Constant), GDPGR, POWCOM, GDPPC.
6. Predictors: (Constant), GDPGR, GDPPC.
7. Predictors: (Constant), GDPPC.
8. Dependent Variable: PERCAFDI.

TABLE 6.3

Regression Coefficients (Dataset: 1991-13)

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig	Correlations		
	Std.Error				Zero-order	Partial		Beta
1. (Constant)	617.011	430.517	-	1.433	0.159	-	-	-
EXDET	-0.406	0.43	-0.123	-0.945	0.349	-0.151	0.138	-0.12
EXPGDP	0.425	0.658	0.953	0.646	0.521	-0.041	0.095	-0.082.
ADLIT	-3.908	5.204	-0.114	-0.751	0.456	-0.026	-0.11	-0.095
GDPGR	-8.51	-8.51	-0.062	-0.463	0.646	-0.099	-0.068	-0.059
GDPPC	6.51E-02	6.51E-02	0.507	3.427	0.001	0.458	0.451	-0.434
INFL	-5.462	-5.462	-0.104	-0.732	0.468	0.138	-0.107	-0.093
POWCOM	-2.36E-05	-2.36E-05	-0.96	-0.65	0.519	0.034	0.095	-0.082
SECEDFEM	-1.646	-1.646	-0.081	-0.513	0.61	0.053	0.075	-0.065
2. (Constant)	572.747	416.224	-	1.376	0.175	-	-	-
EXDET	-0.391	0.425	0.118	0.919	0.363	0.151	0.133	-0.115
EXPGDP	0.413	0.652	0.926	0.634	0.529	0.041	0.092	0.08
ADLIT	-3.889	5.16	0.113	0.754	0.455	0.026	0.109	-0.095
GDPPC	6.68E-02	0.018	0.52	3.61	0.001	0.458	0.466	0.453
INFL	-4.532	7.122	-0.086	-0.636	0.528	0.138	0.092	-0.08
POWCOM	-2.30E-05	0	-0.932	-0.637	0.527	0.034	0.093	-0.08
SECEDFEM	-1.745	3.175	-0.086	-0.549	0.585	0.053	-0.08	-0.069
3. (Constant)	550.249	411.182	-	1.338	0.187	-	-	-
EXDET	-0.413	0.42	0.125	0.983	0.331	0.151	-0.14	-0.122
EXPGDP	0.413	0.647	0.927	0.639	0.526	-0.041	0.092	0.08
ADLIT	-5.057	4.668	-0.147	-1.083	0.284	0.026	-0.155	-0.135
GDPPC	6.42E-02	0.018	0.5	3.617	0.001	0.458	0.463	0.451
INFL	-4.082	7.023	-0.077	-0.581	0.564	0.138	0.084	-0.072
POWCOM	-2.25E	-05	-0.913	0.628	0.533	-0.034	-0.09	-0.078
4. (Constant)	465.097	381.587	-	1.219	0.229	-	-	-
EXDET	-0.387	0.415	0.117	-0.934	0.355	-0.151	-0.132	-0.116
EXPGDP	0.364	0.637	0.815	0.571	0.571	-0.041	-0.081	0.071
ADLIT	-4.642	4.581	0.135	-1.013	0.316	0.026	-0.143	-0.125
GDPPC	6.59E-02	0.017	0.514	3.796	0	0.458	0.477	0.47
POWCOM	1.96E	-05	-0.798	-0.0558	0.579	-0.034	0.079	-0.069
5. (Constant)	470.219	378.841	-	1.241	0.22	-	-	-
EXDET	-0.362	0.409	-0.109	-0.884	0.381	-0.151	-0.124	-0.109
EXPGDP	9.36E-03	0.056	0.021	0.168	0.867	-0.041	0.024	0.021
ADLIT	-5.134	4.465	-0.149	-1.15	0.256	-0.026	-0.161	-0.141
GDPPC	6.32E-02	0.017	0.493	3.87	0	0.458	0.475	0.469
6. (Constant)	463.51	373.118	-	1242	0.22	-	-	-

RESULTS AND DISCUSSION

The ANOVA values (F) as, shown in the table are indicative of the fact that the regression as a whole is significant at 0.01 level. It implies that variation brought into the per capita FDI by the various independent variables is significant. This evidence of significant variation in per capita FDI allows us to proceed further and to identify the more important factors influencing FDI.

The coefficients of multiple correlation ® in various regression models ranges between 0.458 and 0.513. Thus a moderate correlation exists between per capita FDI and its determinants under investigation. However, the values of coefficient of determination (R2 and adjusted R2) under various models indicate low explanatory power of the independent variables as a whole. While R2 ranges from 0.209 to 0.263, the value of adjusted R2 is the maximum in case of model seven. Thus around one –fifth of the variation in per capita FDI is caused by the various independent variables under study

This implies that there are some other more important factors, which have a bearing on FDI flows to developing countries. As quoted many times in practical surveys of FDI companies, these variables may include the behavior of the bureaucrats heading different departments assigned the responsibility of attracting foreign investments (like FIPB), the cultural, social and political factors.

Nonetheless, there is need to measure the relationship between per capita FDI and various independent variables. The regression coefficients resulting from the present data set could be visualized from Table 6.3. A look at the table offers that except per capita GDP, none of the independent variables turn as significant. The per capita GDP is found to have positive relationship with FDI inflows to developing countries. The partial regression coefficient for per capita GDP is significant at 0.01 level of significance. In contrast to expectation, the growth rates in GDP and per capita power consumption are seen having negative relationship with FDI inflows in the developing countries. However, the negative relationship of inflation rate and external debt as percentage to exports with per capita FDI inflows is on the expected lines. None of the independent variables possessing a negative relationship with FDI, however, is significant. The data is processed by considering per capita FDI as the dependent variable. SPSS software is applied to process the data pertaining to this study.

At the outset the multiple regression model was fitted on the data set belonging to the duration 1991-2013. We may recall here that this data set is made of average data on eight independent variables mentioned already and per capita FDI as a dependent variable. Tables 6.2 and 6.3 exhibit the results of multiple regression model fitted. It is obvious from the former Table (6.2) that the data series do not possess the problem of auto-correlation as indicated by Durbin Watson Test, which are approximately 2.

CONCLUSION

In this paper, we have made an attempt to bring out the factors influencing FDI inflows on developing countries. In order to achieve this objective multiple regression model has been applied to dataset 1991-2013 and dependent variable Per capita FDI inflow is taken as a dependent variable in each of the period. However, during the latest period the

relationship of independent variables under consideration has also been analyzed with absolute FDI inflows as a dependent variable besides per capita FDI.

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