

A Relational Study of Foreign Direct Investment, Regional Inequality and Growth in India

Ajeet Kumar Sahoo

Research Scholar, Devi Ahilya University, Indore, Madhya Pradesh, India

Dr. R. K. Sharma

Professor, Prestige Institute of Management and Research, Indore, Madhya Pradesh, India

Abstract: Foreign investment is one of the most sought ways as a source of boosting growth by less developed economies of the world. Policy makers of India too have high expectations on FDI to bring India amongst the group of developed nations. But relying on it beyond certain limits may cause dangers. The present study “A Relational Study of Foreign Direct Investment, Regional Inequality and Growth in India” tries to explore the interaction between FDI, regional inequality and growth in India. Since the data shows that the FDI is, where one side helping the Indian economy to grow at high pace, its reckless distribution causing bitter fruit of regional disparity. Bajpai and Sach (2000) advised policy makers in India to throw wide open the doors to FDI which is believed to bring huge advantages with little or no downside. Therefore, using regression models, the study attempts to conduct the relational study between FDI, regional inequality and growth in India.

Keywords: Foreign Direct Investment, Regional Inequality, Growth, Multinational Corporations, Gini Coefficient, Human development Index.

1. Introduction

Foreign investments are the subjects of out of the ordinary interest. Almost all the developing economies are wrestling with each other to entice foreign capital in order to give a swift to their economic growth process. Intense competition is taking place among less developed countries to allure foreign investors by offering tax concessions, low rate of interest and other incentives. However, foreign investments full of mixed blessings. Government in developing countries has to be very careful while determining the size, pattern and conditions of foreign investments.

The sweeping waves of liberalization, privatization and globalization across the world have opened a number of national markets for international business. Global private investments are now made by multinational corporations (MNCs) also referred to as transnational corporations (TNCs). Clearly, these transnational organizations play key role in world trade and investments because of their proved managerial skills, innovation in technology, financial resources and entrepreneurial capabilities. Recent development in the global market is revealing the rapidly growing international business across the globe. The commencement of the 21st century has already marked a incredible growth of international investments, trade and financial transaction along with the integration and openness of international markets.

Investment in a country by individuals and organization from other countries is an important aspect of international finance. This flow of international finance may take the form of direct investment (creation of facilities) or portfolio investment (acquisition of securities).

Foreign direct investment (FDI) is the outcome of the mutual interests of multinational firms and host countries. There are many definitions of the term ‘FDI’, but the most commonly accepted is the one given by the International Monetary Fund (IMF). IMF defines FDI as investments made by an investor residing

in one economy owns 10% or more of the ordinary shares or voting power/effective voice in management in another country; and comprises those entities in the host country that are subsidiaries (more than 50% ownership); associates (10% to 50% ownership) or branches (wholly or jointly-owned, unincorporated enterprises) of the parent (IMF, 1993). FDI is an investor based in one country acquires an asset in another country with the intent to manage that asset (OECD, 2000). The essence of FDI is the transmission to the host country of a package of capital, managerial skill and technical knowledge. FDI is, in general a form of long-term international capital movement, made for the purpose of productive activity and accompanied by the intention of managerial control or participation in the management of a foreign firm.

2. Objectives

The present study “A Relational Study of Foreign Direct Investment, Regional Inequality and Growth in India” tries to find out the interaction between FDI, regional inequality and growth in India. This exclusive study will enable to evaluate the real contribution of FDI in growth. The present study will be undertaken with the following objectives:

- 1) To examine the impact of FDI on growth in India.
- 2) To examine the impact of FDI on regional inequality in India.

3. Research Methodology

3.1. Research Design

The study is ‘causal’ in nature that provides insights into, and an understanding of the various concepts related to FDI, inequality and growth in India; and attempts to reveals the interaction amongst them.

3.2. Data Description and Model Formulation

3.2.1. Model 1: Growth Rate and FDI in India

In order to analyze the effect of FDI inflow on growth in India following regression model is built:

$$GR = \beta_0 + \beta_1 RFDI_{t-1} + \varepsilon_1 \quad \dots\dots\dots [1]$$

Where the variables stand for-

- GR = Growth rate of India measured by GDP growth rate.
 RFDI_{t-1} = Relative foreign direct investment measured by FDI/GDP lagged by one year,
 ε₁ = Error term
 β₀, β₁ = Regression Coefficients

Variables of the Model 1 and Development of the Hypothesis

FDI is often regarded as the engine of growth. Some studies examine the relationship between FDI and economic growth whereas some finds out the causality between these two variables. The results of those studies vary with methods used on their research. Some of the investigators found that FDI has a positive outcome on economic growth. Balasubramanyam et al (1996) evaluated how FDI impacts growth in developing economies. He concludes that FDI has a positive effect on economic growth in those host countries which are using an export promoting strategy; but FDI has a negative effect in those countries which are using primarily import substitution strategy.

Olofsdotter (1998) gives a similar analysis. Using cross sectional data, she concludes that an rise in FDI stock is positively linked to growth; and its effect is stronger for host countries with a advanced level of

institutional capability. De Mello (1999) considered that FDI affects growth through the accumulation of capital as well as by the transfer of knowledge. These hypotheses were tested with time series and panel data. The time series results were not conclusive. The panel data showed that FDI has a positive effect upon growth as a result of the transfer of knowledge in OECD countries, but not in the rest. The effect upon the accumulation of capital was only manifested in the non-OECD countries. On the other hand, Zhang (2001) and Choe (2003) analyse the causality between FDI and economic growth in their separate studies. Zhang (2001) uses data for 11 developing countries in East Asia and Latin America. Using cointegration and Granger causality tests, he finds that in five cases economic growth is enhanced by FDI but that host country conditions such as trade regime and macroeconomic stability are important. According to the findings of Choe (2003), causality between economic growth and FDI runs in either direction but with a tendency towards growth causing FDI; there is little evidence that FDI causes host country growth. Rapid economic growth could result in an increase in FDI inflows.

The study of Kisor (2003) expressed that FDI has helped in accelerating the economic growth of many countries. According to the study, the importance of FDI is more in case of developing countries, which require capital, technology and better management for faster economic growth. Buckley (2002) found that FDI stimulate growth notably in the more developed provinces and human capital is more significant in less developed provinces in China.

Relative foreign direct investment (RFDI) measured by FDI/GDP lagged by one year is taken as independent variable to examine the contribution of FDI inflows in economic growth in India. The reason behind taking one year lagged data is that present growth rate depends much upon the previous year FDI inflows. To calculate $RFDI_{t-1}$, data on FDI and GDP at market price obtained from 'RBI Hand Book of Indian Economy: 2011-12' for the period of 22 years from 1991 to 2012. In the model, it is expected to find a positive relationship between growth rate and FDI inflows. The first hypothesis is as follows-

Hypothesis 1: FDI inflow positively affects the growth.

3.2.3. Model 2: Inequality & FDI in India

For the purpose of analyzing the contribution of FDI in inequality, following two models are developed. Model 2 (a) represents the relationship between the FDI inflows and inequality in income distribution in India while model 2 (b) signifies the relationship between the FDI inflows and inequality in human development in Indian states.

$$\ln INEQUALINCOME = \gamma_0 + \gamma_1 \ln FDI + \varepsilon_2 \quad \dots\dots\dots [2(a)]$$

Where the variables stand for-

INEQUALINCOME = Inequality in income distribution in India measured by Gini Coefficient.

FDI = Absolute foreign direct investments in India measured by FDI inflows in INR.

ε_2 = Error term

γ_0, γ_1 = Regression Coefficients

$$\ln INEQUALHDI_{it} = \delta_0 + \delta_1 \ln FDI_{it} + \varepsilon_3 \quad \dots\dots\dots [2(b)]$$

Where the variables stand for-

INEQUALHDI_{it} = Inequality in human development in the state *i* at time *t* measured by Human Development Index (HDI).

FDI_{it} = Absolute foreign direct investments in the state *i* at time *t* measured by annual FDI inflows in INR.

ε_3 = Error term

δ_0, δ_1 = Regression Coefficients

Variables of the Model 2 and Development of the Hypotheses

Studying income inequality in less developed countries (LDCs), Tsai (1995) concludes that connection between FDI and inequality tends to differ notably across geographical areas, and is generally positive only in East and South Asian countries. Similarly, analyzing a panel of 119 countries over the period 1993-2003, Choi (2004) finds that income inequality and FDI are positively associated to each other. Finally, Mah (2002) presents that FDI tends to worsen income and wealth distribution in Korea. Similarly studying FDI and regional inequality in China; Wei, Yao and Liu (2007) find that due to open door policy in late 1970's, China achieved impressive economic growth at an annual rate of 9.6% during 1978-2006. FDI in China soared from US \$ 0.92 billion in 1983 to US \$ 62.32 billion in 2005. By 2005, China became the fourth biggest economy in the world measured in nominal dollars and the second largest measured in PPP dollars. But at same time statistics show that the Gini Coefficient measuring China's household income inequality increased from 0.300 in 1984 to 0.45 in 2000 and continued to rise into the 21st century. China has stepped into the stage of "absolute disparity".

Using a panel of 119 developing countries, Basu and Guariglia (2007) observed that FDI promotes inequality in both- educational and income. They concluded in their study that there is always a positive short run association between FDI and inequality. Reiter and Steensma (2010) examined the effect of FDI on development with the special focus on developing countries. They used HDI as proxy for the level of development. Their analysis examines 49 developing countries over the period of 1980-2005. They found the positive and meaningful effect of per capita FDI on HDI.

In the above models absolute foreign direct investments in India has been taken as independent variables. Inequality in income distribution in India measured by Gini Coefficient is taken as dependent variable in model 2 (a) whereas inequality in human development in India measured by HDI is taken as dependent variable in model 2 (b). The data for Gini Coefficient and HDI has been taken from *www.indiastat.com database* for the period of 22 years from 1991 to 2012 and for the period of 10 years from 2001 to 2010 respectively. In the model 2 (a) simple regression analysis is applied at India level database while in model 2 (b) random effect estimation methods used in this study wherein the region-wise FDI inflows are classified as per RBI's – Regional Office received FDI inflows (total 15 regional offices, furnished by RBI, Mumbai) functions as entity. It is expected to have the positive relationship between the FDI inflow and the inequality in income distribution as well as inequality in human development in India.

Hypothesis 2: FDI inflow positively affects the inequality in income distribution in India.

Hypothesis 3: FDI inflow positively affects inequality human development in India.

4. Result and Discussion

Table 1.1 provides the descriptive statistics for the key variables of the Model [1]. In the model relative foreign direct investment (RFDI) measured by FDI/GDP lagged by one year is taken as independent variable to examine the contribution of FDI inflows in economic growth in India. The results of regression analysis for the year 1991 to 2012, are shown in Table 1.2, 1.3 and 1.4. Enter Method of regression analysis is used. The variation in the dependent variable growth rate explained by the dependent variable $RFDI_{t-1}$ is 20% with the significant F value at 5% level of significance. Therefore the model is fit. The Durbin-Watson Statistics is 1.506 that is close to 2. This indicates that there is no correlation between errors (*Field, 2009*). Table 1.4 represents the coefficients for the variable. The study intends to reject the null hypotheses i.e. $\beta_0 = 0$ and $\beta_1 = 0$; and to accept the alternative hypotheses i.e. $\beta_0 \neq 0$ and $\beta_1 \neq 0$.

As depicted in the Table 1.4, the constant β_0 is 5.791. This is the intercept of the Model 1. The t- value for it is 10.692 and has the p- value of .000 which is lesser than 0.05 at 5% level of significance. Therefore, the null hypothesis ($\beta_0 = 0$) is rejected. This signifies that β_0 (5.791) is significant.

Coefficient of the variable 'RFDI_{t-1}' is 0.447 with t = 2.235 and p-value = 0.037 which is lesser than 0.05 at 5% level of significance. Therefore, the null hypothesis ($\beta_1 = 0$) is rejected. This indicates that β_1 (0.447) is significant. This shows that FDI inflows have positive relationship with economic growth rate as supported by various literatures.

Table 1.1 : Descriptive Statistics

	Mean	Std. Deviation	N
GR	6.6136	2.03477	22
LAGRFDI	1.4126	1.56302	22

Table 1.2 : Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.447 ^a	.200	.160	1.86504	.200	4.996	1	20	.037	1.506

a. Predictors: (Constant), LAGRFDI

b. Dependent Variable: GR

Table 1.3 : ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	17.379	1	17.379	4.996	.037 ^a
	Residual	69.567	20	3.478		
	Total	86.946	21			

a. Predictors: (Constant), LAGRFDI

b. Dependent Variable: GR

Table 1.4 : Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	5.791	.542		10.692	.000	4.662	6.921		

LAGRF	.58	.2		2.23	.0		1.1		1.
DI	2	60	.447	5	3	.039	25	1.000	00
					7				0

a. Dependent Variable: GR

Table 2.1 provides the descriptive statistics for the key variables of the Model [2 (a)]. In the model, natural log absolute foreign direct investment (FDI) is taken as independent variable to examine the involvement of FDI inflows in inequality in income distribution (measured by natural log of Gini Coefficient) in India. The result of regression analysis for 22 years from 1991 to 2012 is shown in Table 2.2, 2.3 and 2.4. The variation in the dependent variable explained by the dependent variable is 63.5 % (R^2) with the significant F value at 5% level of significance. Therefore the model is fit.

Table 2.1: Descriptive Statistics

	Mean	Std. Deviation	N
LNGINI	3.5740	.08011	22
LNFDI	9.6290	1.98560	22

Table 2.2 : Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df 1	df 2	Sig. F Change
1	.797 ^a	.635	.617	.04960	.635	34.789	1	20	.000

a. Predictors: (Constant), LNFDI

b. Dependent Variable: LNGINI

Table 2.3: ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.086	1	.086	34.789	.000 ^a
	Residual	.049	20	.002		
	Total	.135	21			

a. Predictors: (Constant), LNFDI

b. Dependent Variable: LNGINI

Table 2.4: Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	3.264	.054		60.969	.000		
	LNFDI	.032	.005	.797	5.898	.000	1.000	1.000

a. Dependent Variable: LNGINI

The result of regression analysis of panel data for 15 regions of India for the year 2001 to 2010 is shown in Table 3.1. Random effect estimation method is used here with the option robust as it helps in controlling the heteroskedasticity. Since the p value for χ^2 is 0.000 which is less than 0.05, the model developed is fit (5% level of significance).

The study looks to reject the null hypotheses i.e. $\delta_0 = 0$ and $\delta_1 = 0$; and to accept the alternative hypotheses i.e. $\delta_0 \neq 0$ and $\delta_1 \neq 0$. The constant δ_0 is 0.0947179. This is the intercept of the Model 2 (b). The z- value for it is 18.80 and has the p- value of .000 which is lesser than 0.05 at 5% level of significance. Therefore, the null hypothesis ($\delta_0 = 0$) is rejected. This signifies that δ_0 (0.0947179) is significant.

Coefficient of the variable 'FDI' is -.0043270 with $z = -7.75$ and p-value = 0.000 which is lesser than 0.05 at 5% level of significance. Therefore, the null hypothesis ($\delta_1 = 0$) is rejected. This indicates that δ_1 (-.0043270) is significant. The negative value coefficient of the variable 'FDI' notifies that FDI and human development are negatively related i.e. FDI has negatively affected human development in Indian states. This shows that FDI inflows have positive relationship with inequality in human development in Indian states.

Table 3.1: Pooled Regression Results

Random-effects GLS regression	Number of obs	=	150
Group variable: region	Number of groups	=	15
R-sq: within = 0.0187	Obs per group: min =		10
between = 0.0428	avg =		10.0
overall = 0.0343	max =		10
Random effects $u_i \sim$ Gaussian	Wald $\chi^2(2)$	=	408.85
corr(u_i , X) = 0 (assumed)	Prob > χ^2	=	0.0000

(Std. Err. adjusted for clustering on state)

	Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]	
hdiln						
fdiln	-.0043270	.005583	-7.75	0.000	.0323277	.0542128
_cons	.0947179	.0503737	18.80	0.000	1.04591	.8484488
sigma_u	.14114053					
sigma_e	.12702828					
rho	.55247917	(fraction of variance due to u_i)				

5. Conclusion

In this paper, it is looked into how the insertion of foreign capital ie foreign direct investments impact growth, income inequality and inequality human development in India. All the three hypotheses set are accepted. It is found that FDI promotes both growth and inequality. Foreign direct investments could exaggerate inequality, particularly in a setting where the deprived people are unable to access the updated expertise because of poor primary human capital. This drawback may be caused by imperfect credit markets which further leads to failure in financing the cost of training for the poor. Targeted public policies and schemes may be greatly useful in tackling these issues. For example, subsidies for education can assist the poor people to grasp the initial amount of capital required to become entrepreneurs. Finally,

in the long-run, such policies and schemes could permit the poor ones to re-se-up with the rich (Basu and Guariglia, 2007).

In conclusion, findings of the present study have interesting policy implications. Policy makers have high expectations on FDI to bring India amongst the group of developed nations. But relying on it beyond certain limits may cause dangers. Since the findings shows that the FDI is, where one side helping the Indian economy to grow at high pace, its reckless distribution causing bitter fruit of regional disparity. Therefore the policy makers are supposed to find out how to attract the FDI and up to what extent so that it can cause no harms in the economy and its positive effects can be shared equally by all Indian states ensuring optimum and sustainable rate of growth.

6. Reference

- Balasubramanyam, V. N., Salisu, M. & Dapsoford, D. (1996). Foreign direct investment and growth in EP and IS countries. *Economic Journal*, 106, 92-105.
- Basu, P., & Guraiglia, A., (2007). Foreign Direct Investment, Inequality and Growth, *Journal of Macroeconomics*, 29(4), 824-839.
- Buckely, P.J. (2002). Is the business research agenda running out of steam? *Journal of International Business Studies*, 33(2), 365-73.
- Choe, J.I. (2003). Do foreign direct investment and gross domestic investment promote economic growth? *Review of Development Economics*, 7(1), 44-57.
- Choi, C. (2004). Does foreign direct investment affect domestic income inequality? *Mimeograph*, Myongji University, Seoul, Korea.
- De Mello, L. (1999). Foreign direct investment led growth: Evidence from time-series and panel data. *Oxford Economic Papers*, 51, 133-151.
- Field, A. (2009). *Discovering Statistics Using SPSS for Windows*. London, Sage Global.
- Kisore, Naval (2003). FDI in post globalized era: India's strategy and prospects. *Business Perspectives*, 5(2), 59-72.
- Mah, J. (2002). The impact of globalization on income distribution: The Korean experience. *Applied Economics Letters*, 9, 1007-1009.
- Olofsdotter, K. (1998). Foreign direct investment, country capabilities and economic growth, *Weltwirtschaftliches Archiv*, 134(3), 534-547
- Ramamurti, R. (2004). Developing Countries and MNC's: extending and enriching the research agenda, *Journal of International Business Studies*, 35, 277-283.
- Reiter, S. L., & Steensma, H. K. (2010). Foreign human development and foreign direct investment in developing countries: The influence of FDI policy and corruption, *World Development*, 38(12), 1678-1691.
- Tsai, P.L. (1995). Foreign direct investment and income inequality: Further evidence, *World Development*, 23(3), 469-483.
- Wei, K., Yao, S., & Liu, A. (2009). Foreign direct investment and regional inequality in China, *Review of Development Economics*, 13 (4), 778-791.
- Zhang, K.H. (2001). Does foreign direct investment promote economic growth? Evidence from East Asia and Latin America, *Contemporary Economic Policy*, 19(2), 175-185.