

# FDI and Global Economic Growth: Insights from Developed and Developing Nations

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#### **Abstract**

With the integration of FDI and financial development through the global economic growth and its implication .the exploration of financial development interdependency of FDI has become profoundly important among different countries like developed countries and developing countries. In these different countries they used various relationships for that they found the result like if the result is positive result then there is good economic condition and if there is negative effect then there is not good condition in economic point of view. The aim of the study is to examine the relationship between FDI and economic development of different countries under study.

**Keywords:** Economic development, Financial development, FDI, GDP

#### 1. Introduction

For an economy FDI not only promotes economic growth but also directly does so via its interaction terms. Also the interaction of FDI with human capital puts a strong positive effect



on economic growth in developing countries. Contrary to this FDI with the technology gap has a significant negative impact. Financial development in developing countries and emerging markets is part of the private sector development strategy to stimulate economic growth and reduce poverty. The empirical evidence does not support the view a belief widely shared among policymakers that the FDI is advantageous for a host country's development. Hermes and Lensink (2003) predicted that the impact of FDI on economic growth is contingent on the development of financial markets of the host country. Many authors have said that the well-functioning financial markets reduce the risks inherent in the investment made by local firms that seek to imitate new technologies and thereby improve the absorptive capacity of a country with respect to FDI inflows. Alfaro et al. (2004), who, using a linear interaction model, found that the development of local financial markets is an important pre-condition for a positive impact of FDI on growth. Does FDI help developing countries as much as we think? Research shows that an increase in FDI leads to higher growth rates in financially developed countries compared to rates observed in financially poor countries. The empirical literature found mixed evidence on the existence of positive productivity externalities in the host country generated by foreign multinational companies.

Economic growth can be defined as the increase in the inflation-adjusted market value of the goods and services produced by an economy over time. It is traditionally measured as the percent rate of increase in real gross domestic product, or real GDP. Economic growth is usually brought about by technological innovation and positive external forces. An increase in the capacity of an economy to produce goods and services, compared from one period of time to another. Economic growth can be measured in nominal terms, which include inflation, or in real terms, which are adjusted for inflation. For comparing one country's economic growth to another, GDP or GNP per capita should be used as these take into account population difference between countries.

#### 2. Review of Literature

Hermes and Lensik (2003) in a study for Netherland using FDI and GDP, Economic growth, and per capital growth as a variables in the study showed that the empirical investigation suggest that these countries should first reform their domestic in economic growth point of view. Alfaro, Chanda, and Sayek (2004) this paper attempted to assess the dynamic study for USA .They used the various significant links between foreign direct investment, financial markets and economic growth as a variables in the study. They used the regression being statistically significant. And result found that the increase in FDI may important to enhance economic growth of country.

Tsai (1994) studied for China in which they have examined the par capital FDI which equals to GDP growth rate of employment as variables in their study. They used the relationship between coefficient and null hypothesis and study results showed that the different countries have improved their domestic financial systems and perform better from before in global economic growth.

Hook and Halim (2004) in a study for Germany using variables population growth rate, investment GDP ratio, human capital and government expenditure, examined the relationship



between these variables and results shows that the positive effect of FDI on economic only after financial market development exceeds a threshold level among the developed countries.

Koning (2000) examined in their study for Belgium using regression analysis found that the effect of foreign ownership might affect both the level manufacturing and non-manufacturing sector and the growth is increased in their productivity.

Wai, Kai and Man (2008) analyzed in their study for Malaysia examining the variables like Growth, FDI inflows, GDP and growth and they used the causal relationship between FDI and economic growth by using an innovative econometric methodology. The result showed that the more foreign direct investment can help to provide more employment and to create advance technology in production and trained more skilled labor; therefore it will enhance the productivity and fulfill the satisfaction

Berthelemy and Demurger (2000) found in a study for china in which they examined relationship using explanatory variables of the foreign investment. The results showed that foreign direct investment and economic growth both theoretically and empirically used to upgrade their industrial development.

Alfaro, Kalemli and Sayek (2009) analyzed in their study for USA where they examined the relation between human capital accumulation and FDI, using regression and standard deviation and found that the results are consistent with the recent finding in the growth literature that shows the role of factor in explaining cross-country income differences.

Orman and Bolbol (2003) studied for Arab countries in that paper they observed that the financial development indicator has crystallized to a desired level, and the FDI's favorable effects on investment efficiency and growth has increased.

Alfaro (2003) founded in a study for Boston in which they examined the various aspects like, the Foreign Direct Investment, economic growth, primary sector, manufacturing sector, service sector, spillovers etc. In that they used the correlation & regression and found that the FDI as a primary sector has a negative and significant effect; and in the manufacturing sector the result shows a positive and significant effect; and in the services sector an ambiguous effect is shown in both the cases.

Nunnenkamp and Chakrborty (2008) studied for Germany where they analyzed the foreign direct investment, economic reform, growth effects, and causality between them. The results of the economic impact of FDI on growth output collaborates the finding that is used in the manufacturing sector and industrial sector that benefited from foreign direct investment.

Bengoa, Sanchez-Robles (2003) found in a study for USA in which they observed that the correlation between economic freedom and indicators of economic growth is measured. This correlation has a positive and significant effect on economic growth. The results showed that the consistent of the market-size of hypothesis, is required to the multinational industries that helps to make a trend between economic indicators and to enlarge the economic scale of the country.

Saini and Ahma (2003) in study for Malaysia examined that the foreign direct investment,



economic growth, and financial development of threshold effects in the economy and they used the method of regression to analyzed and the result found that the FDI should go hand in hand with the different policies set up by the government of the country and to promoting the polices of the financial market developments and increase the economy growth.

Carkovic and Levine (2000) observed in a study for avenue south that the FDI has a positive growth-effect on the country. They using regression and correlation found the result that the inconsistent of the foreign direct investment exerts a positive impact on economic growth that is independent in nature and also affect the other determinants of the economic growth.

Mun (2008) did a study for Malaysia by taking the two basic variables that is economic growth and FDI inflows. They used the relationship between correlation and time series and found the variables analysis shows that there is a positive relationship between FDI and economic growth that is helpful to increase their productivity and economic condition of their country.

Robert and Sova (2009), in a study for Berlin, analyzed the relationship between the Financial Development, Economic Growth using correlation and regression. Results show the consistency of the foreign direct investment has a positive effect on growth of the country. Results also suggests that the capital accumulation and investment of human capital that the positive and significant impact on economic growth.

Araestis and Demeteriades (1991) observed in a study for USA using time series and regression that there is a relationship between the real GDP and per capital income and development of banking system. The results suggested that the inconsistent with the FDI exerts a positive impact on economic growth that is independent to other variables.

Hansen Rand and John (2005) observed in a study for United States in which they have taken the economic growth and foreign direct investment and they used the panel of data. The results suggested that the impact of FDI on GDP to correspond well expected manner in standard form.

Zubaidi and Malik (2006), observed in a study for United Nation in which they have taken the foreign direct investment in Short-term basis and Economic growth. They used the relationship between coefficient and hypothesis. The result suggests that the domestic savings and FDI on long-term debt and short-term debt is effect in the economic growth.

Manuela & Grybaite (2007) found in a study for USA in which they have taken the FDI and economic growth that the structure of transition process. The results suggested that the highest shares of GDP for one sector's enterprise are created in the different sectors. This used the highest FDI intensity ratios.

Albert and Villano (2010) studied for Switzerland by taking the Economic growth and foreign direct investment inflows and the results suggested that the reported only for the best specified model with intercept and without intercept for the inefficiency effects.

Tiwari and Mutascu (2010), in a study for Asia taking Growth and FDI in terms of Panel analysis, suggested that the FDI inflows a positive impact on economic growth and the highly skilled labor are found the negative effect on economic growth.



Demirg üç Maksimovic (1998) found in a study for America that FDI exerts a positive impact on growth that is independent of other growth determinants. Ruxanda and Mauraru (2006), studied for Romania taking the foreign direct investment, economic growth and using the correlation analysis that the result suggests that the relation of FDI flows to countries with increasing GDP and it leads to an increase in the economy activity the recipient country.

Bevan and Estrin (2000) found in a study for London in which they have taken the determinants of FDI inflows to Central and Eastern Europe and country risk, unit labor costs, host market size and gravity factors. The result suggests that the FDI inflows are significantly influenced by risk, unit labor costs, and host market size and gravity factors.

Orts and Alguacil (2004) studied for Latin America taking the economic growth of a country is influenced by a host of domestic policies such as monetary, fiscal and external policies. They used the relationship between hypothesis and time series. The result suggests that the FDI has served to integrate national markets into the world economy far more effectively than could have been achieved by traditional trade flows alone.

# 3. Objectives of the Study

- To find out indicators of financial development for the nations under study.
- To find out the indicators of economic growth for the nations under study.
- To find out the casual relationship between indicators of FDI and indicators of global economic growth.

# 4. Research Methodology

The study was casual in nature and correlation, unit root test was applied for secondary data was used to complete. Population was of top 5 developed and 5 developing nations of the world. Individual nation acted as sampling elements. Sampling size was ten i.e. of five developed and five developing countries population. Non Probability judgmental sampling technique was used.

Data- There are many sources for data on FDI. One of the important source (also used in the study) is the International Monetary Fund (2013) publication; other sources being International Financial Statistics (IFS). Gross FDI figures reflect the sum of the absolute value of inflows and outflows accounted in the balance of payments financial accounts. The study model focused on the inflows to the economy; therefore, the net inflow measure has been used in the study. For measuring FDI, net FDI inflows in a particular nation were used as indicator. The economic growth indicators are described below for each nation.

Abbreviations Used: G = GDP, IN= Interest Rate, IR= Inflation Rate, E= Exchange Rate, EX=Export Rate, Tools used for data collection- for the purpose of data collection different secondary sources was used like website of international monetary fund, economic watch.com, World Bank website etc.

Tools used for data analysis- GARCH model was used to find out relationship between the indicator of FDI and the indicators of global economic growth.



GARCH model was used to find out causal relationship between the indicators of financial development and the indicators of global economic growth.

The purpose of our empirical analysis is to examine the financial markets channel through which FDI may be beneficial for growth. In an influential paper, Alfaro et al. (2004) derive an empirical specification based on the assumption that countries are unlikely to be at their steady states and, therefore, transitional dynamics should be more important. We employ a specification similar to theirs. Sghaier and Abida (2013) had also given reference of the same in their paper.

# 5. Results and Discussions

## 5.1 GARCH Test

ARCH models were introduced by engle (1982) and generalized as GARCH (generalized ARCH) by Bollerslev (1986) and tylor (1986). In arch model we have to provide the specification and conditional mean equation for the conditional variance and one for the conditional error distribution that begin by describing some basic specification for these terms. And this test is use to find out the ARCH effect in residual.

Table 1. GARCH Test Results

	India		
Independent variable	Coefficient	z-statistic	Probabilityy
C	3.96E+09	0.169613	0.8653
IG	-98622354	-0.12104	0.9037
IIN	-2.01E+08	-0.25766	0.7967
IIR	-2.38E+08	-0.19916	0.8421
IE	-7.76E+08	-1.91693	0.0552
IEX	20729342	0.23504	0.8142
IIM	-20345770	-0.27484	0.7834
ICR	1.02E+09	1.84824	0.0646
IUR	-4.68E+09	-1.53336	0.1252

	Brazil		
Independent variable	Coefficient	z-statistic	Probability
С	-2.24E+10	-0.21177	0.8323
BG	10752292	0.02146	0.9829
BIN	1.20E+09	1.344269	0.1789
BIR	-1.89E+08	-0.33238	0.7396
BE	-7.85E+09	-0.99165	0.3214
BEX	89836639	0.722876	0.4698
BIM	-49142996	-0.44406	0.657
BCR	3.47E+08	0.80198	0.4226



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BUR	1.70E+09	0.374272	0.7082
	China		
Independent variable	Coefficient	z-statistic	Probability
C	1.69E+11	0.256793	0.7973
CG	4.81E+09	0.143905	0.8856
CIN	-2.20E+09	-0.07988	0.9363
CIR	2.63E+09	0.81302	0.4162
CE	-1.83E+10	-0.61853	0.5362
CEX	-5.40E+08	-0.80349	0.4217
CIM	7.78E+08	1.116135	0.2644
CCR	-4.76E+08	-0.28158	0.7783
CUR	-4.08E+09	-0.06839	0.9455
	Romania		
Independent variable	Coefficient	z-statistic	Probability
С	-2.08E+10	-0.70768	0.4791
RG	-1.30E+08	-0.41821	0.6758
RIN	2.95E+08	0.647338	0.5174
RIR	-1.74E+08	-0.77171	0.4403
RE	3.08E+09	0.681399	0.4956
REX	-7182008	-0.44559	0.6559
RIM	35992091	1.261741	0.207
RCR	-2.04E+08	-1.32979	0.1836
RUR	1.09E+09	0.590147	0.5551
	South Africa		
Independent variable	Coefficient	z-statistic	Probability
С	-1.77E+10	-0.48626	0.6268
SG	-5.49E+08	-1.08011	0.2801
SIN10	3.97E+08	0.485007	0.6277
SIR	3.19E+08	0.445145	0.6562
SE	-7.54E+08	-0.27104	0.7864
SEX	1.93E+08	5.898008	0
SIM	-85160093	-3.22478	0.0013
SCR	1.04E+08	1.234684	0.2169
SUR	-1.51E+08	-0.10183	0.9189
DEVELOPED COUNTRY-	Australia		
Independent variable	Coefficient	z-statistic	Probability
С	1.29E+09	0.994629	0.3199
AG	-44581352	-1.19919	0.2305
AIN	-88302311	-1.73918	0.082
AIR	-38378198	-0.90457	0.3657
AE	-285742.3	-0.13203	0.895
AEX	44406081	1.831765	0.067



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AIM	-47952362	-0.93308	0.3508
ACR	2766539	0.700709	0.4835
AUR	-1.22E+08	-2.20719	0.0273
	Canada		
Independent variable	Coefficient	z-statistic	Probability
С	-1.35E+11	-1.80906	0.0704
CAG	-1.56E+09	-0.9939	0.3203
CAIN	-1.05E+09	-0.66818	0.504
CAIR	-1.42E+09	-0.96616	0.334
CAE	6295805	0.052349	0.9583
CAEX	-7.50E+08	-1.84046	0.0657
CAIM	3.53E+09	1.860869	0.0628
CACR	5.46E+08	3.159351	0.0016
CAUR	1.27E+09	0.619888	0.5353
	Japan		
Independent variable	Coefficient	z-statistic	Probability
С	-6.60E+09	-5.44863	0
JG	40955108	2.305588	0.0211
JIN	-67707875	-0.90786	0.364
JIR	-2.05E+08	-1.69024	0.091
JE	3378165	0.917347	0.359
JEX	50599319	1.71382	0.0866
JIM	1.26E+08	3.94641	0.0001
JCR	15228093	3.108477	0.0019
JUR	5.40E+08	2.409038	0.016
Sv	witzerland		
Independent variable	Coefficient	z-statistic	Probability
Results cannot calculated and displayed			
Н	long Kong		
Independent variable	Coefficient	z-statistic	Probability
С	-1.14E+09	-0.93209	0.3513
HG	-28239049	-1.56505	0.1176
HIN	-49163377	-1.28784	0.1978
HIR	35955702	1.282283	0.1997
HE	-403712.2	-0.64106	0.5215
HEX	-11043043	-0.59704	0.5505
HIM	24365117	1.590558	0.1117
HCR	-3559679	-1.25293	0.2102
HUR	-95522039	-1.05331	0.2922



The GARCH test is used to examine the role of FDI on the global economic growth (the impact of all the variables that is inflation rate, interest rate, import rate, export rate, unemployment rate etc.). The GARCH results Table 1 summarizes the role of FDI on growth through financial markets.

From the results for *developing nations*, it can be seen that the coefficients for all the independent variables for all the developing nations are insignificant except for South Africa. In that case imports are having significant impact on foreign direct investments. The coefficient in this case is negative indicating an opposite direction significant relationship with FDI. As it is known that with the increase in imports, FDI decreases. Hailu (2010) had studied the effect of FDI on import and said that FDI both at the initial investment and operation phases can influence import of a country. He further found that companies having higher FDIs have high propensity to import capital and intermediate goods and services that are not gamely available in the host country. If use of local raw materials and other inputs of production, it done by FDI, it may not have significant adverse effect on import. But, if it relies on imported inputs like raw material, human skill, and other intangibles assets, it affects import positively.

It may be concluded that the relationship between import and output type of FDI can be positive or negative. If the output is matching to other products that are imported, it may support import and would have positive effect. On the contrary, if FDI is concentrated in import substituting industries, then it is expected to affect imports negatively because the goods that were imported earlier would now be produced in the host country by foreign investors. Moraru (2013) also supported this by stating that FDI has a positive influence not only on GDP, but also on the economic growth of the country, improving overall productivity and more efficient use of resources. He added further that FDI contributes to the increase of employment as well. Adding to it, Guech, Heang and Moolio (2013) argued that FDI impact on economic growth also depends on institutional factors of the host country.

Earlier, putting it differently, Zemguliene and Zaleskyte (2006), foreign companies may displace local businesses, increasing the concentration of firms in the sector to obtain economic benefits and move earned capital out of the country, in which their investments are performed. Later, Ozturk (2007) through his work revealed that FDI could have a negative impact on the country's economic growth.

Results for developed country, for Australia, revealed that Interest rates and Exchange rates are found to have significant impact on FDI (at 10%). Similarly unemployment Rate also has significant causal relationship with FDI though all three variables have relationship in opposite direction. Similarly for Canada, Export rate and import rate have significant causal relationship with FDI (at 10% level of significance). Though export rates are negatively related, import rates have positive relationship. Credit rate again has a significant positive relationship with FDI in Canada. For Japan, GDP has significant positive relationship along with export rate, import rate, credit rate and unemployment rate. Inflation rate has significant but negative causal relationship with FDI for Japan.



Work of Moraru (2013), Sandalcilar and Altiner (2012), Kuliaviene and Solnyskiniene (2014) as well as Laskiene and Pekarkiene (2011), reflect the indicators that have been identified, which are affected by the FDI and are measurable: GDP, labour productivity (LP) and unemployment rate (UR).

The results of the study are consistent with the some studies in the FDI and global economic literature like that of (Blomstron and kokko, 1997). Among these variables, it is believed that the financial development of global economic growth in particularly can adversely affect of the GDP (McKinnon, 1973) while the Probability of FDI and financial development is positive and significant at the 5% significance levels. McKinnon (1973) suggested that the financial development and global economic growth may help to benefits more form FDI inflows in developed country as well as developing country. Markusen and Venables (1999) have analysed the effect of FDI on the global economic growth and found that there is a positive and have significant effect.

From the FDI- economic growth literature, it can be seen that empirical studies have so far yielded mixed results on whether FDI contributes positively to economic growth (like that of Hansen and Rand, 2006). The reasons for such results can be accredited to the facts that there are two folds economic benefits of attracting FDI for developed and the developing countries that they are insufficient to finance a strategy of global economic growth (or where weak financial intermediation has a similar effect) may harness FDI as a source of variables. Todo (2003); Basu and Guariglia (2007), Sghaier & Abida (2013) contributed to fuller international trade and support global economic growth. However, a number of studies do not report significant statistical relations between FDI and global economic growth like that of Mencinger (2003).

Back in 1993, Haddad and Harrison (1993) re-examined the relationship between economic growth and FDI, but they did not find any positive effects of FDI on economic growth. Ghosh (2003) said that, macroeconomic vulnerability and un-sustainability can be generated because of private capital flows although are conducive to economic growth

## 6. Conclusion

The main objective of the study was to find out the relationship between indicators of FDI and indicators of global economic growth. In this study foreign direct investment is a dependent variable and gross domestic product, inflation rate, interest rate, exchange rate, export rate, import rate, credit rate and the last unemployment rate are independent variable. In this study we have taken 10 nation data that is divided in two parts 5 developed and 5 developing.

The results for developing nations confirm a significant negative relationship of imports on FDI for South Africa (Studies done by Ghirmay et al., 2001; Bayoumi and Lipworth, 1997; Balasubramanyam et al., 1996). The results of these studies indicate a stronger impact of FDI by trade orientation (export oriented FDI and import-substituting FDI). Export growth also promotes accumulation of foreign exchange& Capital and thus enables the importation of capital and intermediate inputs necessary in the production of goods exports. Other



researchers have argued that trade liberalization benefits FDI as it reduces the cost of imported inputs thereby enhancing cost-effectiveness of domestic production (Jenkins and Thomas, 2005). From the recent literature, studies have shown that the imports variable is important in the casual relationship between export and growth, while deleting it from the analysis may overstate the effect of export and/or FDI on growth (Riezman et al. 1996; Afxentiou and Serletis, 1992).

The results presented by AHMED, cheng and MESSINIS () indicate a feedback effect between imports and output only in South Africa and proved that imports growth causes FDI growth .Their findings in this examination were somewhat similar to those of Riezman et al. (1996) who point to the existence of causality from import to output in the case of Ghana and South Africa.

In developed country, for Australia, Interest rates, Exchange rates and unemployment Rate are found to have significant negative impact on FDI.

Australia is the second largest net importer of FDI in the developed world. Study done by Faeth (2005) indicated that Exchange rate appreciation discouraged FDI in the medium-term, but had a positive longer term effect, indicating that FDI is encouraged by a sound economic environment. Yang et al. (2000) analyzed the determinants of Australian FDI and found that changes of the Australian interest rate, the level of Australian real wages and of industrial disputes increased FDI but Australian inflation and openness had negative effects on FDI Exchange rate appreciation and a change in the Australian GDP were not significant relative to labor disputes (host home).

Kitov (2011) investigated the relationship between unemployment and real GDP per capita in the developed countries (the US, France, Australia, the United Kingdom, Canada and Spain) during the period of 1985-2010 and confirmed that Okun law predicted the changes in unemployment rate substantially correct for the developed countries.

Similarly for Canada, Export rate has negative and import rate, credit rate have significant positive relationship with FDI.

Industry Canada (1994) found that FDI from Canada is associated both with increases of Canada's exports and imports. The same finding is reported with respect to foreign direct investment in Canada. The findings are aggregate and (apparently) based on time series analysis. Estimates are made of the elasticity's of exports and imports with respect to Canada's outward investment and the latter are higher than the former. These estimated elasticity's of trade with respect to investment stocks (see Industry Canada 1994, Table 7) are not, however, controlled for the influence of factors such as economic activity, comparative costs, or other variables that could affect the outcomes.

For Japan, GDP has significant positive relationship along with export rate, import rate, credit rate and unemployment rate. Inflation rate has significant but negative causal relationship with FDI for Japan.



These Athukorala, (2013) proposed that FDI provides the basic infrastructure facilities to host countries which are essential for developing countries to industrialize, create jobs and reduce the unemployment rate, enhance the entrepreneurial intention and reduce the poverty.

Graham (1998), using methodology similar to that reported later in this paper, found that complementary relationships exist between outward FDI and exports and outward FDI and imports for the United States and for Japan.

Farrell et al (2004) performed pooled regression to investigate the determinants factors of FDI deriving from Japan towards 15 countries during 1984 – 1998. The factors studied were the FDI, the market size, the Japanese exports and imports, the labor costs, the exchange rate, the Japanese real interest rate and the antidumping measures. The study concluded that the market size is a key factor in attracting FDI. Moreover, FDI flows from Japan are mostly influenced by the macroeconomic conditions and the antidumping measures and there is a positive correlation between imports and FDI.

Furthermore, the findings of study done in Japan on the impact of FDI on unemployment by Palat (2011) shows that Japan experienced considerably lower levels of inward FDI compared to other developed countries. Furthermore the rate of unemployment in Japan was relatively low which is caused by a specific attitude of the active population of Japan towards employment issues. The findings indicate clear existence of correlation between FDI and unemployment.

There are a large numbers of studies which shows relationship between FDI and financial development and FDI and global economic growth and financial development and global economic growth and FDI. These studies do not show the result for specific nation but most of these studies have reported significant effects of independent variable that is inflation rate, interest rate, exchange rate, export rate, credit rate, and unemployment rate. However a, number of studies do not report significant qualified statistical relations between FDI and global economic growth. Financial development influences the amount of credit rate in global economic growth finally, the efficiency of financial development that the positive effect on the FDI.

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