MPRA

Munich Personal RePEc Archive

FDI, local Financial Markets, employment and poverty alleviation

Abdel Aal Mahmoud, Ashraf

George Washington University, university of Rome "Tor Vergata"

March 2010

FDI, local Financial Markets, employment and poverty alleviation[1]

Ashraf Abdelaal Mahmoud[2]
University of Rome Torvergata
Visiting researcher at School of Business
George Washington University

Abstract

This paper examines the precise links between foreign direct investment (henceforth, FDI) and poverty alleviation, where so far there are few studies attempted to analyze empirically this relationship. The FDI inflows vary across international borders, therefore FDI reduces poverty only under certain circumstances. "Roll out the red carpet for foreign investors and they will come" ; Countries with better financial systems, and healthy business environment are able to attract more FDI, exploit it more efficiently and reduce poverty. Empirical analysis using panel data of 62 countries, from 1996 to 2007, shows that FDI appears regularly to be a key source of employment for women in Non OECD countries and has a favorable effect on poverty reduction in the host country if interacted with monetary and nonmonetary variables.

Introduction

Developing countries with large flows of investment are more successful in reducing poverty. The PRC and Southeast Asian countries, which have received most of FDI over the last three decades, also accounted for the bulk of the decline in poverty over those decades[3]. The basic facts remain : no other region[4] in the world has ever had incomes rise so dramatically and seen so many people move out of poverty in such a short time *Stiglitz (1998)*

The role of FDI in the last decade became more important even the political speech often stressed the attraction of FDI as a key component of the claim for development and particularly the fight against poverty. Leaders gathered at the International Conference on Financing for Development (ICFD), held in Mexico in 2002, characterized FDI as an engine for economic growth and an integral component of poverty alleviation.

Moreover, the advantage of FDI is not only lies in the capital and employment but also in production, management expertise, regional and global distribution links, and the fact that FDI less volatile than the other types of capital flows. *Chuhan, Punam et al (1996)* provide empirical support for the conventional notion that short-term investment is "hot money" and direct investment is not.

 Wei, Shang(2001) finds that FDI is less volatile than international bank loans. *Sarno and Taylor (1999)* argue that FDI is more persistent than other types of flows. *Lipsey (2001)* shows that FDI was relatively stable in the crises affecting Latin America in 1982, Mexico in 1994, and East Asia in 1997, given that the poor have suffered disproportionately during currency and financial crises. *World Bank (1999)* states that reliance on FDI helps protect the poor from the impact of volatility in international financial markets.

The empirical literature suggests that the impact of FDI varies across countries, so that FDI reduces poverty only under certain circumstances like financial stability, good governance, infrastructure development, capacity building, financial market development, financial liberalization, trade volume, business environment, transparency, and economic integration ; all above and more promoting development and economic growth, eradicating poverty and narrowing the development gap.

---

[3] See regional cooperation and integration strategy report (Asian development bank , 2006)
[4] East Asian

De Mello (1999) shows that FDI inflows depend conditionally on host country characteristics. *Zhang, K.H. (2001)* found that the role of FDI in host economies seems to be sensitive to host economic conditions.

Romer (1993) argues that by transferring technological and business know-how to poor countries, foreign firms can improve the "idea gap" between rich and poor countries. The gap between rich and poor countries largely comes down from the physical capital and financial assets that generate wealth. The implication is clear : A key aspect of economic advancement lies in poorer countries' capacity to attract more foreign capital *Anil Kumar (2007)*

Table (1)   FDI inflow

FDI inflow	Value (billion dollars)			% GDP		
	1986	*1996*	*2006*	*1986*	*1996*	*2006*
World	86	390	1461	0.6	1.3	3
Developed economies	71	237	973	0,6	1	2.7
Developing economies	16	147	434	0.6	2.3	3.6
Sub-Saharan Africa [5]	0.7	3.7	38	0.4	1.9	7.6
COMESA	1	1	18	1	0.7	6.07

Source ：*UNCTAD(2009), World Investment Report* . *FDI inflow comprise capital provided (either directly or through other related enterprises) by a foreign direct investor to a FDI enterprise, or capital received by a foreign direct investor from a FDI enterprise. FDI includes the three following components: equity capital, reinvested earnings and intra-company loans.* **Equity capital** *is the foreign direct investor's purchase of shares of an enterprise in a country other than that of its residence.* **Reinvested earnings** *comprise the direct investor's share (in proportion to direct equity participation) of earnings not distributed as dividends by affiliates or earnings not remitted to the direct investor. Such retained profits by affiliates are reinvested.* **Intra-company loans** *or intra-company debt transactions refer to short- or long-term borrowing and lending of funds between direct investors (parent enterprises) and affiliate enterprises.*

Table (2) FDI Inward Stock

FDI Inward Stock	Value (billion dollars)			% GDP		
	1986	*1996*	*2006*	*1986*	*1996*	*2006*
World	*1096*	*3246*	*12404*	*8*	*11*	*25*
Developed economies	*693*	*2240*	*8645*	*6*	*10*	*24*
Developing economies	*402*	*988*	*3364*	*16*	*16*	*28*
Sub-Saharan Africa	*19*	*44*	*147*	*12*	*23*	*30*
COMESA	*11*	*23*	*74*	*11*	*14*	*25*

Source ：*UNCTAD(2009), World Investment Report, FDI stock is the value of the share of their capital and reserves (including retained profits) attributable to the parent enterprise, plus the net indebtedness of affiliates to the parent enterprises*

---

[5] *excluding South Africa*

Flows of FDI have grown considerably in recent decades. In 1986, the level of FDI inflows stood at US$ 86 Billion, and by 2006, it stood at US$ 1461 Billion. FDI flows have increased from approximately 0.6% of world GDP at the beginning of the 1980s to a share between 2% and 3% since the end of millennium *(see Table 1)*. FDI stocks have increased from a level of about 8% of world GDP at the beginning of the 1980s to 25% of world GDP in 2006 *(see Table 2).*

FDI now represents the largest component of net resource flows to developing countries, surpassing official development assistance (ODA), portfolio investments, and bank loans *Miyamoto(2003).*

Under standard neoclassical assumptions (where output is produced by capital and labor), capital is predicted to flow from wealthy to poor countries until capital–labor ratios equalize across countries. The observed pattern of FDI, with most capital flowing from one wealthy country to another, is thus an apparent paradox. *Lucas (1990)* argues that differences in human capital could explain this paradoxical pattern.

This increase of FDI has had major effects on the social welfare of the citizens of developing host countries and poverty alleviation. This paper attempts to examine if the impact of interaction between FDI, financial market development and human development on country growth rate is consistent with the hypothesis of *conditional convergence*. The term convergence illustrates that countries which lag behind in economic development may catch up by growing at a rate which is higher than that of the more industrialized countries. The conditionality in convergence illustrates that this can occur only if such countries satisfy some side conditions i.e. if they level out differences in terms of endowment of crucial factors, such as physical capital and all other determinants affecting the residual which augments the productivity of labor .

Barro (1991) shows that poor countries, indeed, grow faster if they are endowed with high levels of human capital (proxied by secondary and primary school enrolment). *Barro & Sala-i-Martin, (1997)* emphasized on the role of technology transfers and market integration in growth. *Bhargava, Jamison, Lau, & Murray (2001)* and *Bloom, Canning, & Sevilla,(2004)* have demonstrated that population health is a robust predictor of growth. *Borensztein et al (1998)* found that FDI has an exogenous positive effect on economic growth.

The paper discuses that FDI promotes growth and growth benefits the poor. *Dollar and Kraay (2001)* showed that the general effects of FDI on growth are indeed essential, that growth tends to lift the incomes of the poor proportionately with overall growth. *Deininger and Squire (1996)* found a strong positive relationship between growth and poverty alleviation and *Ravallion et al (1996)* also share the same finding. *Roemer and Gugerty (1997)* show that on average the poor do benefit from economic growth.
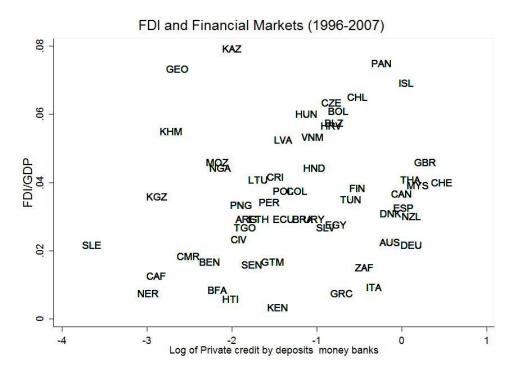
The relationship between FDI and poverty alleviation is complex. This paper expands the focus to the factors that influence the impact of FDI on the employment plus the impact of monetary and nonmonetary variables on the FDI inflows.

The remainder of the paper is organized as follows : **Section 2** "*Roll out the red carpet for foreign investors and they will come*" presents stylized facts regarding FDI and its relationship to monetary and nonmonetary variables which can attract more FDI to developing countries, this section emphasizes the importance of both monetary and nonmonetary variables and the role of FDI inflow under certain circumstances **; Section 3** FDI inflows and employment : A theoretical framework, this section focuses on the impact of FDI on employment and poverty reduction ; **Section 4** Empirical model used in the analysis of FDI inflows and poverty reduction, this section emphasizes the econometric analysis using panel data of 62 countries, from 1996 to 2007, investigating whether the empirical evidence supports the view that FDI has a statistically significant influence on poverty reduction if interacted with monetary and nonmonetary variables ; **Section 5** conclusion and **Section 6** Details of the data used.

2. Analytical framework

"Roll out the red Carpet for foreign investors and they will come"

FDI , Financial Market development and Poverty reduction

Fig. 1. Countries in this plot are the 64 countries (the sample data of this paper) .

Fig. 1. data on FDI and financial development shows the links between financial market development (Private credit to deposits)[6] and FDI inflows, which consider the motivation of this work i.e. countries with better developed financial markets are able to absorb more from FDI to promote their economic growth and reduce poverty but the level of financial development is crucial for these positive effects to be realized.

The literature on FDI has advanced several explanations of those links between financial market development and FDI inflows which can exert a positive influence through the transfer of new technology and spillover efficiency. However, such a positive impact depends on certain circumstances. Capital shortage, which leads to increased poverty in developing countries, has been frequently related to deficient, unstable financial markets that fail to accumulate and allocate resources efficiently, *Stiglitz (1998).*

---

[6] One of the traditional Financial Sector Development Indicators for banking (Raw data are from the electronic version of the IMF's International Financial Statistics, October 2008.

In a trade, English capital is instantly at the disposal of persons capable of understanding the new opportunities and making good use of them. In countries where there is little money to lend enterprising traders are long kept back, because they cannot at once borrow the capital, without which skill and knowledge are useless *Bagehot (1873).*

Schumpeter (1911) argues that monetary institutions are important and money could be a separate driving force. Literature on finance goes hand in hand with that line. It can be argued that reduce transaction costs, allocate the capital to the highest returns projects will lead to higher output growth and reduce poverty. *Gurley and Shaw (1955); Goldsmith (1969)* and *Hicks (1969)* argue that development of a financial system is important in catalyzing the economic growth. *McKinnon (1973)* and *Shaw (1973)* argue that any increase in the level of financial development, which follows financial liberalization, will lead to a higher level of growth.

Greenwood and Jovanovic (1990) and *King and Levine (1993b)* show that financial market development reduces informational frictions and improves resource allocation more efficiently. *Hermes et al (2003)* shows that FDI plays an important role in contributing to economic growth but the level of financial development is crucial for these positive effects to be realized. *Alfaro et al. (2004)* and *Choong, et al.(2005)* show that better developed financial systems tend to benefit more from FDI. *Omran, et al (2003)* show that domestic financial reforms should precede policies promoting FDI . *Beck, et al. (2000)* suggest that financial systems are important for both productivity and development. *Rebecca M., et al (2009)* examined the volatility of capital flows (FDI, portfolio flows, and other debt flows) following the liberalization of financial market and they found that capital flows are responding differently to financial liberalization. Surprisingly, portfolio flows appear to show little response to capital liberalization, while FDI flows show significant increases in volatility, particularly for the emerging markets.

James Ang (2009) shows that efficient financial system facilitates FDI to create backward linkages, which are beneficial to the local suppliers in the form of improved production efficiency. This implies that financial market development plays a crucial role in the host country and its ability to attract FDI and absorbs the benefits associated with it, and reduces poverty. *Durham (2004)* observed that the deeper financial systems absorb capital inflows such as FDI.

Furthermore, financial markets affect both the financing of investment and day-to-day business activities. *Wurgler (2000)* shows that even if financial development does not lead to higher levels of investment, it seems to allocate the existing investment better.

FDI , openness and Poverty reduction.

What we do learn is that growth generally does benefit the poor as much as everyone else, so that the growth enhancing policies of good rule of law, fiscal discipline, and openness to international trade should be at the center of successful poverty reduction strategies *David Dollar and Aart Kraay (2001).*

The literature deduced that the decision of a foreign firm to enter into another market through FDI depends on the degree of openness of that market, thus openness of an economy contributes to higher FDI and, therefore, to higher growth. *Balasubramanyam et al (1996)* finds that trade openness regime is crucial for acquiring the potential growth impact of FDI. *Kawai (1994)* also shares the same finding.

De Mello (1996) showed that the causality direction between FDI and growth depends on the recipient country's trade regime, while *Nair-Reichert and Weihold (2001)* showed that the direction of causality from FDI to growth is highly heterogeneous and the degree of heterogeneity is more intense for more open economies. *Singh and Jun (1995)* find that export orientation is a large attraction for FDI.

Dees (1998) showed that degree of openness to the rest of the world seems to be relevant using 11 countries and 12 years of panel data to identify the determinants of FDI in China.

FDI and NIPAs[7] in host country

Investment *promotion agencies* (IPA) in host country play a crucial rule in FDI inflows. *Loewendahl (2001)* and *Proksch (2004)* show that sector targeting is considered to be best practice by IPA, as it is believed that more intense efforts concentrated on few priority sectors are likely to lead to greater FDI inflows than less intense across-the-board attempts to attract FDI. *Harding and Javorcik (2007)* argue that FDI inflows into sectors explicitly targeted by IPAs more than double in the post-targeting period relative to the pre-targeting period and non-targeted sectors. *Alfaro and Charlton (2007)* confirm the

---

[7]National Investment promotion agencies

same finding i.e. sector targeting is correlated with good FDI leading to an increase in the effect of FDI on growth .

FDI , Political and corruption

Political factors play a very important role in FDI inflows. *Schollammer & Nigh (1984)* and *Nigh (1985)* have argued that the presence of a political system hospitable to a foreign capital in terms of property rights and civil liberties plays a favorable role for attracting FDI. *Nunnenkamp and Spatz (2004)* show that the other factors such as rule of law, the degree of corruption, the quality of public management, the protection against property rights infringements and discretionary government interference are also very important in attracting FDI .

Mauro (1995) shows that corruption has a negative impact on the level of investment and economic growth. *Dutta and Roy (2008)* empirically investigate the role of political risk in the association with FDI and financial development. Thus, the coexistence of advanced financial markets and political stability seems to be necessary to capture and enjoy the benefits of FDI.

3. FDI inflows and employment : A theoretical framework

Employment is ideal to measure the impact of FDI on poverty "*many of the poor blame their income shortfall on their joblessness*", this impact can be categorized into direct and indirect effects.

FDI inflows are accompanied by direct effect on employment opportunities creation, also indirect effect, by promoting both forward and backward production linkages with domestic sectors and foreign firms, for instance via subcontracting systems between a foreign firm and local subcontractors who supply components or semi-finished goods to the foreign firm, additional employment is indirectly created and further economic activity is stimulated.

Aaron (1999) states that likely FDI was directly responsible for creating 26 million jobs in 1997. Estimates of the indirect employment effect of FDI vary widely around a multiplier of 1.6 (i.e. 1.6 indirect jobs for every one direct job) therefore, it can be argued that the indirect effect of FDI on employment and poverty reduction is higher than direct effect.

Richard E. Caves (1974) examined the effect of foreign presence on value added per worker in domestic manufacturing sectors in Australia and found evidence of spillover hypothesis. He argued that by employing an increasing share of domestic firms, foreign firms were able to reduce the gap

between foreign and domestic value. *Rappapor (2000)* argues that FDI increases the productivity not only in the firms which receive FDI, but potentially in domestic firms.

Higher FDI inflows lead to higher quality of the labor force and poverty reduction. *Caves (1998)* and *Tybout (2000)* show that domestic large firms linked to FDI tend to be more productive, suggesting that the impact of the diffusion is likely to be more effective on large firms than smaller ones. Large firms usually have better trained workers and infrastructure to absorb transferred technologies and other intangible assets than what small firms have. *Filer et al (1995)* found that foreign-owned firms in the Czech Republic spent 4.6 times on hiring and training more than domestic firms. A study focusing on Malaysia also showed that foreign-owned firms provide more training to their workers than domestic enterprises *World Bank (1997).*

Blomstrom and Kokko, (1996) show that impact of FDI on employment varies significantly across industries and countries which is consistent with that FDI reduces poverty only under certain circumstances.

The impact of FDI on poverty alleviation depends on the nature of employment created by FDI and its effect on the society. Workforce employed by foreign firms will depend on the level of education, health and sex.

With respect to health, the World Health Organization's Report of the Commission on Macroeconomics and Health (*CMH, 2001*)[8] asserts : ''A healthy workforce is important when attracting foreign direct investment (FDI).''

Population health is a creator of human capital that raises worker productivity and improve economic growth. High levels of healthy human capital in the workforce are likely to make a country more attractive to FDI. On the other hand, high rates of worker turnover due to morbidity and mortality can raise production costs and discourage FDI and increase poverty. Even diseases might also deter FDI inflows. In addition to the importance of health as a consumption good, health can also be viewed as a form of human capital that enhances economic performance both at the individual level and at the level of the macro economy *Bloom, Canning, & Jamison(2004).*

---

[8] See Macroeconomics and Health : Investing in Health for Economic Development (Page 34), Report of the Commission on Macroeconomics and Health *Presented to* Gro Harlem Brundtland Director-General of the World Health Organization *in* 20 December 2001 http://whqlibdoc.who.int/publications/2001/924154550x.pdf

A substantial body of evidence has demonstrated that population health is a robust predictor of growth in per capita income *Barro (1991) ; Barro & Sala-i-Martin (1995) ; Bhargava, Jamison, Lau, & Murray (2001) and Bloom, Canning, & Sevilla (2004).* Moreover, countries may benefit with different degrees from health. *Bhargava et al. (2001)* argue that economic growth resulting from health improvements is more pronounced in developing countries than in industrial countries.

Improving the population health can also reduce poverty through indirect mechanisms ; for example, improved health can increase the return to education and worker experience. Healthier children have enhanced cognitive function and higher school attendance, allowing them to become better educated, and higher earning adults *Bhargava (2001) and Bloom (2005).*

Marcella Alsan et al (2006) argue that a one-year improvement in life expectancy is associated with a 9% increase in gross FDI inflows to low- and middle-income countries, and this result seems fairly robust. These findings are consistent with the view that health is an integral component of human capital for developing countries and suggest that the payoff to improved population health is also likely to include an elevated rate of FDI inflows.

With respect to the level of education, *Noorbakhsh et al (2001)* and *Globerman and Shapiro (2002)*[9] argue that education does have a positive and significant impact on FDI and its effect has been increasing over time. *Zhang and Markusen (1999)* present a model where the availability of skilled and educational level of labour in the host country affects the volume of FDI inflows

With respect to sex, there are some literature deduced that FDI appears regularly to be a key source of employment for women in developing countries. With this, *Jenkins and Thomas (2002)* stress that the implications for poverty alleviation are important. *Cotton and Ramachandran (2001)* give the reason for this, based on their research, which has shown that the earnings of women are most often allocated to improving the health and nutritional well-being of their children, and any increase of women's employment and/or increases of their wages are likely to improve the quality of life in households in which women work. This goes hand in hand with *Barro-Becker (1989)* and *Becker, Murphy and Tamura (1990).*

---

[9] They regress FDI on the human development index (HDI), which is a composite of GDP per capita, educational literacy and enrollment, and life expectancy at birth.

4. Data and Empirical Analysis

4.1 Data

In this section, the data used in the empirical analysis are described. Prior research was hampered by the lack of consistent cross-country data, and was thus limited to small samples of countries. On the basis of the availability of data, a balanced panel data for 62 countries[10] over the period 1996-2007 was constructed. The countries chosen for the empirical work are comprised of samples from the low, upper middle-income and high income (OECD) categories.

The measure for FDI is net FDI inflows as a percent of GDP, FDI is defined as the net inflows of investment to acquire a lasting management interest (10% or more of voting stock) in an enterprise operating in an economy other than that of the investor. It is the sum of equity capital, reinvestment of earnings, long-term capital and short-term capital as shown in the balance of payments. FDI inflows with a negative sign indicate that at least one of the three components of FDI is negative and not offset by positive amounts of the remaining components. These are called reverse investment or disinvestment. The data are from *United Nations Conference on Trade and Development (UNCTAD) 2009 FDI database*.

Education index is used to capture the human capital development. It is measured by the adult literacy rate (with two-thirds weighting) and the combined primary, secondary, and tertiary gross enrollment ratio (with one-third weighting). The adult literacy rate gives an indication of the ability to read and write, while the GER gives an indication of the level of education from kindergarten to postgraduate education. The data source is (UN) *Human Development Reports from 1996 to 2008.[11]*

(UNDP)

Regarding the measure of financial market development, *Thorsten Beck, Aslı Demirgüç-Kunt, and Ross Levine (1999)* have constructed a database on Financial Development and Structure which contains many variables. One of these variables is bank credit to bank deposits (henceforth, BCBD). This is used as an approximate measure of the liquidity constraint. BCBD shows the percentage of deposits that is tied up in loans. Thus, this variable provides a measure for the overall size of the

---

[10] Section 5 provides further data sources, countries in the samples, and the definitions of the variables used in this paper.

[11] see United Nations Development website *http://hdr.undp.org/en/statistics/data/*

financial sector without distinguishing between different financial institutions. Data here come from World Bank Financial Structure Database.[12]

Economic growth is measured as the annual percentage growth rate per capita of real gross domestic product (GDP) which considers a good proxy for welfare of a country. The data are obtained from World Development Indicators *(WDI) (World Bank)*.

This paper employs the aggregate worldwide governance indicators made available by the World Bank[13] (political stability, government effectiveness, and control of corruption). The details of the construction of these measures are to be found in *Kaufmann et al. (2005).* This is one of the most comprehensive compilations of data on governance currently available.

This paper uses the annual inflation rate since literature argued that it can impact the stability of the banking sector *Demirguc-Kunt and Detragiache (1998)* and *Davis and Karim (2008).* The government's ability to control inflation is expected to reduce investment risks and consequently, to increase FDI inflow. Inflation is also a measure of economic stability, therefore we expect a negative coefficient. Source : World Development Indicators.

To capture openness to international trade, this study uses the ratio of the sum of exports plus imports to total output (GDP). The relation between FDI and the degree of openness of a country proxies the liberalization of the trade regime in the host country. Data come from Penn World Table [14] and the population growth data are obtained from World Development Indicators (World Bank).

4.2 Empirical analysis.

Panel data unit root test , FDI and growth rate.

Following the hypothesis that FDI generates significant externalities and spillovers in growth and poverty alleviation as suggested above, panel data unit root tests provide a preliminary test of that linearity hypothesis, so far the greater the accumulation of inputs (FDI inflows), the greater the growth rate of output. In other words, if a country growth rate exhibits a little persistent change over time, so should its determinates, or there persistent be offsetting, for instance, if FDI has a statistically

---

12 The URL for the database is *http://siteresources.worldbank.org/INTRES/Resources/469232-1107449512766/FinStructure_2008_v2.xls*

13 The URL for the worldwide governance indicators database *http://info.worldbank.org/governance/wgi/index.asp*

14 PWT 6.3 http://pwt.econ.upenn.edu/php_site/pwt63/pwt63_form.php

significant influence on growth, this should lead to that reality ; an increase in FDI inflows tends to an increase in growth rate and poverty reduction.

As for as empirical validation is concerned, the impact of FDI on growth is estimated using panel data analysis for a sample of 62 countries in the periods 1996-2007. The countries in my sample classified by income level (low, middle, upper middle , OECD and non OECD) and by regions (Sub-Saharan Africa, Europe & Central Asia, East Asia & Pacific). Section 5 provides further data sources as well as the definitions of the variables used in this paper.

In this study, unit root tests are used to examine whether my variables of interest (growth rate per capita and FDI as a percentage of GDP) are stationary. This study performed two different tests ; Levin and Lin (LL) Test (2002)[15], Im, Pesaran and Shin (IPS) Test (1997) which are the most widely used methods for panel data unit root tests in the literature.

Table (3) Combined results of the panel unit root tests .

		Growth per Capita		FDI/GDP	
		LLC	IPS	LLC	IPS
Paper Sample	(62)	-7.183 (0.000)***	-4.508 (0.000)***	-5.434 (0.000)***	-3.914 (0.000)***
High income level :OECD	(14)	-2.647 (0.004)**	-1.686 (0.04)*	-2.410 (0.008)**	-1.891 (0.02)*
Non OECD	(48)	-8.594 (0.000)***	-5.801 (0.000)***	-4.876 (0.000)***	-3.553 (0.000)***
Low income level	(19)	-7.872 (0.000)***	-5.218 (0.000)***	-2.952 (0.001)**	-2.950 (0.002)**
Lower Middle income.	(14)	-2.759 (0.002)**	-1.707 (0.04)*	-1.749 (0.04) *	-1.496 (0.06) †
Upper Middle income	(15)	-5.109 (0.000)***	-3.816 (0.000)***	-3.257 (0.000)***	-1.797 (0.03) *
East Asia & Pacific	(5)	-5.359 (0.000)***	-4.140 (0.000)***	-3.703 (0.000)***	-3.295 (0.000)***
Europe & Central Asia	(7)	-3.132 (0.000)***	-2.242 (0.01)*	-2.422 (0.007)**	-1.030 (0.152)
Latin America & Caribbean	(17)	-4.720 (0.000)***	-2.869 (0.002)**	-2.466 (0.001)**	-1.782 (0.03) *
Sub-Saharan Africa	(19)	-6.468 (0.000)***	-3.429 (0.000)***	-2.561 (0.001)**	-1.893 (0.02) *

† if $p < 0.10$, * if $p < 0.05$; ** if $p < 0.01$; *** if $p < 0.001$.

The results presented in *Table 3* show that the test statistics are all negative and greater than the critical values in absolute term. This confirms my believe, of considerable interest, since they indicate

---

[15] In econometrics literature, the Levin-Lin (LL) tests has been extensively used during the last few years

that regardless of the applied unit root test for a chosen deterministic specification, or income level or geographical location, the growth rate and FDI as a percentage of GDP are stationary and that the regression results are not spurious. Therefore, I reject the null hypothesis for all, except the results obtained by using the IPS test for FDI inflow to Europe & Central Asia region (Albania, Georgia, Croatia, Kazakhstan , Latvia, Lava and Poland).

Panel data Estimates.

The fixed and random effects panel methods are based on the stationary assumption. Since the LLC and IPS tests are performed and they indicated that the growth rate and FDI are stationary, the conventional fixed and random effects panel methods are adequate here. Before proceeding to the empirical results, Hausman-test was conducted to choose the appropriate model (RE or FE-model). The test produces high statistics that lead to the rejection of the fixed effect model.

The presence of homoskedastic[16] could be a restrictive assumption for panels, where the cross-sectional units may be of various sizes and as a result may exhibit different variation. Given that FDI inflows varies across international borders, and we are dealing with different size countries, one should expect the heteroskedastic existences. This study uses the Feasible Generalized-Least-Squares (GLS) estimators developed for panel data, accounting for homoskedastic with no autocorrelation and heteroskedastic with cross-sectional correlation, and also cross-sectional correlation alone with common AR(1) process in error terms.

The purpose of the empirical analysis is to examine financial markets (monetary variable) and human development (nonmonetary variable) channels through which FDI may be beneficial for growth and poverty reduction. As a starting exercise considers the following three models assuming the Presence of homoskedastic :

$$\text{GROWTH}_{it} = \alpha + \beta_1 \text{FDI/GDP}_{it} + \beta_2 \text{Fin}_{it} + \beta_3 \text{EDU}_{it} + \beta_4 \text{Controls}_{it} + \varepsilon_{it} \qquad \textbf{(1)}$$

$$\text{GROWTH}_{it} = \alpha + \beta_1 \text{FDI/GDP}_{it} + \beta_2 \text{FDI/GDP}_{it} \times \text{Fin}_{it} + \beta_3 \text{Fin}_{it} + \beta_4 \text{EDU}_{it} +$$

$$\beta_5 \text{Controls}_{it} + \varepsilon_{it} \qquad \textbf{(2)}$$

---

[16] The standard error component model assumes that the regression disturbances are homoskedastic with constant variance across time and individuals. In contrast, the regression disturbance is called heteroskedastic if it has different variance across time and individuals.

$$\text{GROWTH}_{it} = \alpha + \beta_1 \text{ FDI/GDP}_{it} + \beta_2 \text{ FDI/GDP}_{it} \times \text{Fin}_{it} \times \text{EDU}_{it} + \beta_3 \text{ Fin}_{it} + \beta_4 \text{HDI}_{it} +$$

$$\beta_5 \text{ Controls}_{it} + \varepsilon_{it} \tag{3}$$

Table 4 presents results based on regressions (1), (2) and (3) under the assumption of homoskedastic existence to examine the role of FDI on growth through financial markets and HDI Channels. The paper interacts FDI with financial markets and uses this as an independent variable in regression (2) to test the significance of financial markets alone in enhancing the positive externalities associated with FDI flows. In regression (3), the paper interacts FDI with financial markets and education Index and uses this as an independent variable in the regression to test for the significance of financial markets and education index in enhancing the positive externalities associated with FDI flows. The latter variables were included in the regression independently in order to ensure that the interaction term does not proxy for FDI or the level of development of financial markets or the level of human development .

As shown in *Table 4,* the interaction term turns out to be positive in all and significant in all columns. Except for OECD countries, Colum(5), the interaction term turns out to be positive but not significant. My interpretation is that the impact of FDI on growth is expected to be stronger in the recipient economy than the country of origin of FDI. If the advanced economies in the OECD countries are the main net exporters of FDI, then the impact should be smaller in those countries than elsewhere.

 For each regression, a different country sample was used which may differ from one regression to another. Column (1) uses a sample of 62 countries (all countries for which I have data), column (2) uses a sample of 48 non OECD countries, column (3) uses a sample of 19 low income level countries, column (4) uses a sample of 15 upper middle income countries and column (5) uses a sample of 14 OECD countries.

The main result is that the interaction terms are positive and significant at the 10 % level for the entire range of countries' groups used. Moreover, the first interaction term (FDI X Financial market) for low income countries (poor countries) is significant at the 1% while it is significant at 10% for upper middle income countries and positive but not significant for OECD countries (FDI exporter), also we have the same results for the second interaction term.

Interestingly, the coefficient of FDI is positive and significant and displays considerable variation within the countries' group. Low income countries (Poor Countries) have the highest coefficients for all the models. In contrast, OECD countries (Rich countries) have the lowest coefficients.

The results are consistent with the hypothesis of *conditional convergence*. Countries with low income level may catch up by growing at a rate which is higher than that of the more industrialized countries (OECD). The same results are found by *Barro (1991)* and *Barro & Sala-i-Martin (1997).*

Table 4 also reports (I) the joint significance test of financial markets with the interaction term and (II) the joint significance test of education index with the interaction term and (III) the joint significance test of FDI with the interaction term. For all samples' groups, the tests confirm the importance of financial markets, education and FDI. First, with respect to equation 2, the hypothesis that the coefficients of both FDI, and the interaction between FDI and financial markets are zero , is rejected in all regressions at the 5 % level for all the entire range of countries' groups used. Also the hypothesis that the coefficients of both financial market, and the interaction between FDI and financial markets are zero, cannot be rejected outright at the 5 % level except only in the case of first column (1) which contain all the countries in our sample (62). Clearly, the coefficients of the interaction terms in this regression also report the lowest t-statistics. Second, with respect to equation 3, the hypothesis that the coefficients of both FDI, and the interaction between FDI, financial market and education are zero, is rejected for all regressions at the 5 % level for all the entire range of countries' groups used and the hypothesis that the coefficients of both financial market, and the interaction between FDI, financial market and education are zero, is rejected in all regressions at the 10% level for all the entire range of countries' groups and finally the hypotheses that the coefficients of both education , and the interaction between FDI, financial market and education are zero, is rejected in all regressions at the 10 % level for all the entire range of countries' groups.

Moreover, *Table 4* also reports that financial market indicator by itself is insignificant and even negative for non OECD countries and low income countries. On the other hand, there are mixed results for the upper middle income and OECD countries. Not surprisingly, the coefficients of the interaction terms of OECD sample regressions report the lowest t-statistics compared with the counterparts in the other columns.

Table (4) homoskedastic, no autocorrelation FDI and growth : Dependent variable—per capita growth rate.

	Model 1 Without Interaction term					Model 2 with Interaction term = FD I × FM					Model 3 with Interaction term = FDI × FM ×Edu				
	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
FDI/GDP	0.163	0.175	0.210	.170	.086	.156	.229	.411	.157	.047	.133	.162	.259	.146	.048
	(3.93)***	(3.09)**	(1.93)†	(1.72)†	(2.32)*	(3.74)***	(3.85)***	(2.61)**	(1.62)	(0.94)	(3.01)**	(2.91)**	(2.35)*	(1.50)	(0.95)
Interaction term						.108	.306	.388	.846	.064	.149	.551	.697	.973	.064
	—	—	—	—	—	(1.72)†	(2.77)**	(1.75)†	(2.77)**	(1.14)	(1.95)†	(3.64)***	(2.05)*	(2.82)**	(1.10)
Financial market	-0.003	-0.004	-.012	.003	-.008	-.007	-.016	-.025	-.041	-.011	-.007	-.019	-.024	-.041	-.011
	(-1.09)	(-1.17)	(-1.62)	(0.44)	(-2.32)*	(-1.97)*	(-2.90)**	(-2.50)*	(-2.28)*	(-2.51)*	(-2.09)*	(-3.57)***	(-2.70)**	(-2.32)*	(-2.49)*
Education	0.015	0.016	.037	.190	.108	.015	.015	.034	.135	.112	.019	.030	.057	.140	.112
	(1.70) †	(1.54)	(2.29)*	(3.29)**	(1.83) †	(1.68) †	(1.46)	(2.08)*	(2.25)*	(1.91)†	(2.06)*	(2.68)**	(3.03)**	(2.37)*	(1.91)†
Population Growth	-0.828	-0.901	-.389	-.403	-.377	-.846	-.892	-.395	-.606	-.414	-.846	-.860	-.205	-.58	-.412
	(-5.90)***	(-5.31)***	(-0.81)	(-1.60)	(-1.92)†	(-6.02)***	(-5.29)***	(-0.82)	(-2.36)*	(-2.09)*	(-6.02)***	(-5.12)***	(-0.42)	(-2.30)*	(-2.08)*
Political Stability No Violence	0.007	0.007	.005	.030	.009	.007	.007	.006	.031	.009	.007	.006	.004	.031	.009
	(3.08)***	(2.43)*	(1.14)	(2.87)**	(1.76)†	(3.15)**	(2.43)*	(1.20)	(3.04)**	(1.67)†	(3.15)**	(2.32)*	(0.89)	(3.03)**	(1.67) †
Government Effectiveness	0.003	0.008	.015	.012	.009	.004	.008	.015	.014	.011	.004	.007	.016	.013	.011
	(0.78)	(1.36)	(1.57)	(0.81)	(1.29)	(0.84)	(1.38)	(1.57)	(1.01)	1.44	(0.80)	(1.29)	(1.65)†	(0.93)	(1.44)
Control of Corruption	-0.012	-0.012	.001	-.027	-.012	-.012	-.011	.002	-.028	-.013	-.012	-.011	.002	-.026	-.013
	(-2.72)**	(-2.20)*	(0.17)	(-2.11)*	(-1.87) †	(-2.79)**	(-2.01)*	0.20	(-2.17)*	(-1.97)*	(-2.85)**	(-2.02)*	(0.28)	(-2.08)*	(-1.97)*
Trade volume	0.008	0.009	-.004	.011	.001	.009	.009	-.003	.012	.002	.009	.009	-.006	.012	.002
	(2.58)*	(2.37)*	(-0.50)	(1.75)†	(0.22)	(2.77)**	(2.55)*	(-0.43)	(1.98)*	(0.47)	(2.80)**	(2.56)*	(-0.75)	(2.02)*	(0.47)
Inflation	-0.018	-.017	-.075	-.012	-.004	-.020	-.020	-.082	-.014	-.003	-.023	-.029	-.085	-.021	-.003
	(-0.91)	(-0.73)	(-1.91)†	(-0.25)	(-0.08)	(-1.01)	(-0.86)	(-2.10)*	(-0.28)	(-0.07)	(-1.12)	(-1.22)	(-2.17)*	(-0.43)	(-0.08)
Sub-Saharan Africa dummy	0.009	0.011	.0003	.0314		.010	.013	.003	.037		.010	.015	.005	.038	
	(2.28)*	(2.33)*	0.03	(2.19)*	—	(2.44)*	(2.71)**	(0.41)	(2.66)**	—	(2.49)*	(3.02)***	(0.52)	(2.70)**	—
No of Obs	744	576	228	180	168	744	576	228	180	168	744	576	228	180	168
No of countries	62	48	19	15	14	62	48	19	15	14	62	48	19	15	14
Wald χ^2	152.38	128.72	35.64	94.60	29.56	155.93	138.11	39.19	106.31	31.08	156.96	144.91	40.49	106.78	31
(Prob > χ^2)	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
χ^2 for FDI						18.48	17.36	6.86	10.75	6.71	19.36	23.00	8.00	11.06	6.63
(Prob > χ^2)						(0.000)***	(0.000)***	(0.03)*	(0.004)**	(0.03)*	(0.000)***	(0.000)***	(0.01)*	(0.004)**	(0.03)*
χ^2 for FM						4.14	9.06	6.28	7.87	6.70	5.01	14.63	7.43	8.18	6.62
(Prob > χ^2)						(0.12)	(0.01)*	(0.04)*	(0.01)*	(0.03)*	(0.08) †	(0.000)***	(0.02)*	(0.01)*	(0.03)*
χ^2 for Edu											6.71	15.64	9.55	19.29	4.61
(Prob > χ^2)											(0.03)*	(0.000)***	(0.008)**	(0.000)***	(0.09)†

Notes: All regressions have a constant positive term. t-values are in parentheses. The financial market variables refer to log of (Bank credit / Bank Deposits) . Population growth is the growth rate for the period. the inflation is log (1 + inflation rate) for the period. Trade volume is log (average of exports + imports as a share of GDP) Government performance variables (Political Stability No Violence Government Effectiveness Control of Corruption),
† if p < 0.10, * if p < 0.05; ** if p < 0.01; *** if p < 0.001.

Heteroskedastic Presence in the Panel data.

Assuming homoskedastic disturbances when heteroskedastic is present will still result in consistent estimates of the regression coefficients. Therefore, Modified Wald test for group wise heteroskedastic has been conducted to test the heteroskedastic presences in regression (1), (2) and (3). The null is homoskedastic (or constant variance).

Table(5) Modified Wald test

	(1)	*(2)*	*(3)*	*(4)*	*(5)*
Model (1)					
χ^2	*13473.34*	*5014.35*	*1084.16*	*268.51*	*242.32*
(Prob > χ^2)	*(0.000)****	*(0.000)****	*(0.000)****	*(0.000)****	*(0.000)****
Model (2)					
χ^2	*12445.91*	*5185.88*	*1229.57*	*109.45*	*252.91*
(Prob > χ^2)	*(0.000)****	*(0.000)****	*(0.000)****	*(0.000)****	*(0.000)****
Model (3)					
χ^2	*13149.56*	*4431.79*	*1066.36*	*119.13*	*252.29*
(Prob > χ^2)	*(0.000)****	*(0.000)****	*(0.000)****	*(0.000)****	*(0.000)****

H0: sigma(i)^2 = sigma^2 for all I, † if $p < 0.10$, * if $p < 0.05$; ** if $p < 0.01$; *** if $p < 0.001$.

Table 5 reports that I reject the null and conclude heteroskedastic, and due to prevailing serial correlation in the standard models, I run a GLS estimation accounting for heteroskedastic with cross-sectional correlation, and also cross-sectional correlation with common AR (1) process in error terms. Clearly for a sample of 62 countries (all countries for which I have data) and non OECD (48) countries, if I compared the number of all existence observations in my model to the number of estimated parameters under FGLS regression, I will find that parameters estimated at least as many quantities as I have observations. Therefore, I would not put great value on the results so I ignored this sample group.

For each regression type, the same countries samples were used. Column (1) uses a sample of 19 low income level countries (Poor countries), column (2) uses a sample of 15 upper middle income countries and column (3) uses a sample of 14 OECD countries.

Table 6 and 7 report that the FGLS estimation accounting for heteroskedastic with cross-sectional correlation, and cross-sectional correlation with common AR(1) process in error terms, receptively,

turned out to be promising results for all investigated models. As shown in *Table 6,* both interaction terms under heteroskedastic turns out to be positive and significant in all columns. For the first interaction term, it is significant at the 10 % level for the entire range of countries' groups except countries with high income level (FDI Importer). For the second interaction term, it turns out to be positive and significant at 10% level for all countries' groups.

Moreover, *Table 6* reports that the coefficients of the interaction term of FDI, financial market indicator and education index for low income countries (Poor countries)   report the highest coefficients compared with the counterparts in the other columns. This finding is consistent with the motivation of this work which is FDI have a favorable effect on growth and poverty reduction in the host country if interacted with monetary and nonmonetary variables. Interestingly, the coefficient of FDI is positive and significant and displays considerable variation within the countries' group and low income countries (Poor Countries) have the highest coefficient by increasing 1% of FDI inflow which will impact 0.345% increase in growth rate per capita. In contrast, upper middle income and OECD countries (Rich countries) have the lowest coefficient 0.048.

Table 6 also reports (I) the joint significance test of financial markets with the interaction term and (II) the joint significance test of education index with the interaction term and (III) the joint significance test of FDI with the interaction term. For all samples' groups, the tests confirm the importance of financial markets, education and FDI.   First, with respect to equation 2, the hypothesis that the coefficients of both FDI, and the interaction between FDI and financial markets are zero, is rejected in all regressions at the 1 % level for all the entire range of countries' groups used also the hypothesis that the coefficients of both financial market, and the interaction between FDI and financial markets are zero, cannot be rejected outright at the 1 % level .

Second, with respect to equation 3, the hypothesis that the coefficients of both FDI, and the interaction between FDI, financial market and education are zero, is rejected for all regressions at the 1 % level for all the entire range of countries' groups used and the hypothesis that the coefficients of both financial market, and the interaction between FDI, financial market and education are zero, is rejected in all regressions at the 1% level for all the entire range of countries' groups and finally the hypotheses that the coefficients of both education, and the interaction between FDI, financial market and

education are zero, is rejected in all regressions at the 1 % level for all the entire range of countries' groups.

Table 6 also reports that financial market indicator by itself is insignificant and negative for OECD and low income countries and positive for the upper middle Income countries. Not surprisingly that the coefficients of the interaction term (FDI, financial market and education) for OECD and upper middle countries report the lowest t-statistics compared with the counterpart in low income countries which goes hand in hand with the claim of this work. FDI have a favorable effect on low income countries (Poor) if interacted with monetary and nonmonetary variables.

As expected, inflation and growth rate report negative and significant coefficients for all the regressions and in the other hand, political stability and government effectiveness report positive and significant coefficients for all the regressions.

Robustness analysis

To assess the robustness of these findings, the domestic investment was controlled. *Tables 8 and 9* report the results after including domestic investment as an independent variable. Interestingly, the coefficient of FDI is still positive and significant and displays a considerable variation within the countries' group. The obtained results lead to interesting statements : First, domestic investment enters significantly in all the regressions. Second, the coefficients of FDI and interaction term for OECD and upper middle countries still report the lowest t-statistics compared with the counterpart in low income countries (Poor Countries). The findings demonstrated that FDI still has a favorable effect on low income countries (Poor) if interacted with monetary and nonmonetary variables even after controlling for domestic investment.

Table (6) Heteroskedastic with cross-sectional correlation, no autocorrelation FDI and growth : Dependent variable—per capita growth rate.

Income	Model 1 Without Interaction term			Model 2 with Interaction term = FD I × FM			Model 3 with Interaction term = FDI × FM ×Edu		
	Low	*Upper middle*	*High(OECD)*	*Low*	*Upper middle*	*High(OECD)*	*Low*	*Upper middle*	*High(OECD)*
FDI/GDP	0.271	0.172	0.087	0.482	0.064	0.065	0.345	0.042	0.048
	(5.44)***	(7.12)***	(6.07)***	(7.36)***	(1.95)†	(4.01)***	(5.87)***	(1.39)	(2.92)**
Interaction term				0.434	0.600	0.039	1.024	0.812	0.066
	———	———	———	(4.26)***	(6.05)***	(1.27)	(3.02)**	(7.01)***	(1.85)†
Financial market	-0.008	0.001	-0.006	-0.025	-0.021	-0.011	-0.025	-0.026	-0.009
	(-1.22)	(0.31)	(-2.60)**	(-3.11)**	(-3.88)***	(-4.93)***	(-3.30)**	(-5.32)***	(-3.80)***
Education	0.044	0.178	0.120	0.041	0.161	0.110	0.071	0.141	0.129
	(3.94)***	(10.26)***	(8.16)***	(3.97)***	(7.21)***	(4.70)***	(5.99)***	(5.95)***	(6.45)***
Population Growth	-0.754	-0.428	-0.379	-0.619	-0.371	-0.413	-0.477	-0.487	-0.397
	(-2.91)**	(-4.57)***	(-6.88)***	(-2.66)**	(-3.26)***	(-5.01)***	(-1.77)†	(-5.13)***	(-7.00)***
Political Stability No Violence	0.006	0.029	0.011	0.006	0.016	0.009	0.004	0.018	0.011
	(1.72)†	(10.75)***	(6.78)***	(2.01)*	(4.32)***	(4.38)***	(1.06)	(5.61)***	(6.59)***
Government Effectiveness	0.011	0.016	0.011	0.012	0.022	0.011	0.013	0.023	0.012
	(1.90)†	(4.31)***	(4.30)***	(2.39)*	(4.54)***	(4.66)***	(2.26)*	(6.36)***	(4.50)***
Control of Corruption	0.007	-0.031	-0.014	0.005	-0.028	-0.013	0.008	-0.029	-0.015
	(1.34)	(-6.51)***	(-6.28)***	(1.12)	(-5.39)***	(-7.52)***	(1.43)	(-7.16)***	(-6.21)***
Trade volume	-0.001	0.010	0.002	-0.002	0.010	0.002	-0.003	0.009	0.003
	(-0.10)	(8.56)***	(0.93)	(-0.21)	(5.61)***	(1.20)	(-0.38)	(3.11)***	(1.63)
Inflation	-0.093	-0.018	-0.038	-0.096	-0.012	-0.023	-0.104	-0.014	-0.034
	(-5.93)***	(-1.34)	(-1.83)†	(-8.28)***	(-0.66)	(-1.26)	(-6.84)***	(-1.04)	(-1.52)
Sub-Saharan Africa dummy	0.006			0.008			0.010		
	(0.83)	———	———	(1.31)	———	———	(1.47)	———	———
No of Obs	228	180	168	228	180	168	228	180	168
No of countries	19	15	14	19	15	14	19	15	14
Wald χ^2	161.91	1724.27	620.05	270.04	788.77	445.56	146.66	841.55	606.45
(Prob > χ^2)	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
χ^2 for FDI				59.90	43.62	29.88	34.47	55.42	25.35
(Prob > χ^2)				(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
χ^2 for FM				18.21	39.65	24.28	12.99	51.32	14.96
(Prob > χ^2)				(0.000)***	(0.000)***	(0.000)***	(0.001)**	(0.000)***	(0.000)***
χ^2 for Edu							36.01	111.67	44.65
(Prob > χ^2)							(0.000)***	(0.000)***	(0.001)**

Notes: All regressions have a constant term. t-values are in parentheses. The financial market variables refer to log of (Bank credit / Bank Deposits) . Education variable refer to Education index (based on the adult literacy rate and the combined GER for primary, secondary and tertiary education)The inflation is log (1 + inflation rate). Trade volume is log (exports + imports as a share of GDP). Government performance variables (Political Stability No Violence Government Effectiveness Control of Corruption),
† if p < 0.10, * if p < 0.05; ** if p < 0.01; *** if p < 0.001.

Table (7) heteroskedastic with cross-sectional correlation, with common AR(1) FDI and growth : Dependent variable—per capita growth rate.

Income	Model 1 Without Interaction term			Model 2 with Interaction term = FD I × FM			Model 3 with Interaction term = FDI × FM ×Edu		
	Low	Upper middle	High(OECD)	Low	Upper middle	High(OECD)	Low	Upper middle	High(OECD)
FDI/GDP	0.231	0.063	0.078	0.416	0.020	0.063	0.300	-0.023	0.065
	(4.17)***	(2.05)*	(4.29)***	(4.85)***	(0.51)	(3.05)**	(4.49)***	(-0.68)	(3.12)**
Interaction term	——	——	——	0.373	0.632	0.031	0.705	0.632	0.027
				(2.70)**	(5.09)***	(0.70)	(1.75)†	(4.97)***	(0.58)
Financial market	-0.009	-0.002	-0.002	-0.024	-0.032	-0.004	-0.021	-0.026	-0.004
	(-1.16)	(-0.56)	(-0.63)	(-2.42)*	(-4.42)***	(-1.14)	(-2.09)*	(-4.67)***	(-1.07)
Education	0.044	0.173	0.087	0.040	0.173	0.090	0.062	0.188	0.090
	(2.46)*	(5.80)***	(3.97)***	(2.34)*	(5.96)***	(3.45)**	(3.26)**	(7.22)***	(3.44)**
Population Growth	-1.525	-0.489	-0.377	-1.350	-0.352	-0.389	-1.329	-0.364	-0.388
	(-4.04)***	(-5.65)***	(-4.61)***	(-3.88)***	(-2.83)**	(-4.79)***	(-3.48)**	(-3.17)**	(-4.78)***
Political Stability No Violence	0.007	0.026	0.010	0.008	0.028	0.010	0.005	0.015	0.010
	(1.54)	(5.70)***	(4.12)***	(1.79)†	(6.15)***	(4.06)***	(1.05)	(3.78)***	(4.07)**
Government Effectiveness	0.011	0.012	0.013	0.012	0.011	0.013	0.014	0.013	0.013
	(1.17)	(2.63)**	(3.70)***	(1.40)	(1.80) †	(3.77)***	(1.46)	(2.63)**	(3.76)***
Control of Corruption	0.002	-0.022	-0.015	0.000	-0.024	-0.015	0.001	-0.017	-0.015
	(0.24)	(-3.77)***	(-4.47)***	(-0.01)	(-4.21)***	(-4.46)***	(0.18)	(-3.33)***	(-4.45)***
Trade volume	0.001	0.010	0.005	-0.001	0.009	0.005	-0.002	0.012	0.005
	(0.06)	(4.63)***	(2.19)*	(-0.08)	(2.86)**	(2.34)*	(-0.17)	(6.15)***	(2.30)*
Inflation	-0.067	-0.073	-0.072	-0.071	-0.075	-0.071	-0.074	-0.100	-0.071
	(-3.73)***	(-3.89)***	(-2.91)**	(-4.59)***	(-3.53)***	(-2.76)**	(-4.12)***	(-5.29)***	(-2.79)**
Sub-Saharan Africa dummy	0.016	——	——	0.017	——	——	0.018	——	——
	(1.66)†			(1.75)†			(1.88) †		
No of Obs	228	180	168	228	180	168	228	180	168
No of countries	19	15	14	19	15	14	19	15	14
Wald χ^2	103.88	440.40	211.69	137.35	312.78	219.24	100.66	340.02	218.05
(Prob > χ^2)	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
χ^2 for FDI				28.21	27.64	15.50	20.83	25.34	15.68
(Prob > χ^2)				(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
χ^2 for FM				8.06	26.23	1.46	4.64	27.06	1.24
(Prob > χ^2)				(0.01)*	(0.000)***	(0.482)	(0.09)†	(0.000)***	(0.538)
χ^2 for Edu							10.80	92.81	13.26
(Prob > χ^2)							(0.004)**	(0.000)***	(0.001)**

Notes: All regressions have a constant term. t-values are in parentheses. The financial market variables refer to log of (Bank credit / Bank Deposits) . Education variable refer to Education index (based on the adult literacy rate and the combined GER for primary, secondary and tertiary education)The inflation is log (1 + inflation rate). Trade volume is log (exports + imports as a share of GDP). Government performance variables (Political Stability No Violence Government Effectiveness Control of Corruption),
† if p < 0.10, * if p < 0.05; ** if p < 0.01; *** if p < 0.001.

Table (8) Heteroskedastic with cross-sectional correlation, no autocorrelation FDI and growth : Dependent variable—per capita growth rate.

Income	Model 1 Without Interaction term			Model 2 with Interaction term = FD I × FM			Model 3 with Interaction term = FDI × FM ×Edu		
	Low	Upper middle	High(OECD)	Low	Upper middle	High(OECD)	Low	Upper middle	High(OECD)
FDI/GDP	0.149	0.111	0.052	0.407	0.040	0.016	0.233	0.040	0.017
	(2.72)**	(3.84)***	(3.69)***	(4.97)***	(1.72)†	(1.04)	(3.69)***	(1.71)†	(1.10)
Investment/GDP	0.128	0.339	0.117	0.115	0.278	0.125	0.109	0.276	0.124
	(4.69)***	(19.31)***	(7.25)***	(4.34)***	(15.82)***	(6.27)***	(4.23)***	(15.21)***	(6.29)***
Interaction term				0.470	0.273	0.066	0.929	0.299	0.066
	———	———	———	(3.76)***	(2.86)**	(2.45)*	(2.95)**	(2.81)**	(2.36)*
Financial market	-0.016	-0.023	-0.009	-0.032	-0.025	-0.013	-0.030	-0.025	-0.013
	(-2.46)*	(-7.53)***	(-4.51)***	(-4.16)***	(-5.43)***	(-5.13)***	(-4.18)***	(-5.42)***	(-5.10)***
Education	0.032	0.118	0.071	0.030	0.094	0.080	0.054	0.095	0.080
	(2.13)*	(5.81)***	(4.68)***	(2.12)*	(5.31)***	(4.44)***	(3.71)***	(5.31)***	(4.44)***
Population Growth	-0.717	-0.533	-0.626	-0.644	-0.597	-0.663	-0.415	-0.595	-0.660
	(-2.19)*	(-7.19)***	(-10.52)***	(-2.08)*	(-7.45)***	(-10.26)***	(-1.29)	(-7.34)***	(-10.28)***
Political Stability No Violence	0.005	0.022	0.005	0.006	0.009	0.004	0.004	0.009	0.004
	(2.06)*	(6.52)***	(2.31)*	(2.09)*	(3.66)***	(2.03)*	(1.32)	(3.53)***	(2.03)*
Government Effectiveness	0.008	0.002	0.010	0.008	0.017	0.011	0.012	0.017	0.011
	(1.42)	(0.55)***	(5.08)***	(1.59)	(4.85)***	(5.13)***	(2.13)*	(4.78)***	(5.14)***
Control of Corruption	0.005	-0.016	-0.007	0.005	-0.022	-0.008	0.004	-0.022	-0.008
	(0.94)	(-4.97)***	(-3.69)***	(0.86)	(-6.05)***	(-3.60)***	(0.77)	(-5.91)***	(-3.63)***
Trade volume	-0.003	0.003	0.004	-0.003	0.005	0.005	-0.007	0.005	0.005
	(-0.48)	(1.00)	(1.71)†	(-0.45)	(2.55)*	(1.99)*	(-1.05)	(2.61)**	(1.98)*
Inflation	-0.109	-0.016	-0.082	-0.111	0.011	-0.085	-0.112	0.011	-0.086
	(-5.52)***	(-0.93)	(-4.48)***	(-5.59)***	(0.73)	(-4.00)***	(-5.80)***	(0.68)	(-4.02)***
Sub-Saharan Africa dummy	0.004			0.008			0.005		
	(0.58)	———	———	(1.25)	———	———	(0.80)	———	———
No of Obs	216	168	168	216	168	168	216	168	168
No of countries	18	14	14	18	14	14	18	14	14
Wald χ^2	234.06	1763.28	556.95	306.87	2597.78	478.12	286.01	2505.80	478.25
(Prob > χ^2)	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
χ^2 for FDI				24.72	15.30	9.61	15.23	14.91	9.44
(Prob > χ^2)				(0.000)***	(0.000)***	(0.008)**	(0.000)***	(0.000)***	(0.00)**
χ^2 for FM				19.72	39.98	26.36	18.23	40.38	26.06
(Prob > χ^2)				(0.000)***	(0.000)***	(0.000)***	(0.001)**	(0.000)***	(0.000)***
χ^2 for Edu							18.08	36.64	20.26
(Prob > χ^2)							(0.000)***	(0.000)***	(0.000)***

Notes: All regressions have a constant term. t-values are in parentheses. The financial market variables refer to log of (Bank credit / Bank Deposits) . Education variable refer to Education index (based on the adult literacy rate and the combined GER for primary, secondary and tertiary education)The inflation is log (1 + inflation rate). Trade volume is log (exports + imports as a share of GDP). Government performance variables (Political Stability No Violence Government Effectiveness Control of Corruption),
† if $p < 0.10$, * if $p < 0.05$; ** if $p < 0.01$; *** if $p < 0.001$.

Table (9) heteroskedastic with cross-sectional correlation, with common AR(1) FDI and growth : Dependent variable—per capita growth rate.

Income	Model 1 Without Interaction term			Model 2 with Interaction term = FD I × FM			Model 3 with Interaction term = FDI × FM ×Edu		
	Low	Upper middle	High(OECD)	Low	Upper middle	High(OECD)	Low	Upper middle	High(OECD)
FDI/GDP	0.135	0.055	0.049	0.310	0.004	0.058	0.220	-0.022	0.060
	(2.44)*	(1.81)†	(3.40)**	(3.25)**	(0.15)	(4.37)***	(3.20)**	(-0.81)	(4.52)***
Investment /GDP	0.152	0.363	0.138	0.144	0.327	0.131	0.138	0.292	0.131
	(4.91)***	(19.32)***	(7.96)***	(4.57)***	(17.12)***	(6.88)***	(4.57)***	(13.16)***	(6.92)***
Interaction term	——	——	——	0.318	0.666	0.030	0.743	0.544	0.025
				(2.25)*	(5.25)***	(0.93)	(2.06)*	(4.40)***	(0.74)
Financial market	-0.014	-0.023	-0.007	-0.024	-0.054	-0.008	-0.026	-0.039	-0.008
	(-1.92)†	(-6.10)***	(-2.28)*	(-2.78)**	(-8.30)***	(-2.61)**	(-2.90)**	(-7.13)***	(-2.51)*
Education	0.037	0.111	0.046	0.032	0.088	0.049	0.052	0.099	0.049
	(1.87)†	(4.53)***	(3.01)**	(1.68)†	(4.04)***	(3.08)**	(2.57)*	(3.98)***	(3.07)**
Population Growth	-1.019	-0.659	-0.625	-1.004	-0.658	-0.662	-0.842	-0.789	-0.659
	(-2.81)**	(-8.55)***	(-7.92)***	(-2.69)**	(-9.45)***	(-9.15)***	(-2.31)*	(-10.00)***	(-9.11)***
Political Stability No Violence	0.005	0.019	0.005	0.006	0.023	0.005	0.003	0.005	0.005
	(1.51)	(5.38)***	(3.11)**	(1.55)	(6.75)***	(2.78)**	(0.94)	(1.75)†	(2.87)**
Government Effectiveness	0.016	-0.002	0.013	0.014	0.001	0.013	0.020	0.010	0.013
	(2.08)*	(-0.44)	(4.52)***	(1.93)†	(0.16)	(4.53)***	(2.55)*	(2.71)**	(4.52)***
Control of Corruption	-0.006	-0.012	-0.008	-0.006	-0.014	-0.009	-0.007	-0.013	-0.009
	(-0.91)	(-3.54)***	(-2.70)**	(-0.79)	(-4.14)***	(-3.54)***	(-1.07)	(-2.96)**	(-3.57)***
Trade volume	0.002	0.001	0.003	0.001	0.004	0.003	-0.004	0.005	0.003
	(0.25)	(0.21)	(1.47)	(0.11)	(1.27)	(1.77)†	(-0.54)	(2.23)*	(1.72)†
Inflation	-0.082	-0.074	-0.104	-0.085	-0.065	-0.084	-0.085	-0.076	-0.084
	(-4.18)***	(-4.14)***	(-5.78)***	(-4.14)***	(-3.75)***	(-5.60)***	(-4.39)***	(-4.25)***	(-5.59)***
Sub-Saharan Africa dummy	0.013	——	——	0.015	——	——	0.012	——	——
	(1.38)			(1.66)†			(1.29)		
No of Obs	216	168	168	216	168	168	216	168	168
No of countries	18	14	14	18	14	14	18	14	14
Wald χ^2	125.57	1015.92	401.69	126.62	1301.51	378.30	127.09	927.99	382.87
(Prob > χ^2)	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
χ^2 for FDI				10.90	31.86	48.65	10.26	19.55	49.66
(Prob > χ^2)				(0.004)**	(0.000)***	(0.000)***	(0.005)**	(0.000)***	(0.000)***
χ^2 for FM				8.35	83.16	7.02	8.51	57.40	6.73
(Prob > χ^2)				(0.01)*	(0.000)***	(0.02)*	(0.01)*	(0.000)***	(0.03)*
χ^2 for Edu							8.49	38.91	9.58
(Prob > χ^2)							(0.01)*	(0.000)***	(0.008)**

Notes: All regressions have a constant term. t-values are in parentheses. The financial market variables refer to log of (Bank credit / Bank Deposits) . Education variable refer to Education index (based on the adult literacy rate and the combined GER for primary, secondary and tertiary education)The inflation is log (1 + inflation rate). Trade volume is log (exports + imports as a share of GDP). Government performance variables (Political Stability No Violence Government Effectiveness Control of Corruption),
† if p < 0.10, * if p < 0.05; ** if p < 0.01; *** if p < 0.001

FDI , employment and Poverty alleviation

Granger Causality Test using Panel Data

Employment is ideal to measure the impact of FDI on poverty "*many of the poor blame their income shortfall on their joblessness*". In this section, the findings of Granger causality tests on the relationship between FDI and employment across 62 countries for the period 1997-2007 were reported.

One of the fundamental problems inherent in literature is that, to date, no specific causality analysis of the mutual relationship between FDI and employment has been conducted. The reason is that sufficiently long time series necessary for using Granger causality tests are not available. However, recent theoretical developments in Granger causality methods have made tests using relatively short time series possible through the use of panel data approach[17], adapting the methodology proposed by *(Larrain et al., 1997; Hurlin and Venet, 2001 Robert et al,2005)* and recently applied by *Erdil and Yetkiner (2008)*.

FDI inflow measures the amount of FDI entering a country during one year period, while the FDI stock emphasizes the monetary dimension of FDI which is the total amount of productive capacity owned by foreign affiliates in the host country. It grows over time and includes all retained earnings of foreign-owned firms held in cash and investments. Therefore, I have decided to use FDI stock inflow/GDP instead of FDI/GDP as FDI stock associated with production and production is associated with employment. The paper tested for Granger causality between two variables : FDI, measured by FDI stock inflow/GDP and employment, proxied by different measure : First, total employment to population ; Second, female employment over 15 year and third, male employment over 15 years. All data are expressed in logarithms in order to include the proliferative effect of time series.

---

[17] As using micro-panels, where there are large numbers of cross-section units and small numbers of time series observations, the FE estimator of the coefficients of lagged endogenous variables is biased and inconsistent *Nickell, (1981)*. On the other hand, the ML estimators for the dynamic fixed effects models remain biased with the introduction of exogenous variables when T is small *Hurlin and Venet,(2001)*. Moreover, *Kiviet (1995)* also provides an analytical expression for this bias. However, *Nickell, (1981)* demonstrates a fall in the size of bias on the coefficients of lagged endogenous variables with the presence of exogenous regressors. Furthermore, *Judson and Owen (1999)* provide Monte Carlo evidence and show that the FE estimator's bias decreases with T. Thus, for our case, we have decided to use the FE estimator since the bias is not large and the available literature does also show evidence in favor of fixed effects models for similar cases.

FDI stock inflow/GDP data come from *: UNCTAD 2009 FDI database,* and employment data come from Gender Info[18] 2007 database.

Consider a time-stationary VAR representation, adapted to a panel data context. For each individual i I have $\forall\, t\, \in [1, T]$:

$$FDI_{i,t} = \sum_{k=1}^{p} \gamma^k FDI_{i,t-k} + \sum_{k=1}^{p} \beta^k EMP_{i,t-k} + V_{i,t} \qquad (4)$$

$$EMP_{i,t} = \sum_{k=1}^{p} \vartheta^k EMP_{i,t-k} + \sum_{k=1}^{p} \emptyset^k FDI_{i,t-k} + U_{i,t} \qquad (5)$$

With $p\, \in\, \aleph^*$ *and* $V_{i,t} =\, \alpha_i + \varepsilon_{i,t}$ *and* $U_{i,t} =\, \delta_i + \omega_{i,t}$ *where* $\varepsilon_{i,t}$ *and* $\omega_{i,t}$ *are i.i.d* $(0, \sigma_\varepsilon^2)$, *i.i.d* $(0, \sigma_\omega^2)$, *respectively.*

First step : The hypotheses to be tested are the homogenous non-causality hypotheses, given

For equation (4)

$$H_0: \beta^k = 0 \;\; \forall\, i\, \in [1, N], \forall\, k\, \in [1, p]$$

$$H_1: \beta^k \neq 0 \;\exists\, (i, k)$$

For equation (5) $\qquad H_0: \emptyset^k = 0 \;\; \forall\, i\, \in [1, N], \forall\, k\, \in [1, p]$

$$H_1: \emptyset^k \neq 0 \;\exists\, (i, k)$$

In the general case, the test statistics can be computed by the following Wald test proposed by *Hurlin and Venet (2001)*

$$F_{hnc} = \frac{(RSS_2 - RSS_1)/(Np)}{RSS_1[SN - N(1 + p) - p]}$$

where SN denotes the total number of observations, RSS_2 stands for the restricted sum of squared residuals obtained under H_0, whereas RSS_1 is unrestricted sum of squared residual computed from equations 4 and 5. This procedure also follows a standard Granger causality assumption where the variables entered into the system need to be time-stationary. Thus, the two variables are subjected to *Levin, Lin and Chu (2002)* unit root testing.

---

[18] Gender Info 2007 is a global database of gender statistics and indicators on a wide range of policy areas, including: population, families, health, education, work, and political participation It is an initiative of the United Nations Statistics Division, produced in collaboration with the United Nations Children's Fund (UNICEF) and the United Nations Population Fund (UNFPA).

Table 10 reports unit root test for the level of FDI and employment, the unit root test statistics are significant at the 5% level, for all sub-groups and overall samples.

Table10 Combined results of the panel unit root tests for FDI Stock and Employment
in there levels using *Levin, Lin and Chu (2002)*

Country / Variable	FDI Stock /GDP	Employment to population		
		Total	Female(15+year)	Male(15+year)
All country	-15.99 ***	-9.60 ***	-12.37***	-8.86***
OECD[a]	-2.65**	-2.12*	-2.26*	-3.05**
Non OECD[b]	-21.23***	-12.97***	-10.58***	-8.25***

a.FDI exporter b.FDI importer
† if $p < 0.10$, * if $p < 0.05$; ** if $p < 0.01$; *** if $p < 0.001$

Given these results, I ought to use stationary original level variables for conducting the Granger causality analysis. The causality relationships between two variables are subject to investigation. I computed the panel data VAR (equation 4,5) with the usual FE estimator, the *Fhnc* statistics are reported in *Table 11.*

Table11. Granger causality analysis of FDI and employment

Category	FDI> EMP	EMP> FDI	FDI> FEM15	FEM15> FDI	FDI> MAL15	MAL15> FDI
All country	12.67***	0.48	4.59*	0.06	0.59	0.24
OECD[a]	0.25	0.64	0.17	1.06	7.09**	0.05
Non OECD[b]	13.49***	2.04	4.64*	0.25	0.05	0.33

a.FDI exporter, b.FDI importer
† if $p < 0.10$, * if $p < 0.05$; ** if $p < 0.01$; *** if $p < 0.001$

To investigate the contemporaneous relationships between FDI and employment, I fitted the conventional panel data models. First, for all countries, **FDI = f (Emp)**, **FDI = f(Empfem15)**, second for Non OECD countries, **FDI = f (Emp)**, **FDI = f (Empfem15)** and finally, for OECD countries (FDI exporter) **FDI = f (Empmal15).** I selected the estimator fixed or random effects using two diagnostic statistics : Hausman (H) test statistics and Lagrange Multiplier (LM). The results are given in *Table 12*.

Collectively, all models revealed a reasonable overall fit. For the Non OECD countries, a positive significant coefficient of FDI is computed implying that FDI creates more jobs. FDI Granger Cause employment in Non OECD countries (FDI Importer). Interestingly, FDI Granger cause female employment and this confirms our believe regarding the relation between FDI and poverty reduction, since they indicate that FDI appears regularly to be a key source of employment for women in developing countries. With this, *Jenkins and Thomas (2002)* stress that the implications for poverty

alleviation are important. *Cotton and Ramachandran (2001)* give the reason for this, based on their research, which has shown that the earnings of women are most often allocated to improving the health and nutritional well-being of their children, and any increase in women's employment and/or increases in their wages are likely to improve the quality of life in households where women work. This goes hand in hand with *Barro-Becker (1989)* and *Becker, Murphy and Tamura (1990).*

Table(12) Contemporaneous relationships between FDI and employment

Category	Diagnostic tests		Constant	Coefficient	R^2	
All Countries						
FDI > Employment	H:	43.98***	0.025	0.004	W:	0.77
	LM:	28.08***	(6.41)***	(3.56)***	B :	0.99
					O:	0.99
FDI > Emp Fem 15+	H:	80.17***	0. 031	0.003	W:	0.77
	LM:	62.42***	(9.56)***	(2.14)*	B :	0.99
					O :	0.99
Non OECD Countries						
FDI > Employment	H:	32.52***	0.023	0.005	W:	0.76
	LM:	14.72***	(4.79)***	(3.67)***	B :	0.99
					O :	0.99
FDI > Emp Fem 15+	H:	62.78***	0.032	0.004	W:	0.74
	LM:	39.54***	(8.12)***	(2.15)*	B :	0.99
					O :	0.99
OECD Countries						
FDI > Emp Mal 15	H:	31.33***	0.052	-0.006	W:	0.75
	LM:	14.17***	(5.98)***	(-2.66)**	B :	0.99
					O :	0.98

H = Hausman test : LM = Lagrange Multiplier : W = within : B= Between : O = Overall
*† if p < 0.10, * if p < 0.05; ** if p < 0.01; *** if p < 0.001*

One could argue that the reason that FDI appears significant and Granger causality for employment in the above mentioned analysis, this is because we are considering FDI the only engine for job creation which is not true because we are assuming that FDI inflows is accompanied by direct effect on employment opportunities creation, also indirect effect, by promoting both forward and backward production linkages with domestic sectors and foreign firms, for instance via subcontracting systems. My believes and analysis results are goes hand in hand with *Aaron (1999)* who states that likely FDI was directly responsible for creating 26 million jobs in 1997. Estimates of the indirect employment effect of FDI vary widely around a multiplier of 1.6 (i.e. 1.6 indirect jobs for every one direct job) therefore, it can be argued that the indirect effect of FDI on employment and poverty reduction is higher than direct effect.

Table 12 report other interesting results, OECD countries FDI Granger Cause male employment opportunity in opposite way (negative and significant). The interpretation is that FDI outflows from OECD countries lead to job losses in the source countries. *Papaconstantinou (1996)* argues that US FDI outflows have been found to cause job losses in the US .

5. conclusion and comments

Recently, FDI becomes one of the few ways in which low level income countries can access capital for development and poverty alleviation. But in the meanwhile, policy makers need to monitor trends carefully and accordingly adapt financial market policy and business environment.

This paper focused, in particular, on FDI and the impact of its interaction with local financial markets and human development (proxied by education) on real growth rate per capita. I believe that FDI is in itself no panacea, but if interacted with monetary and nonmonetary variables will provide a favorable effect on poverty reduction in the host country.

The lack of buildup human knowledge and development of local financial markets, in particular, can adversely limit an economy's ability to absorb the benefits associated with FDI. Whereas, undeveloped financial markets may mean that a country is not in a position to cope with direct investment inflow. In this paper, the empirical evidence suggests that FDI appears regularly to be a key source of employment specially for women in Non OECD countries .

6. *Details and Descriptive statistics*

*List Countries in the samples***:** Austria, Canada, Switzerland, Czech Republic Germany, Denmark, Spain, Finland, United Kingdom, Greece, Hungry, Iceland, Italy, New Zealand, Benin, Burkina Faso, Central African Republic, Côte d'Ivoire, Ethiopia, Kyrgyz Republic, Cambodia, Gambia, Mozambique, Niger, Nigeria, Papua New Guinea, Senegal, Sierra Leone, Togo, Tanzania, Zambia, Haiti, Vietnam, Argentina, Belize, Brazil, Chile, Costa Rica, Croatia, Jamaica, Kazakhstan, Lithuania, Latvia, Malaysia, Panama ,Poland, Uruguay and South Africa.

Sample 1: 14 Countries (OECD) High Income level

Austria, Canada, Switzerland, Czech Republic Germany, Denmark, Spain, Finland, United Kingdom, Greece, Hungry, Iceland, Italy and New Zealand

Sample 1: 19 Countries (Low income level)

Benin, Burkina Faso, Central African Republic, Côte d'Ivoire, Ethiopia, Kyrgyz Republic, Cambodia, Gambia, Mozambique, Niger, Nigeria, Papua New Guinea, Senegal, Sierra Leone, Togo, Tanzania, Zambia, Haiti and Vietnam.

Sample 1:15 Countries (Upper Middle income)

Argentina, Belize, Brazil, Chile, Costa Rica, Croatia, Jamaica, Kazakhstan, Lithuania, Latvia, Malaysia, Panama, Poland, Uruguay and South Africa.

6.2 Descriptive statistics

Table 13 Descriptive statistics and Pearson correlation matrix[a]

	Mean	S.d.	1	2	3	4	5	6	7	8	9
Sample 1: 14 Countries (OECD) High Income level N = 168											
1.Growth	0.03	0.02									
2.FDI/GDP	0.04	0.04	0.19*								
3. BCBD	1.33	0.60	-0.17*	0.10							
4. Education	0.95	0.03	0.00	0.08	0.47*						
5. Population Growth	0.01	0.01	-0.18*	0.14	0.21*	0.14					
6. Political Stability No Violence	1.01	0.37	0.08	0.21*	0.31*	0.38*	0.15*				
7. Government Effectiveness	1.62	0.55	-0.05	0.08	0.45*	0.60*	0.31*	0.72*			
8. Control of Corruption	1.61	0.74	-0.08	0.09	0.49*	0.68*	0.30*	0.74*	0.95*		
9. Trade volume	0.74	0.27	0.24*	0.39*	-0.18*	-0.12	-0.27*	0.16*	-0.14	-0.18*	
10. Inflation	0.03	0.03	0.04	0.20*	-0.18*	-0.36*	-0.10	-0.26*	-0.44*	-0.40*	0.24*
Sample 1: 19 Countries (Low income level) N = 228											
1.Growth	0.02	0.04									
2.FDI/GDP	0.03	0.03	0.21*								
3. BCBD	0.77	0.38	-0.01	-0.11							
4. Education	0.41	0.25	0.20*	0.15*	0.32*						
5. Population Growth	0.03	0.01	-0.11	-0.05	-0.23*	-0.66*					
6. Political Stability No Violence	-0.57	0.73	0.20*	0.23*	0.04	-0.07	0.24*				
7. Government Effectiveness	-0.78	0.40	0.24*	0.19*	0.12	0.12	0.05	0.60*			
8. Control of Corruption	-0.79	0.38	0.12	0.13*	0.17*	-0.17*	0.25*	0.56*	0.62*		
9. Trade volume	0.70	0.31	0.16*	0.43*	0.11	0.39*	-0.32*	0.19*	0.26*	0.05	
10. Inflation	0.08	0.09	-0.04	0.11	-0.27*	0.23*	-0.21*	-0.12	-0.02	-0.19*	0.02
Sample 1:15 Countries (Upper Middle income) N = 180											
1.Growth	0.04	0.04									
2.FDI/GDP	0.05	0.03	0.21*								
3. BCBD	1.04	0.36	0.15	0.05							
4. Education	0.87	0.07	0.42*	0.02	0.06						
5. Population Growth	0.01	0.01	-0.34*	-0.05	0.13	-0.64*					
6. Political Stability No Violence	0.26	0.43	0.26*	0.04	0.33*	0.30*	-0.03				
7. Government Effectiveness	0.31	0.48	0.01	-0.19*	0.29*	0.10	0.07	0.40*			
8. Control of Corruption	0.13	0.56	-0.10	-0.24*	0.29*	0.07	0.13	0.49*	0.88*		
9. Trade volume	0.89	0.45	0.25*	0.36*	0.23*	-0.16*	0.09	0.28*	0.12	-0.08	
10. Inflation	0.07	0.07	-0.02	-0.06	-0.03	0.15*	-0.16*	-0.18*	-0.33*	-0.16*	-0.14

b.Correlations reported are for the main effects, and not for the interaction terms.

*p< 0.05.

References

Aaron, C. (1999:25) "The contribution of FDI to poverty alleviation" Report, the Foreign Investment Advisory Service, Singapore

Alfaro, L. and A. Charlton (2007:20), 'Growth and the Quality of Foreign Direct Investment: Is All FDI Equal?', *Harvard Business School Working Paper* 07-072.

Alfaro L, Chanda A, Kalemli-Ozcan S, Sayek S (2004:372) FDI and economic growth: the role of local financial markets. *Journal of international Economics* 64:89–112

Anil Kumar,(2007:7) ,Does Foreign Direct Investment Help Emerging Economies? *Economic Letter federal reserve bank of dallas* vol. 2, NO. 1

Bagehot, W. [1873] 1962 Lombard Street: a Description of the Money Market (with a New Introduction by Frank C. Genovese), Homewood, Ill. Richard Irwin.

Balasubramanyam, M. Salisu and David Sapsfor (1996:596), ''Foreign Direct Investment and Growth in EP and IS Countries'' *The Economic Journal*, No. 106, pp. 92-105

Barro, Robert (1991:7070). 'Economic Growth in a Cross Section of Countries'. *The Quarterly Journal of Economics*, 106: 407-43.

Barro, R., Sala-i-Martin, X., (1997:378). Technology diffusion, convergence and growth. *Journal of Economic Growth* 2, 1 –26.

Barro, R.J. and Becker, G.S. (1989:453) 'Fertility choice in a model of economic growth', *Econometrica* 57(2): 481-501.

Beck, T., Levine, R., and N. Loyaza (2000:1281) Finance and the Sources of Growth. *Journal of Financial Economics* 58, 261–300.

Becker, G.S., Murphy, K.M. and Tamura, R. (1990:1094) 'Human capital, fertility, and economic growth', *Journal of Political Economy*, 98(5): S12-S37.

Bhargava, A., Jamison, D., Lau, L., & Murray, C. (2001:205). Modeling the effects of health on economic growth. *Journal of Health Economics*, 20(3), 423–440.

Bloom, D. E., Canning, D., & Sevilla, J. (2004:192). The effect of health on economic growth: A production function approach. *World Development*, 32(1), 1–13.

Bloom, D. E., Canning, D., & Jamison, D. (2004:68). Health, wealth and welfare. Finance and Development, 41(1), 10–15.

Bloom, D. E. (2005:9). Education and public health: Mutual challenges worldwide. *Comparative Education Review*, 49(4), 437–451.

Blomstrom, Magnus, and Ari Kokko (1996:115), The Impact of Foreign Investment on Host Countries: A Review of the Empirical Evidence, Policy Research Working Paper 1745. *Washington DC: World Bank.*

Borensztein, E., De Gregorio, J., Lee, J.-W., (1998:1828). How does foreign direct investment affect economic growth. *Journal of International Economics* 45, 115– 135.

Carkovic, M., Levine, R., (2003:387). Does Foreign Direct Investment Accelerate Economic Growth? University of Minnesota, Working Paper.

Caves , Richard E. ,(1974:739). Multinational Firms, Competition, and Productivity in Host-Country Markets, *The London School of Economics and Political Science.*

Caves, Richard E. (1998:990), "Industrial Organization and New Findings on the Turnover and Mobility of Firms", *Journal of Economic Literature*, 36(4).

Chuhan, Punam & Perez-Quiros, Gabriel & Popper, Helen, (1996:81). "International capital flows : do short-term investment and direct investment differ?," *Policy Research Working Paper Series 1669, The World Bank*

Chee-Keong Choong & Zulkornain Yusop & Siew-Choo Soo, (2005:5). "Foreign Direct Investment And Economic Growth In Malaysia: The Role Of Domestic Financial Sector," *The Singapore Economic Review* (SER), World Scientific Publishing Co. Pte. Ltd., vol. 50(02), pages 245-268

George Papaconstantinou, (1995) "Globalisation, Technology, and Employment: Characteristics and Trends," STI Review, No. 15, 1995, p.
177.
Cotton, L and V Ramachandran, (2001:9) 'Foreign Direct Investment in Emerging Economies: Lessons from sub-Saharan Africa' *WIDER Discussion Paper* No. 2001/82

Davis E.P., Karim D., (2008:26), Comparing early warning systems for banking crises, *Journal of Financial Stability, 4, 89-120.*

Deininger, K. dan L.Squire (1996:2002), "A New Data Set for Measuring Income Inequality", *The World Bank Economic Review*, No.10.

De Mello, M. (1996:25) "Foreign Direct Investment, International Knowledge Transfers and Endogenous Growth: Time Series Evidence" *Mimeo. Department of Economics, University of Kent, Kent.*

De Mello L. R. (1999:393). Foreign direct investment-led growth: evidence from time series and panel data., *Oxford Economic Papers*, No. 51, pp. 133-151.

Dees, Stephane, (1998:120). " Foreign Direct Investment in China: Determinants and Effects," *Economic Change and Restructuring, Springer,* vol. 31(2-3), pages 175-94.

Demirguc-Kunt A., Detragiache E., (1998:713), The Determinants of Banking Crises in Developing and Developed Countries, *IMF Staff Papers, 45, 81-109.*

Dollar, David, and Aart Kraay (2001:2102). 'Growth *is* Good for the Poor'. *Washington DC: World Bank, Development Research Group*

Durham, J. B. (2004:122) Absorptive Capacity and the Effects of Foreign Direct Investment and Equity Foreign Portfolio Investment on Economic Growth. *European Economic Review*. 48, 285–306.

Dutta, Nabamita and Roy, Sanjukta (2008:4): Foreign Direct Investment, Financial Development and Political Risks. Forthcoming in: *Journal of Developing Areas*

Erdil, E. and Yetkiner, I.H. (2008:1), "The Granger-causality between health care expenditure and output: a panel data approach", *Applied Economics*, first published on 23 June 2008.

Filer, R., O. Schneider and J. Svejnar (1995:7). Wage and non-wage labour cost in the Czech Republic: The impact of fringe benefits, *CERGE-EI Working Paper* No. 77,

Fisher, R.A., (1932:). Statistical Methods for Research Workers, 4th Edition. Oliver & Boyd, Edinburgh.

Greenwood J, Jovanovic B (1990:1346) Financial development, growth, and the distribution of income. *Journal of Political Economy* 98:1076–1107

Globerman, S., & Shapiro, D. (2002:154). Global foreign direct investment flows: The role of governance infrastructure. *World Development*, 30(11), 1899–1919.

Gurley JG, Shaw ES (1955:606) Financial aspects of economic development. *American Economic Review* 45:515–538

Goldsmith RW (1969) Financial structure and development. *Yale University Press*, New Haven

Hermes, Niels and Lensink, Robert(2003:129) 'Foreign direct investment, financial development and economic growth', *Journal of Development Studies*,40:1,142 — 163

Hicks JR (1969) A theory of economic history. *Oxford University Press, Oxford*

Hurlin C, Venet B. (2001:77). Granger causality tests in panel data models with fixed coefficients. Working Paper. EURIsCO, Universit´e Paris IX Dauphin.

James Ang,(2009:6). "Financial development and the FDI-growth nexus: the Malaysian experience," *Applied Economics, Taylor and Francis Journals,* vol. 41(13), pages 1595-1601

Jenkins, Carolyn and Lynne Thomas (2002:42), "Foreign Direct Investment in Southern Africa: Determinants, Characteristics and Implications for Economic Growth and Poverty Alleviation", Final Report, October, Globalization and Poverty Project, *Centre for the Study of African Economies, University of Oxford*

King RG, Levine R (1993b:1153) Finance, entrepreneurship, and growth: theory and evidence. *Journal of Monetary Economics*. 32:513–542

Kawai, H., (1994:72). "International Comparative Analysis of Economic Growth: Trade Liberalization and Productivity", *Developing Economies* 32, pp. 372-397.

Kaufmann, D., Kraay, A., Mastruzzi, M., (2005:775). Governance Matters IV: governance indicators for 1996–2004. *World Bank Policy Research Working Paper, vol. 3630. World Bank, Washington, D.C*

Kyung So Im, M. Hashem Pesaran, Yongcheol Shin, Testing for Unit Roots in Heterogeneous Panels. Journal of Econometrics, 2003, 115, 53-74. Earlier version available as unpublished Working Paper, Dept. of Applied Economics, University of Cambridge, Dec 1997,
 (http://www.econ.cam.ac.uk/faculty/pesaran/lm.pdf)

Larrain G, Reisen H, Maltzan J. (1997:122). Emerging market risk and sovereign credit ratings. OCED development Centre Technical Paper No. 124.

Lipsey, Robert E.,(2001:119), "Foreign Direct Investors in Three Financial Crises," NBER Working Paper No. 8084 (*Cambridge, Massachusetts: National Bureau of Economics Research*).

Levin, Andrew, Lin, Chien-Fu and Chia-Shang James Chu,(2002:1967) Unit Root Tests in Panel Data: Asymptotic and Finite Sample Properties. Journal of Econometrics,108, 1-24, 2002.

Loewendahl, Henry, (2001:56). A Framework for FDI Promotion. *Transnational Corporations,* 10(1), 1-42

Lucas, R. E. Jr., (1990:1238). Why doesn't capital flow from rich to poor countries? *American Economic Review*, 80(2), 92–96.

Mauro, P. (1995:3412) "Corruption and Growth." *Quarterly Journal of Economics* 110 (3): 681–712.

Marcella alsan, David e. bloom and David canning,(2006:42) The Effect of Population Health on Foreign Direct Investment Inflows to Low- and Middle-Income Countries *World Development* Vol. 34, No. 4, pp. 613–630, 2006

McKinnon RI (1973) Money and capital in economic development. Brookings Institution, *Washington, D.C.*

Miyamoto, K. (2003:48). Human capital formation and foreign direct investment in developing countries. *Technical Paper No. 211, OECD, Paris*.

Nair-Reichert, Usha & Weinhold, Diana,(2001:178). " Causality Tests for Cross-Country Panels: A New Look at FDI and Economic Growth in Developing Countries," *Oxford Bulletin of Economics and Statistics, Department of Economics, University of Oxford*, vol. 63(2), pages 153-71, May.

Nigh, D. (1985:134), "The Effect of Political events on US Foreign Direct Investment": A polled Time Series Cross Sectional Analysis, *Journal of International Business Studies*, 16, 1-17.

Noorbakhsh, F., Paloni, A., & Youssef, A. (2001:200). Human capital and FDI inflows to developing countries: New empirical evidence. *World Development*, 29(9), 1593–1610.

Nunnenkamp, Peter, and Julius Spatz (2004:16) FDI and Economic Growth in Developing Economies: How Relevant are Host-Economy and Industry Characteristics? *Transactional Corporations* 13:3, 53–83.

Omran M. & Bolbol A. (2003:10) . Foreign Direct Investment, Financial Development, and Economic Growth: Evidence from the Arab Countries *Review of Middle East Economics and Finance*, Vol. 1, No. 3, pp. 231-249

Proksch, Marc (2004). Selected Issues on Promotion and Attraction of Foreign Direct Investment in Least Developed Countries and Economies in Transition, Investment Promotion and Enterprise *Development Bulletin for Asia and the Pacific*, 2, 1-17, United Nations Publications

Ravallion, Martin & Shaohua Chen, (1996:541). "What can new survey data tell us about recent changes in distribution and poverty?," Policy Research Working Paper Series 1694, The World Bank

Rappaport, J.,(2000:27). How Does Openness to Capital Flow Affect Growth? *Mimeo, Federal Reserve Bank of Kansas City, June.*

Rebecca M. Neumann, a, , Ron Penla and Altin Tankua (2009:7) . Volatility 27of capital flows and financial liberalization: Do specific flows respond differently? *International Review of Economics & Finance* Volume 18, Issue 3, June 2009, Pages 488-501

Robert Hoffmann & Chew-Ging Lee & Bala Ramasamy & Matthew Yeung, (2005:19). "FDI and pollution: a granger causality test using panel data," *Journal of International Development*, John Wiley & Sons, Ltd., vol. 17(3), pages 311-317.

Romer, P., (1993:618). Idea Gap and object gaps in economic development. *Journal of Monetary Economics* 32 (3), 543-573

Roemer, Michael, and Mary Kay Gugerty (1997:118), "Does Economic Growth Reduce Poverty", CAER I Discussion Paper No. 5, *Cambridge, MA.: Harvard Institute for International Development*.

Sarno, Lucio, and Mark P. Taylor, (1999:131), "Hot Money, Accounting Labels and the Permanence of Capital Flows to Developing Countries: an Empirical Investigation," *Journal of Development Economics*, Vol. 59, No. 2, pp. 337–64.

Scholl hammer, H. and D. Nigh (1984), "the Effect of Political event on Foreign Direct Investments by German Multinational Corporations", *Management International Review*, 24, 18-40.

Singh,Harinder,and Kwang W.(1995:172). Some New Evidence on Determinants of Foreign Direct Investment in Developing. Policy Research Working Paper WPS 1531,*Washington:World Bank*

Shaw ES (1973) Financial deepening in economic development. *Oxford University Press*, New York

Stiglitz, Joseph E. (1998:884), More Instruments and Broader Goals: Moving Toward the Post-Washington Consensus, The 1998 *WIDER Annual Lecture*, Helsinki, Finland, January 7, 1998.

Tybout, James (2000:677), "Manufacturing Firms in Developing Countries: How Well Do They Do, and Why?", *Journal of Economic Literature*. 38(1).

Wei, Shang-Jin, (2001:53). "Domestic Crony Capitalism and International Fickle Capital: Is There a Connection?," International Finance, Blackwell Publishing, vol. 4(1), pages 15-45, Spring

Zhang, K.H. (2001:129), Does foreign direct investment promote economic growth? Evidence from East Asia and Latin America ,*journal Contemporary Economic Policy*, 19(2), 175-185

Zhang, K., and Markusen, J. (1999:163). Vertical multinationals and host-country characteristics. *Journal of Development Economics*,59, 233-25