FDI, local Financial Markets, Employment and poverty alleviation

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18 March 2010

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Abstract

This paper examines the indirect linkages among foreign direct investment (henceforth, FDI) and poverty reduction, where so far there are few studies attempted to analyze empirically this linkages. Yet I have a question: do we believe that FDI inflows are able to contribute to higher growth and employment in poor countries? I argue yes. Behavior of FDI says something important. FDI inflows vary across international borders and conditioned by host country environment therefore FDI can contribute to higher growth and employment in poor countries but only under certain circumstances, "Roll out the red carpet for foreign investors and they will come". Countries with better financial systems, healthy business environment and human development are able to attract more FDI and exploit it more efficiently. Empirical analysis using panel data of 62 countries, from 1996 to 2007, shows that FDI appears regularly to be a key source of employment and has a favorable effect on economic growth of low income countries if interacted with monetary and nonmonetary variables.

Keywords: FDI; Financial market; Poverty; Employment; Panel data

JEL classification: F23; F36; F43; E24; I32; O16

1. Introduction

The aim of this paper is to explore both analytically and empirically the indirect linkages among FDI and poverty alleviation which is not yet fully understood and have been neglected in the literature. For instance, the FDI-financial market development-economic growth and FDI-human development-economic growth linkages and its impact on income generation and subsequent poverty reduction are not directly considered in the literature. The FDI-employment linkages which are another channel through which FDI and poverty could be linked, have not received adequate attention in the literature.

The importance of understanding those indirect linkages as highlighted above is especially pronounced in poverty-stricken countries like low income countries. In this context, this paper argues that these linkages need to be analytically understood and empirically examined. The objective is that the financial market development, human development and foreign investment integration do not remain only ends in themselves but emerge as tools to reduce poverty, especially in low income countries.

[Table 1 goes about here]

Table 1 show that 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.

[Table 2 goes about here]

Table 2 show that the stock of FDI have increased from a level of about 8% of world GDP at the beginning of the 1980s to 25% of world GDP in 2006.

This increase of FDI has had major effects on the social welfare of the citizens of low income host countries. 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) and Ravallion (1996) they found a strong positive relationship between growth and poverty alleviation. Roemer and Gugerty (1997) showed that on average the poor do benefit from economic growth.

FDI by its nature relies on capital flow from abroad therefore, it is important to realize that the improvement of economic growth for the host economy might crucially depend on the degree of the development of local financial markets and workforce. The lack of financial markets and human development can constrain potential foreign investors.

Although the empirical evidence on FDI and economic growth is ambiguous, the Interaction between financial markets and growth itself has been studied impressively and has reached

positive conclusions i .e, that well-developed financial markets promote growth. See King and Levine (1993a,b), Beck et al. (2000a,b) and Levine et al. (2000).

This paper attempts to examine the indirect impact of FDI on poor country economic growth and employment if interacted with monetary and nonmonetary variables .To do this first, I use a financial market and Human development variables that exist in the literature and employ them in growth regressions to study the impact of the interaction of these variables with FDI on economic growth of low income countries compared with upper middle and OECD countries.

Second, I use a Granger causality tests to examine the Impact of FDI on employment.

Against this background, **Section 2** "Roll out the red carpet for foreign investors and they will come" presents a synthesis of various channels through which FDI-financial market development- trade - economic growth could be linked and its indirect impact on poverty alleviation, **Section 3** FDI inflows, human development and employment: A theoretical framework, this section focuses on FDI - employment linkages which are another channel through which FDI and poverty could be linked, **Section 4** 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 economic growth in poor countries (low income country) in comparison with high and upper middle income countries if interacted with monetary and nonmonetary variables, **Section 5** Granger causality tests on the relationship between FDI- employment across 62 countries from 1996 to 2007, **Section 6** conclusion.

2. FDI and poverty alleviation linkages

2.1 Linkages among FDI - Financial Market – economic growth and Poverty Alleviation.

[Figure 1 goes about here]

In figure 1 data on FDI and financial development shows the links between financial market development (Private credit to deposits)[3] and FDI inflows, i.e. countries with better developed financial markets are able to absorb more from FDI to promote their economic growth and reduce poverty. Figure 1 show that the level of financial development is crucial for these positive effects to be realized.

[Figure 2 goes about here]

Figure 2 show the indirect linkages among FDI - Financial Market – economic growth and Poverty reduction. Financial development promotes growth and there is extensive evidence that growth worldwide has been a powerful mechanism for reducing poverty. Dehejia and Gatti (2002) who study child labor well-known to be a correlate of poverty, they find that the incidence of child labor seems to be affected on a cross-country basis by the degree of financial depth. Patrick Honohan (2008) show that a 10 percentage point in the ratio of private credit to GDP should reduce poverty ratios by 2.5 to 3 percentage points. This finding suggests that the theories that argue that financial development can help the poor may have some support.

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) showed that development of a financial system is important in catalyzing the economic growth. McKinnon (1973) and Shaw (1973) argued that any increase in the level of financial development, which follows financial liberalization, will lead to a higher level of growth. Beck, et al. (2000) suggested that financial systems are important for both productivity and development.

Greenwood and Jovanovic (1990), and King and Levine (1993b) showed that financial market development reduces informational frictions and improves resource allocation more efficiently.

A review of the literature on the links between FDI and financial market suggested that FDI flows cannot be stepped up unless financial institutional mechanisms exist for facilitating

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[3] 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.

foreign investment inflow. Hermes et al (2003) showed 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) showed that better developed financial systems tend to benefit more from FDI. Omran, et al (2003) showed that domestic financial reforms should precede policies promoting FDI. 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 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) showed 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) proved that even if financial development does not lead to higher levels of investment, it seems to allocate the existing investment better.

2.2 Linkages among Trade (openness), FDI and Poverty Alleviation

[Figure 3 goes about here]

Figure 3 depicts the links between trade openness and FDI inflows. As Figure 3 suggests, there is a positive relationship between the trade openness and FDI inflows. However, it is also apparent that there is a wide variation in both variables given their interaction with one another. Indeed, if openness plays an important role in influencing the effects of FDI on output, one can expect countries with the same levels of FDI to have very different outcomes in terms of growth and poverty and it is impact on poverty reduction.

[Figure 4 goes about here]

Figure 4 shows the positive relation between trade openness and growth. There is an extensive literature on the nexus between trade, growth and poverty. See Berg krueger (2003), 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).

[Figure 5 goes about here]

Figure 5 show the indirect linkages among trade - FDI – economic growth and Poverty reduction .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), Kawai (1994) found that trade openness regime is crucial for acquiring the potential growth impact of FDI.

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) found 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.

3. FDI inflows, human development and employment: A theoretical framework

3.1 FDI – employment – poverty reduction linkages

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 see figure 2 and 5. FDI inflows are accompanied by direct effect on employment generation and consequently poverty-reduction 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) stated 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) shows 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, (1997) 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.

3.2 FDI – human development – poverty reduction linkages

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)[4] 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 improves 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).

A substantial body of evidence has demonstrated that population health is a robust predictor of growth in per capita income see Barro (1991) ; Barro & Sala-i-Martin (1997) ; Bhargava, Jamison, Lau, & Murray (2001) and Bloom, Canning, & Sevilla (2004). Moreover, countries may benefit with different degrees from health. Bhargava et al. (2001) argued that economic growth resulting from health improvements is more pronounced in developing countries than in industrial countries.

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[4] 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

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) argued 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)[5] argued that education does have a positive and significant impact on FDI and its effect has been increasing over time. Zhang and Markusen (1999) presented a model where the availability of skilled and educational level of labor 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, Jenkins and Thomas (2002) stressed 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 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).

Hypotheses and Conjecture

Based on the theoretical discussions above, I identify the following hypotheses.

Hypothesis 1: FDI has a favorable effect on economic growth of poor countries (low income countries) if interacted with monetary (financial market) and nonmonetary variables (human development) in comparison with high and upper middle income countries

Hypothesis 2: FDI inflows are accompanied by direct effect on employment generation especially for women in Non OECD countries.

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[5] 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. Empirical Analysis

4.1 Data

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[6] 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 categories Blonigen and Wang (2004) argued that FDI flows in high income and low income economies follow different patterns and should be studied separately, a suggestion I followed in my empirical analysis.

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.[7]

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 financial sector without distinguishing between different financial institutions. Data come from World Bank Financial Structure Database.[8]

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

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

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

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[9] (political stability, government effectiveness, control of corruption and rule of law). 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 capture the liberalization of the trade regime in the host country. Data come from Penn World Table [10] and the population growth data are obtained from World Development Indicators, World Bank.

4.2 Panel data unit root test, FDI and growth rate

Following the hypothesis that FDI generates significant externalities and spillovers in economic growth and poverty alleviation as discussed earlier, panel data unit root tests provide a preliminary test of that linearity hypothesis, 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. I used two different tests; Levin and Lin (LL) (2002) and Im, Pesaran and Shin (IPS) (1997) which are the most widely used methods for panel data unit root tests in the literature.

<div align="center">[Table 3 goes about here]</div>

The results presented in Table 3 shows that the test statistics are all negative and greater than the critical values in absolute term So, I reject the null hypothesis. Test results confirm my believe of considerable interest since they indicate that regardless of the applied unit root test for a chosen income level the growth rate and FDI/GDP are stationary and that the regression results are not spurious.

4.3 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[11] 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 vary 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 economic growth in low income countries in comparison with upper middle and OECD countries. As a starting exercise considers <u>the following three models assuming the Presence of homoskedastic</u>:

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

$$\text{GROWTH}_{it} = \alpha + \beta_1 \text{ FDI/GDP}_{it} + \beta_2 \text{ FDI/GDP}_{it} \times \text{Fin}_{it} + \beta_3 \text{ Fin}_{it} + \beta_4 \text{EDU}_{it} +$$
$$\beta 5 \text{ Controlsit} + \varepsilon \text{it} \qquad (\mathbf{2})$$

$$\text{GROWTH}_{it} = \alpha + \beta_1 \text{ FDI/GDP}_{it} + \beta_2 \text{ FDI/GDP}_{it} \times \text{Fin}_{it} \times \text{EDU}_{it} + \beta_3 \text{ Fin}_{it} + \beta_4 \text{HDI}_{it} +$$
$$\beta 5 \text{ Controlsit} + \varepsilon \text{it} \qquad (\mathbf{3})$$

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 human development Channels. In this paper I interact FDI with financial market and use this as an independent variable in regression (2) while in regression (3), I interact FDI with financial market and education Index and use this as a regressor too in order to test for the significance of financial market and human development in enhancing the positive externalities associated with FDI flows. The latter variables were included in the regression

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[11] 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.

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.

[Table 4 goes about here]

The interaction between FDI, financial market development and human development are expected to encourage economic growth in low income countries in comparison with upper middle and OECD countries. As expected and as shown in Table 4, the interaction term turns out to be significant and positively related to growth for all models except OECD countries model, which supports the first Hypothesis. The interpretation is that the impact of FDI on growth is expected to be stronger in the recipient economy more than the country of origin of FDI. So 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.

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 coefficient which supports the first Hypothesis.

Table 4 also reports 1- The joint significance test of financial markets with the interaction term and 2- The joint significance test of education index with the interaction term and 3- 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 cannot be rejected in all regressions at the 5 % level for all the entire range of countries' groups used 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 cannot be rejected in 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 which supports the first Hypothesis.

4.4 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 goes about here]

Modified Wald test results in Table 5 reports heteroskedastic presences in the regression so, I rejected the null hypotheses 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 1 and 2, 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.

[Table 6 goes about here]

[Table 7 goes about here]

Table 6 and 7 show 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 6and 7, 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 country's groups.

Moreover, Table 6 and 7 shows 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 especially in low income countries 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 and 7also reports the joint significance test for all samples the tests confirm the importance of financial markets, education and FDI. As expected, inflation, corruption 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. So far the earlier result supports the first Hypothesis.

4.5 Endogeneity

One caveat can note is that the volume of FDI and the efficiency of financial markets increase with higher economic growth rates. This would lead to an overstatement of the impacts of each of the two variables and their interaction on economic growth, since we use the values of these variables to estimate the coefficients in equation 1, 2 and 3. Thus, in this analysis the ideal instruments are variables that might affect economic growth but are less likely to be affected by it. Therefore, I look for variables that explain FDI and financial market development but are less likely to be related to economic growth. I have construct instruments for both. First, for financial markets, The literature provides a menu of financial market determinants, Levine (1998, 1999), Levine, Loayza, and Beck (2000) and Claessens and Laeven (2003) used La Porta et al (1998) legal origin as instrumental variable for financial development (more popularly known as LLSV variables). They find that countries with different legal histories offer different types of legal protection to their investors. In this paper I used the rule of law variable to instrument financial market development as this instrument change over time and satisfy conditions of relevance and exogeneity, second, for FDI One of the major problems are the difficultly in identifying instruments that are correlated with FDI but not with the error term. Wheeler and Mody (1992) indicate that FDI is self-reinforcing, i.e. lagged value of FDI is a significant determinant of FDI inflow. Lagged FDI is used as an instrument for FDI.

[Table 8 goes about here]

Table 8 reports the results of the IV-2SLS regression method using the rule of law variable as instrument for financial market development and lag of FDI as instruments for FDI. Columns (1) – (4) confirms the major findings from Table 6 and 7 that FDI promotes economic growth better through financial markets and human development channels in low income countries (poor countries) compared with upper middle and OECD countries (rich countries). These instruments are valid if the error term is not serially correlated. In table 8 Sargan tests for overidentifying restrictions providing evidence of validity of the choice of instruments.

4.6 Robustness analysis

To assess the robustness of these findings, the domestic investment was controlled. Table 8 and 9 shows 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 9 goes about here]

[Table 10 goes about here]

5. 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[12],

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[12] 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.

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.

FDI stock inflow/GDP data come from: UNCTAD 2009 FDI database and employment data come from Gender Info[13] 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 by:

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)

$$H_0: \emptyset^k = 0\ \forall\, i\, \in [1,N], \forall\, k\, \in [1,p]$$
$$H_1: \emptyset^k \neq 0\ \exists\, (i,k)$$

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.

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.

[Table 11 goes about here]

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.

[Table 12 goes about here]

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 13.

[Table 13 goes about here]

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 causes employment in Non OECD countries (FDI Importer). Interestingly, FDI Granger cause female employment and this confirm the second Hypothesis 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).

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 13 reports 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. George and Papaconstantinou (1996) argued that US FDI outflows have been found to cause job losses in the US.

5. Conclusion

Recently, FDI becomes one of the few ways in which low level income countries can access capital for development and growth and subsequent poverty alleviation. The paper provided some analytical insights into the issue by presenting a brief overview of some of the important channels, in particular, FDI and the impact of its interaction with local financial markets and human development on economic growth of low income countries in comparison with upper middle and OECD countries. True, there is no simple mechanism for achieving low level of poverty and FDI is in itself no panacea, but the interaction between FDI and other variables could emerge as tool to benefit of that integration in terms of employment and income generation and poverty alleviation in poor countries.

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 the meanwhile, policy makers need to monitor trends carefully and accordingly adapt financial market policy, human development programs and business environment in order to reduce poverty.

References

Aaron, C. (1999:23) "The contribution of FDI to poverty alleviation" Report, the Foreign Investment Advisory Service, Singapore

Alfaro L, Chanda A, Kalemli-Ozcan S, Sayek S (2004:467) FDI and economic growth: the role of local financial markets. Journal of international Economics 64:89–112

Balasubramanyam, M. Salisu and David Sapsfor (1996:679), ''Foreign Direct Investment and Growth in EP and IS Countries'' The Economic Journal, No. 106, pp. 92-105

Barro, Robert (1991:7780). Economic Growth in a Cross Section of Countries, the Quarterly Journal of Economics, 106: 407-43.

Barro, R., Sala-i-Martin, X., (1997:426). Technology diffusion, convergence and growth, Journal of Economic Growth 2, 1–26

Barro, R.J. and Becker, G.S. (1989:495). Fertility choice in a model of economic growth, Econometrica 57(2): 481-501.

Beck, T., Levine, R., and N. Loyaza (2000:1433). Finance and the Sources of Growth, Journal of Financial Economics 58, 261–300.

Becker, G.S., Murphy, K.M. and Tamura, R. (1990:1228). Human capital, fertility, and economic growth', Journal of Political Economy, 98(5): S12-S37.

Berg, Andrew and Krueger, Anne, (2003:10). Trade, Growth, and Poverty: A Selective Survey IMF Working Paper, Vol., pp. 1-51, 2003

Bhargava, A., Jamison, D., Lau, L., & Murray, C. (2001:241). Modeling the effects of health on economic growth, Journal of Health Economics, 20(3), 423–440

Blonigen, B. A., & Wang, M. (2004:157). Inappropriate pooling of wealthy and poor countries in empirical FDI studies, NBER Working Paper No. 10378. http://www.nber.org/papers/w10378.pdf.

Bloom, D. E., Canning, D., & Sevilla, J. (2004:236). The effect of health on economic growth: A production function approach. World Development, 32(1), 1–13.

Bloom, D. E., Canning, D., & Jamison, D. (2004:81). 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 (1997:136). The Impact of Foreign Investment on Host Countries: A Review of the Empirical Evidence, Policy Research Working Paper 1745. Washington DC: World Bank.

Caves, Richard E, (1974:925). Multinational Firms, Competition, and Productivity in Host-Country Markets, the London School of Economics and Political Science

Caves, Richard E. (1998:1116). Industrial Organization and New Findings on the Turnover and Mobility of Firms, Journal of Economic Literature, 36(4)

Chee-Keong Choong & Zulkornain Yusop & Siew-Choo Soo, (2005:11). 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

Claessens, S., and L. Laeven, (2003:328), Financial Development, Property Rights, and Growth, Journal of Finance

Cotton, L and V Ramachandran, (2001:10), 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, 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.

Dehejia, Rajeev H. and Roberta Gatti, (2002:78) . Child Labor: The Role of Income Variability and Access to Credit in a Cross Section of Countries, World Bank Policy Research Working Paper 2767.

Demirguc-Kunt A., Detragiache E., (1998:769). The Determinants of Banking Crises in Developing and Developed Countries, IMF Staff Papers, 45, 81-109.

Dollar, David, and Aart Kraay (2001:2260). Growth is good for the Poor. Washington DC: World Bank, Development Research Group

Durham, J. B. (2004:154). Absorptive Capacity and the Effects of Foreign Direct Investment and Equity Foreign Portfolio Investment on Economic Growth, European Economic Review, 48, 285–306.

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,

George Papaconstantinou, (1995) "Globalisation, Technology, and Employment: Characteristics and Trends," STI Review, No. 15, 1995, p.177.

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

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

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

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

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

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.

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

Patrick Honohan, 2004. "Financial development, growth, and poverty: how close are the links? Policy Research Working Paper Series 3203, World Bank

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

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.

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.

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

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

Wheeler, David & Mody, Ashoka, (1992:). "International investment location decisions: The case of U.S. firms," Journal of International Economics, Elsevier, vol. 33(1-2), pages 57-76

Wurgler, Jeffrey, (2000:). "Financial markets and the allocation of capital," Journal of Financial Economics, Elsevier, vol. 58(1-2), pages 187-214

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

Table 1 FDI inflow 1986 - 2006

	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 [14]	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 inflows 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 1986 - 2006

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*

Figure 1
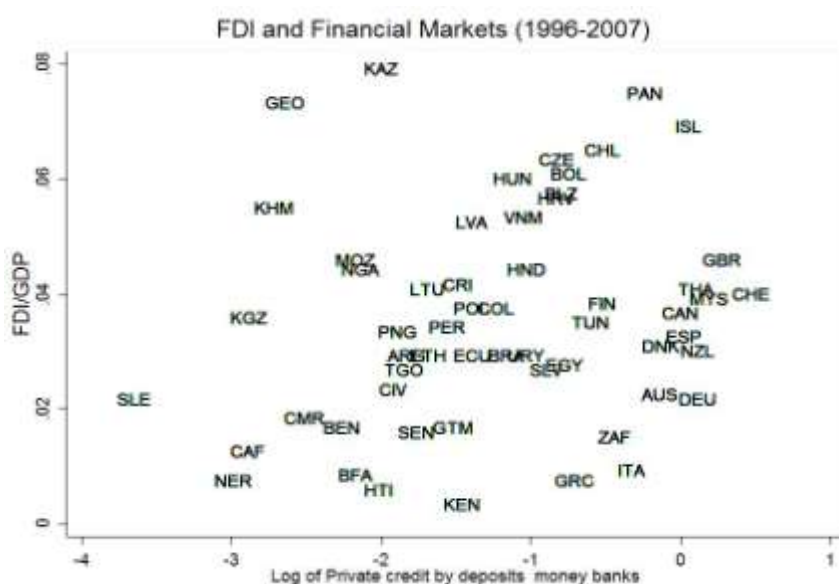
Source: *Author elaboration (FDI/GDP source UNCTAD(2009), Privet credit by deposit source IMF's International Financial Statistics, October 2008)*
Fig 1 Countries in this plot are the 62 countries (the sample data of this paper) .

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[14] *excluding South Africa*

Figure 2 the indirect linkages among FDI - Financial Market – economic growth and Poverty reduction.
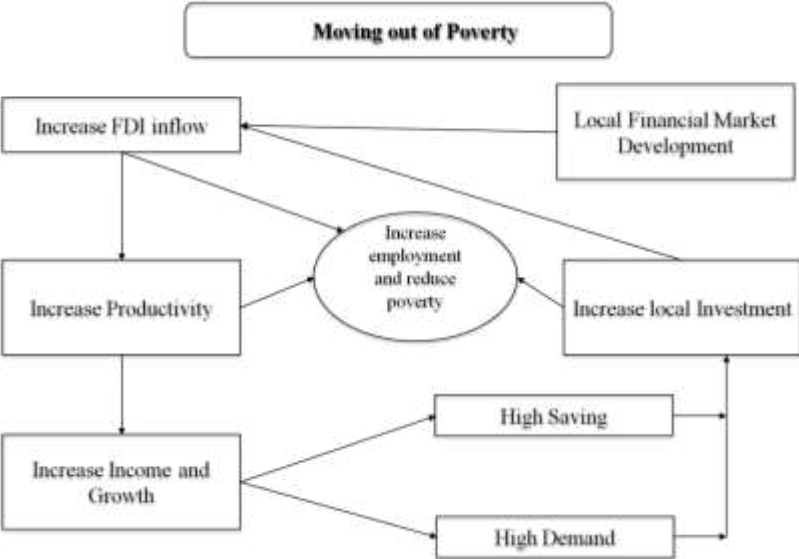
Figure 3 Relation between trade and FDI.
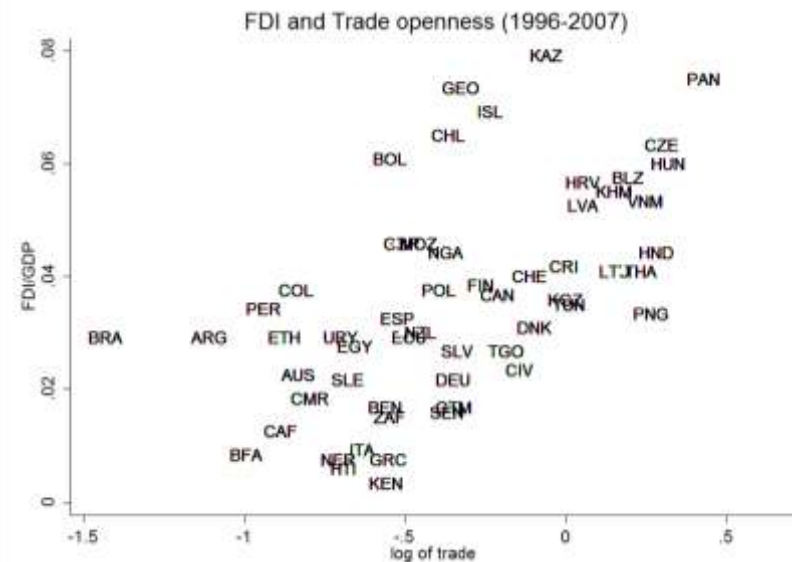
Source: Author elaboration, Countries in this plot is the 62 countries (the sample data of this paper.

Figure 4 Relation between trade and GDP per capita growth.
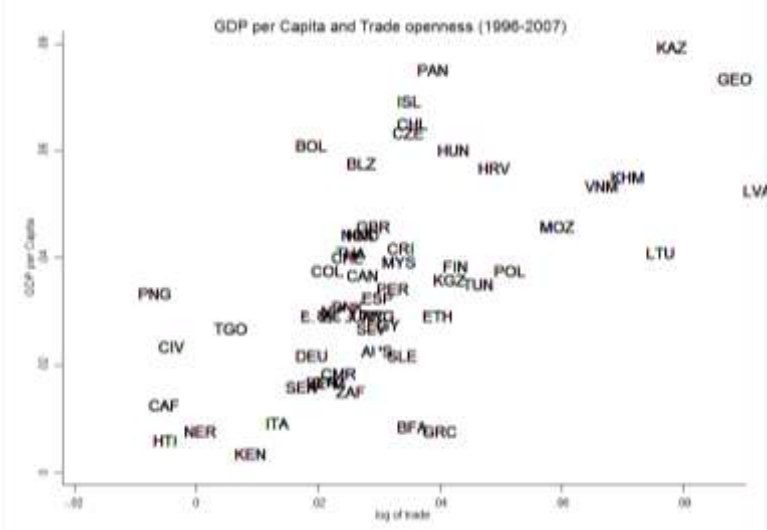
Source: Author elaboration, Countries in this plot is the 62 countries (the sample data of this paper)

Figure 5 the indirect linkages among trade - FDI – economic growth and Poverty reduction.
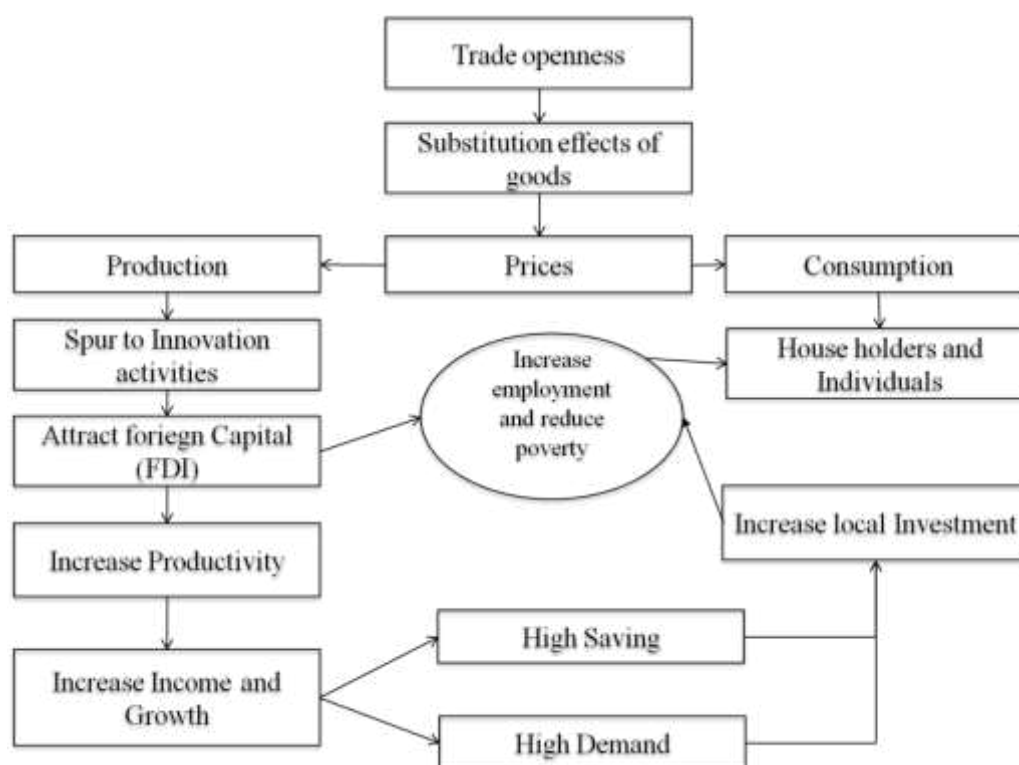
Table 3 Combined results of the panel unit root tests.

		Growth per Capita		FDI/GDP	
		LL	IPS	LL	IPS
Paper Sample	(62)	-7.183	-4.508	-5.434	-3.914
		(0.000)***	(0.000)***	(0.000)***	(0.000)***
High income level :OECD	(14)	-2.647	-1.686	-2.410	-1.891
		(0.004)**	(0.04)*	(0.008)**	(0.02)*
Non OECD	(48)	-8.594	-5.801	-4.876	-3.553
		(0.000)***	(0.000)***	(0.000)***	(0.000)***
Low income level	(19)	-7.872	-5.218	-2.952	-2.950
		(0.000)***	(0.000)***	(0.001)**	(0.002)**
Lower Middle income.	(14)	-2.759	-1.707	-1.749	-1.496
		(0.002)**	(0.04)*	(0.04) *	(0.06) †
Upper Middle income	(15)	-5.109	-3.816	-3.257	-1.797
		(0.000)***	(0.000)***	(0.000)***	(0.03) *

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

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

	Model 1 Without Interaction term					Model 2 with Interaction term = FDI × 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.

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 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 χ²	103.88	440.40	211.69	137.35	312.78	219.24	100.66	340.02	218.05
(Prob > χ²)	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
χ² for FDI				28.21	27.64	15.50	20.83	25.34	15.68
(Prob > χ²)				(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
χ² for FM				8.06	26.23	1.46	4.64	27.06	1.24
(Prob > χ²)				(0.01)*	(0.000)***	(0.482)	(0.09)†	(0.000)***	(0.538)
χ² for Edu							10.80	92.81	13.26
(Prob > χ²)							(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 FDI and growth: the role of financial markets and human development - endogeneity (IV) - Dependent variable—per capita growth rate.

Income	Financial market instrumented by the rule of law and FDI instrumented by lagged FDI _Interaction term = FD I × FM_			Financial market instrumented by the rule of law and FDI instrumented by lagged FDI _Interaction term = FDI × FM ×Edu_		
	Low	_Upper middle_	_High(OECD)_	_Low_	_Upper middle_	_High(OECD)_
	_(1)_	_(2)_	_(3)_	_(4)_	_(5)_	_(6)_
FDI/GDP	1.23	0.265	0.045	0.743	0.251	0.047
	(2.82)**	(1.36)	(0.39)	(1.69)†	(1.33)	(0.40)
Interaction term	1.52	0.359	0.021	2.04	0.017	0.023
	(2.10)*	(0.38)	(0.18)	(2.54)*	(0.02)	(0.20)
Financial market	-0.040	-0.017	-0.004	-0.073	-0.032	-0.004
	(-1.57)	(-0.43)	(-0.44)	(2.04)*	(-0.88)	(-0.45)
Education	0 .003	0.237	0.073	0.067	0.210	0.072
	(0.18)	(2.40)**	(1.07)	(1.81)†	(2.30)*	(1.07)
Population Growth	-0.246	-0.054	-0.339	-0.652	-0.163	-0.338
	(-0.46)	(-0.13)	(-1.52)	(0.97)	(-0.42)	(-1.52)
Political Stability No Violence	0.006	0.024	0.009	0.003	0.023	0.009
	(1.05)	(2.24)**	(1.67)†	(0.41)	(2.23)*	(1.67)†
Government Effectiveness	0.018	0.022	0 .009	0 .016	0.023	0.009
	(1.67)†	(1.27)	(1.11)	(1.00)	(1.39)	(1.10)
Control of Corruption	-0.004	-0.024	-0.013	-0.005	-0.024	-0.013
	(-0.41)	(-1.57)	(-1.89)†	(-0.38)	(-1.67)†	(-1.89)†
Trade volume	0.009	0.012	0.004	0.019	0.013	0.004
	(0.86)	(1.58)	(0.69)	(1.18)	(1.66)†	(0.68)
Inflation	-0.068	0.026	-0.001	-0.029	0.023	-0.001
	(-1.41)	(0.42)	(-0.01)	(-0.59)	(0.39)	(-0.02)
Sub-Saharan Africa dummy	0.008			0.012		
	(0.67)	_____	_____	(0.58)	_____	_____
overidentification test (OIR)	0.11	0.51	0.14	0.13	0.64	0.14

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

Table 9 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 = FDI × 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 10 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 = FDI × 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 χ²	125.57	1015.92	401.69	126.62	1301.51	378.30	127.09	927.99	382.87
(Prob > χ²)	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
χ² for FDI				10.90	31.86	48.65	10.26	19.55	49.66
(Prob > χ²)				(0.004)**	(0.000)***	(0.000)***	(0.005)**	(0.000)***	(0.000)***
χ² for FM				8.35	83.16	7.02	8.51	57.40	6.73
(Prob > χ²)				(0.01)*	(0.000)***	(0.02)*	(0.01)*	(0.000)***	(0.03)*
χ² for Edu							8.49	38.91	9.58
(Prob > χ²)							(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 $p < 0.001$

Table11 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***
OECDa	-2.65**	-2.12*	-2.26*	-3.05**
Non OECDb	-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*

Table12 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
OECDa	0.25	0.64	0.17	1.06	7.09**	0.05
Non OECDb	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*

Table 13 Contemporaneous relationships between FDI and employment

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

Appendix

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.

Descriptive statistics and Pearson correlation matrix

	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

	Mean	SD	1	2	3	4	5	6	7	8	9
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

Correlations reported are for the main effects, and not for the interaction terms.
*p< 0.05.