

FOREIGN DIRECT INVESTMENT AND WELFARE NEXUS IN SUB SAHARAN AFRICA.

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ABSTRACT

Economic growth is extensively used as a proxy of welfare to investigate the link between FDI and poverty reduction. Though, economic growth is required to improve the well-being of a population, it does not accurately show the extent to which poverty level in a country has fallen. If growth attained by a country is not pro-poor, then the effect might be catastrophic thereby causing large inequality with a worsening of welfare. This paper uses the poverty headcount ratio as a proxy to measure social welfare. By using a dynamic Panel vector error correction model, and catering for dynamism and endogeneity, the study attempts to address the important question of whether foreign direct investment(FDI) improves welfare (poverty reduction) for selected Sub Saharan African countries using panel dataset for the period 1990-2010. The results suggest that indeed FDI is an efficient tool in fighting poverty both in the short run and long run with the sample of countries considered. Moreover, the Granger-causality results favour a uni directional relationship between FDI and social welfare (poverty reduction) and a bi directional causality between FDI and economic welfare (Economic growth). Interestingly, our results further confirm various economic relationships.

Key words: Poverty reduction, FDI, Panel VECM, Cointegration and Granger-Causality.

JEL Codes: F23, I30

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INTRODUCTION

The United Nations Millennium Development Goals (MDGs) places much importance on the development aspect of countries. Essentially the phase of alleviating poverty and deprivation has become the main goal for governments of developing countries, making them work for pro poor growth. Achieving the objectives set by the MDG ensures an improvement in human development and reduction in poverty. Relating to the actual state of Africa in meeting their MDGs, it is noted that they are far from achieving these.

African countries require massive investment to help their economies to prosper. One source of capital flows that can be of great help to these countries are foreign direct investment (FDI). In fact, in most African countries, FDI has played a crucial role in achieving growth. The most prevalent conviction among policy makers and researchers relate to the fact that FDI help to promote growth through various channels. For instance, the flow of foreign capital in the host countries is believed to increase capital stock and employment, leads to technological progress through technological diffusion and thereby leads to technological spillovers for domestic firms. FDI also contribute towards developing the human capital of the host countries, add to international trade integration, boost local investment and increase tax revenue. (Jenkin and Thomas, 2002). All these benefits definitely help to attain both economic welfare in terms of higher economic growth and social welfare in terms of poverty reduction.

However, one difficulty which is actually felt globally is the widespread ongoing financial and economic crises. Most developed countries are actually designing economic and fiscal policies in order to keep capital at home (The Economist on "The return of economic nationalism.",2009). Remittances to Sub Saharan African countries are seen to drop due to the crisis and several multinational corporations are cancelling investment flowing to Africa. Hence, these countries which depend on the flow of capital from FDI to attain economic growth and development find themselves in a difficult situation. They thus find it even more difficult to meet the MDGs. Importantly, African countries need foreign direct investment in order to boost their economies and attain social development.

Most studies that have been done so far concentrate on FDI and economic growth. These studies link the welfare variable to economic growth mainly GDP growth. Though, economic growth is required to improve the well-being of a population, it does not accurately show the extent to which poverty level in a country has fallen. If growth attained by a country is not pro-poor, then the effect might be catastrophic thereby causing large inequality with a worsening of welfare (Anand and Sen, 2000).

The present paper takes a different approach in analyzing the impact of FDI on poverty reduction. In the context of selected Sub Saharan African countries and over the period 1990-2010, we used a dynamic panel data analysis in our poverty model, while most studies were based on OLS regression models and static panel data analysis. Panel data modeling is being used as a versatile tool to study various economic relationships. In this regard, this study uses a rigorous dynamic time series analysis namely a dynamic panel vector error correction model (PVECM), to carry out the proposed investigation. Such a procedure ensures that the dynamic behaviour of the time series under consideration is properly captured, while simultaneously catering for endogeneity and causality issues. Any feedback and indirect effects which might be present will also be detected within the PVECM. The model also simultaneously allows the identification of any bi-directional and/or uni-directional causality between the variables of interest.

The structure of the paper is as follows: Section 2 provides a literature review on the relationship between FDI and poverty reduction. Section 3 presents an overview of the poverty level in Sub Saharan African countries followed by section 4 presenting the methodology and describing the variables and data used. We further analysed the empirical results of the relationship between welfare and FDI in Sub Saharan Africa. Section 5 presents concluding remarks and policy recommendations.

LITERATURE REVIEW

The vital role of inward FDI in developing countries as an engine of development and social maximiser have attracted researchers to query into the emerging critical role of foreign investment. The flow of foreign capital in the host countries is believed to increase capital stock, employment and leads to technological progress. Also, with foreign investment flowing in a particular country, the level of knowledge is expected to be increased and also highly improved as FDI come along with training for workers and thus there is an important flow of skill to the local workers. Also, foreign investment brings along a variety of new management practices and more efficient ways of carrying out the production processes. Hence, all these positive spillovers which flow to the recipient countries as a result of foreign investment benefit the economy as it aids to stimulate economic growth and productivity. Also, there are social benefits as well. For instance, as production increases, there is also an expansion in jobs creation which is an effective tool for reducing poverty. (Mayne, 1997).

Theoretical Review

FDI flowing in developing countries have two main types of benefits. For instance, it can bring considerable social and economic benefits to the host countries. Analysing the social welfares which spill over to the recipient countries, it is noted that FDI contribute towards poverty reduction, by creating jobs, providing training and fostering technological development. From the economic viewpoint, we further observe that FDI can help boost economic growth of the developing countries. For instance, according to the various growth models, human capitals as well as technological progress are important factors contributing to economic growth. FDI is seen as an important influence of both human capital and technological spillovers to developing countries thus contributing towards enhancing economic growth.

FDI could contribute towards upgrading social welfare by several channels. For instance, the direct channel includes job creation. By establishing new companies and producing in a particular country, FDI create employment and it contributes towards improving welfare. Also, very importantly, FDI can create employment indirectly. The inflow of FDI creates employment opportunities in other sectors of the economy as well. In certain cases, it is observed that the jobs created by foreign companies indirectly can be much greater than that created directly. Employment creation by foreign firms is constantly increasing with a rapid growth of foreign affiliates in developing countries. This aspect of FDI definitely helps to boost standard of living in the host countries and thus contributes towards poverty reduction. However, employment creation should be more than employment destruction mainly in cases where the market stealing effect of FDI has been found to be very significant.

Other direct channel through which FDI can influence welfare of the host countries can be through the backward and forward linkages with the local firms. These involve the situation where foreign affiliates are capable of generating positive vertical spillover effects with domestic suppliers through local sourcing. Also, through increased competition and application of new technologies, foreign firms can contribute towards positive horizontal spillovers (Gohou et al, 2010). Moreover, FDI has been recognized to contribute to the development of a country and also act as a device to fill the gap between planned investment and locally mobilized savings, boosting tax revenues of the host countries, improving managerial know how, generate technological progress, and increasing labour skills in the recipient countries. (Hayami, 2001 and Todaro et al, 2003). Thus, such capital flows are expected to help developing countries to break the vicious cycle of underdevelopment. (Hayami, 2001).

On the other hand, Hung (2003), identified in his paper that FDI can have both direct and indirect influences on poverty alleviation in host countries. For instance, FDI leads to economic growth, which leads to an increase in standard of living, as well as contribute to an improvement in productivity and economic environment. Hence, indirectly through an increase in GDP, FDI contribute towards alleviating poverty. The direct impact is observed through the creation of jobs by foreign affiliates which help mainly those living in poverty and contribute towards an improvement in labour force and safety nets.

Also, very importantly, the type of FDI and FDI policy regime are considered to be very crucial. If foreign investment is in the form of buying raw materials only that will be used outside the host country, then the potential of job creation and positive spillover effects may be restricted. For more internalization of the benefits generated by FDI, they should mainly be targeting specific market accessibility. Hence, there will be job creation and linkages (backward and forward) will be highest.

FDI & Social safety nets for the poor

FDI is considered as an important element helping host countries to generate economic growth and raise wages and standard of living. However, it does not always help the redistribution of earnings towards the poor. Normally, it is observed that the social safety nets for those living in poverty require the intervention of the government or important benevolent activities. Foreign investment can nevertheless create certain preconditions for these interventions. For instance, FDI can greatly help to generate revenue from taxes that are needed to fund support to those living in poverty. By so doing, they are also indirectly stimulating growth and thus widening the tax base. Moreover, FDI participates in corporate social responsibility programmes. They spend considerable resources towards community development and charitable funds and other projects which all together help to alleviate poverty in the countries they are operating.

It is also noted that foreign companies not only help the poor in terms of providing fund services, but they also bring those services to the poor. As highlighted by Michael et al (2001), the search for improved services delivered by foreign firms, has led to the world wide privatization of major public goods such as infrastructure. Investment by foreigners in diverse services such as telecommunications, electricity and water has brought more and better-quality service to millions of households including poor ones.

Empirical Review

By surveying the literature, it is observed that several researchers have found a direct link between FDI, economic growth and poverty reduction. FDI is seen to promote growth. Also it contributes towards upgrading social welfare of the host countries, especially by reducing poverty. As noted by Klein et al. (2001), FDI has the capacity of reducing the adverse shock due to financial instability to those living in poverty. It can as well boost the capacity management of the state.

FDI can indirectly leads to poverty reduction through economic growth. By fostering economic growth in the host countries, foreign investors can help alleviate poverty. Economic growth is considered as the most important ingredient for boosting social welfare. According to the study done by Roemer and Gugerty (1997), the poor is seen to benefit from economic growth. Their study show that an increase in the rate of GDP per capita leads to a one to one increase in the average income of the poorest (bottom 40% of income distribution). Hence, there is a strong correlation between economic growth and average incomes of the poor. Nelson and Pack (1999), and Kakwani (2000) also approve on the positive impacts of foreign investment which have a tendency to be greater than the negative impacts, thus leading to economic growth and poverty alleviation.

The paper by Dollar and Kraay, 2000 found that growth has a tendency to boost the earnings of those living in poverty proportionately with overall growth. Hence, the investigation shows that foreign investment is an important element for generating economic growth which in turn help to alleviate poverty. Their study is based on testing the link between the income of the poor (bottom 20% of the income distribution) and overall income using data on income of the poor and mean income for 80 countries over 40 years. They observed that when overall income increases, on average incomes of the poor increase by exactly the same rate. They also found that openness to international trade and improvement in the rule of law raise incomes of the poor by raising per capita GDP but do not significantly influence the income distribution.

Also, Hung (2005) investigated the impact of FDI on poverty reduction across provinces and cities in Vietnam by using empirical panel data for the period 1993-2002. The results support theory and found that FDI contributes towards poverty reduction through both the direct and indirect channel. More precisely, the investigation shows that FDI flowing in Vietnam have a positive and significant impact on economic growth. Moreover, economic growth in the provinces of Vietnam is found to significantly reduce poverty. Gohou et al (2010) investigated the same issue for the case of Africa. The proxy used for measuring welfare or poverty reduction was the human development index. The results from this paper again support the positive relationship between FDI and poverty reduction. Moreover, FDI was seen to have greater impacts on welfare in poorer countries than it does in wealthier countries.

Another strand of the literature identifies economic integration as a positive variable for poverty alleviation. It allows people to exploit their productivity potential and stimulate economic growth. However, Nordstrom et al. (1999) found no direct links between FDI and poverty reduction in his study. However, they concluded that the benefits which FDI brings in terms of economic growth (scale effects) through economic activities and employment, outweighed the direct impact of FDI on poverty reduction, level of income for the poor, and skill improvement (quality effects).

ANALYSING POVERTY IN SUB SAHARAN AFRICA

Sub Saharan Africa has recorded remarkable economic performance over the last decade. However, poverty reduction has been the main aim in Sub Saharan Africa since 1960's. Earlier, policy makers were associating economic growth to poverty reduction. It was believed that once an economy registers an increase in GDP, poverty rates will fall. However, this was not the case. Higher growth rates have not really led to poverty reduction. In fact it has been argued that higher economic growth has been in the favour of the small middle class and the very rich. Though there was an overall increase in growth rates in SSA, job creation has remained low for a population which was constantly growing.

The unemployment rate in Sub-Saharan Africa is 25%, with youth unemployment of nearly 40%. (Africa progress report, 2013) As identified by WHES¹ 2012, the principal causes of poverty in Sub Saharan Africa are harmful economic systems, conflict, environmental factors such as drought and climate change, and population growth. All are very important as causes of poverty and hunger in Sub-Saharan Africa. Poverty is seen as the main source of hunger in Africa and other countries People do not have enough money to buy food and could be starving in slums. In 2008, 47 percent of the population of sub-Saharan Africa lived on \$1.25 a day or less, a principal factor in causing widespread hunger.

The UN Food and Agriculture Organization estimates that 239 million people in sub-Saharan Africa were hungry/ undernourished in 2010 as compared to 925 million people which were hungry worldwide. Sub-Saharan Africa actually had the largest proportion of its population undernourished an estimated 30 percent in 2010, compared to 16 percent in Asia and the Pacific (FAO² 2010). Thus almost one in three people who live in sub-Saharan Africa were hungry thus poor, far higher than any other region of the world, with the exception of South Asia.

Also, importantly noted is that the world's economic and political systems are the main cause of poverty It is observed that resources and income are controlled by political and economic power. These resources end up in the hands of the minority enjoying a high standard of living, while those down the income ladder hardly survive. An essential way of obtaining income is through the control of the state and the sources of power. Thus, referring to the freedom index which measures the degree to which people have political rights and

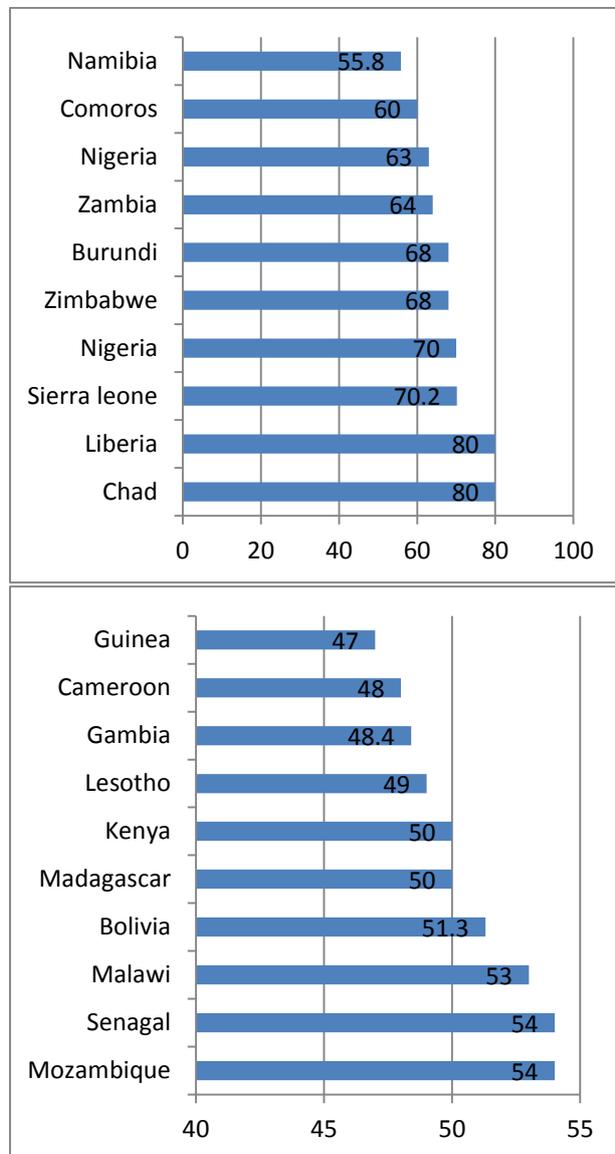
¹ World Hunger Education Service
² Food and agriculture organisation

civil liberties, it is noted that SSA has a very low freedom ranking. Also in these countries those in position of power obtain income most of the time through corruption. The “2011 map of perceived corruption worldwide” done by Transparency International (2011) shows that many Sub-Saharan African nations are corrupt. This aspect further contributes towards widening the poverty level in these countries.

Regarding the Millennium Development Goals (MDG) Africa in general has a mixed record concerning the eight internationally-agreed targets which aim to reduce poverty, hunger, maternal and child deaths, disease, inadequate shelter, gender inequality and environmental degradation by 2015. Sub Saharan Africa has sustained progress toward several MDGs but much is left to attain. The need for poverty reduction is very significant in Sub-Saharan Africa, consisting of 700 million people. According to the UNHDI, Sub Saharan Africa lags behind most of the world in almost all indicators of human well-being. The people of Sub Saharan Africa suffer from shorter life spans; higher infant mortality; a higher incidence of HIV, malaria, and tuberculosis; a higher incidence of undernourishment; and lower school enrolment. The region’s growth record is as well poor. Also we noted that, Sub Saharan Africa continues to be one of the world’s most protectionist regions which can be a factor hampering growth and poverty reduction.

We further note that the % of population living below the poverty line is quite significant as shown below:

Figure 1: Population of selected Sub Saharan countries living below poverty line (%)



Source: Data obtained from CIA World Factbook, 2012 [IndexMundi website]

METHODOLOGY

To analyse the relationship between foreign direct investment and poverty alleviation in the set of selected Sub Saharan African countries¹ under consideration, panel data spanning over a period of 21 years (1990-2010) is being considered. We thus proceed by describing the model adopted and the empirical indicators and control variables used in the model. Referring to Hung (2005), Seetanah et al (2009) & Gohou et al (2010), the following functional form applies to the “FDI- Poverty Alleviation model” used in this investigation:

$$POV = f(\text{FDI, GDP, DEBTGDP, GOVTSP, EDU, CPI, UNEM, OPEN}) \quad (1)$$

The variables used in this study is mainly the FDI variable and welfare variables. We used FDI flows to capture the extent of foreign direct investment in the country. The data has been extracted from the World Bank database. As far as welfare variables are concerned, we referred to existing literature in order to select the appropriate variables. However, it should be noted that such studies are limited. Also importantly, development is a multi-dimensional phenomenon and poverty alleviation is subject to various factors. For instance, poverty incidence is a complete measure of welfare in a country and takes into consideration various aspect of an individual living condition in order to assess standard of living. Also, we included in our study economic variables as well as other variables. We used the poverty headcount index (Seetanah et al, 2009) to capture the level of poverty in the countries. The data has been extracted from the WDI.

Economic variables:

GDP has been used in the literature (Lee, Jong-Wha. 1994, Sharma & Gani 2004) as a welfare measure to assess the advancement of countries. Since, GDP per capita is capturing the economic dimension of the investigation; this variable has been included in the study. However, though GDP is widely used, it captures only the economic dimension of welfare. However, development being a multi-dimensional phenomenon and apart from economic growth as captured by GDP per capita, other factors need to be taken into consideration. Welfare depends on crucial elements such as education, government spending and other factors.

Therefore, other control variables are included in the model. For instance, the variable government spending (GOVTSP) is added in the econometric equation. Normally, for African countries, investment flows mainly from government and or from foreign direct investment. Hence, the government spending is used as a proxy to capture government investment. A positive impact of this variable is expected on the wellbeing of the population and this is justified by the fact that the aim of the government is to maximize social welfare and thus investment by the state will help achieve this aim. Normally the governments invest in merit goods such as education and health as well as public goods.

Additionally, the variable government debt to GDP (DEBTGDP) is included to help capture the government financial constraint. It is expected that this variable will impact negatively on welfare. It is so, as the more indebted a country is, the more difficult it become for the government to invest in welfare programmes because of debt servicing. For human capital, various proxies such as the literacy rate or school enrolment rate are often being used. This study uses secondary enrolment ratio as a proxy for education (EDU). Other control variables include inflation (CPI) as a measure of the macroeconomic environment in the selected countries. Furthermore, the variable trade openness (OPEN), which is the sum of exports and imports divided by GDP (Dollar, 1992; Edwards, 1993), is as well included in the investigation. More so, the variable capturing unemployment rate (UNEM) is as well included in the study to investigate the link between unemployment and welfare.

The econometric specification for the model is being written as follows:

$$pov_{it} = \alpha_0 + \beta_1 fdit_{it} + \beta_2 gdp_{it} + \beta_3 debtgdp_{it} + \beta_4 govtsp_{it} + \beta_5 edu_{it} + \beta_6 cpi_{it} + \beta_7 unem_{it} + \beta_8 open_{it} + \epsilon_{it} \quad (2)$$

Where i is the respective countries in the sample and t denotes the time dimension and the small letters denote the natural logarithm of the variables employed for the ease of interpretation (that is in percentage terms) and ϵ refers to the error term.

Panel Unit Root Tests

Before proceeding with the estimation of the model, it is important to investigate the time series properties of the panel series. Applying regression on time series data may generate spurious results (Granger and Newbold, 1974; Philips, 1986) due to the possibility of non-stationarity data. Hence, checking the stationarity of the data is a prerequisite for applying co-integration test. If the series are non-stationary, the differencing procedure is used to transform the non-stationary data to stationary. For this purpose, we make use of panel unit root tests to find the order of integration of the various variables under consideration. Im, Pesaran, and Shin (2003) panel unit root tests are used and results of test applied on our time series in levels reject stationarity in favor of a unit root for all the variables. In this investigation, it turns out that stationarity is achieved after differencing each variable once, which means that each of the variables is integrated of order one. The results are also confirmed by the ADF- Fisher, PP- Fisher and Levin, Lin & Chu panel unit root tests at the 5 percent significance level for each variable.

Panel Cointegration Test

Once, the variables are stationary of the same order, the second step is to check for co-integration test or long run co-integration relationship amongst the variables. The Johansen Co-integrating Test (Johansen 1988; Johansen and Juselius, 1990), which uses maximum likelihood testing process, is applied, to investigate the number of Co-integration vectors in the Vector Auto Regressive (VAR) setting. Both Johansen Fisher Panel Cointegration Test and Kao Residual Cointegration Test indicate the presence of a cointegrating relationship among the variables. Having recognized the presence of a long run relationship, the study uses a panel vector error correction model, and proceeds with the estimation.

ANALYSIS OF RESULTS

For our research, we have used a Vector Autoregressive (VAR) model. In effect the VAR/VECM model is of great importance in showing the dynamic behavior of economic time series and for forecasting. Also, it often provides better forecasts compared to those from uni variate time series models and describe theory-based simultaneous equations models. Forecasts from VAR/VECM models are also quite flexible because they can be made conditional on the potential future paths of specified variables in the model. Thus, given the endogeneity and causality issues, using a VAR/VECM model can prove to be highly beneficial. More so, by adopting a VAR/VECM Model, we can also correctly analyze the potential effect of foreign direct investment on poverty alleviation in Africa and also any causality which might exist between them, and also investigate other feedback and indirect effects in the hypothesized link between FDI and POV. In fact this framework resembles a series of equation where each determinant comes as the explained variable in a system which is then solved simultaneously. We estimated a VAR in an error correction model (VECM) for the purpose of our analysis. The pth order PVECM is specified as follows:

$$\Delta Z_{it} = \Gamma_{i1} \Delta Z_{i,t-1} + \dots + \Gamma_{i,p-1} \Delta Z_{i,t-p+1} + \mu_{it} \quad (3)$$

$Z_{it} = [\text{povit}, \text{fdit}, \text{gdpit}, \text{debtgdpit}, \text{govtspit}, \text{eduit}, \text{cpiit}, \text{unemit}, \text{openit}]$

i denote the different countries in the sample and t denotes the time dimension. μ is a standard white noise process. By applying the Akaike Information Criterion (AIC), Schwarz Information Criterion (SC), and Hannan-Quinn Information Criterion (HIC), an optimal lag length of 1 is chosen. Then PVECM is estimated and the results of the model are reported in Table 1 and 2.

Table 1: THE LONG RUN ESTIMATES

| VARIABLES | COEFFICIENT | COEFFICIENT |
|-----------|-------------|-------------|
| pov | 1 | 1 |
| fdi | -0.0518** | -0.1121* |
| gdp | -0.2516** | -0.7526** |
| debtgdp | 0.7351* | 0.8890* |
| govtsp | -3.2832 | -4.2362 |
| edu | -7.8849* | -8.7995* |
| open | 1.9606 | 2.8612 |
| unem | | 1.5757** |
| cpi | | 0.7289* |

*Indicates the significance at 10%, ** significance at 5% and ***significance at 1%

Results of our main variable of interest that is “FDI” show that such capital flows directly contributes towards reducing poverty. Hence, FDI is considered as a pro-poor variable for the selected Sub Saharan African countries considered in the study. One can argue that FDI improves the distribution of income, social and environmental standards. The social benefits of FDI comprises of overall improvement in social safety nets and basic services for those living in poverty. However, considering the elasticity value of poverty with respect to FDI, we find that the value is low. This can be explained by the type of FDI flowing in these countries. Most of them are normally resource seeking FDI and internalize most of the benefits accruing from their activities. The population thus do not always really benefit from the activities of these types of FDI.

Regarding the elasticity of poverty with respect to gross domestic product per capita, a negative and statistically significant result is obtained. This result is consistent with the hypothesis that the growth of an economy reduces the number of poor people in a country. It shows that holding other variables constant, the percentage of people living in poverty will decrease by 0.25% when GDP per capita of the country increases by 1%. In fact, referring to previous work done on this issue, researchers have found the rate at which poverty will fall depends on the rate at which income is increasing, and on the initial inequality level as well as the rate of change in the level of inequality. (World Bank, 2000; Bourguignon, 2003; Klasen, 2004)

From the results, we further note that the relationship between education and poverty level is negative and significant as expected. This can be explained by the fact that education is viewed as a process which does not only aim at achieving universal basic learning and adult literacy but it integrates the poor in the society by increasing awareness about their rights and responsibilities and by empowering them through specific training within the economic activities of the community (Lister 2004). More so, education, particularly of girls and women in regions with gender discrimination (for instance in Nigeria as highlighted by Oriahi and Aitufe, 2010) contributes to break from the cycle of exclusion that improve the situation of the poor.

Also, it is observed that countries with high government debt also tend to have a high rate of poverty (IMF and World Bank 1999). This can be clarified by the fact that resources of the country are used to pay debts rather than invest in poverty reduction programs or even in developing the country. Our findings support this relationship. We find that high government debt leads to high poverty level. This can be explained by the fact that the more indebted countries are, the more likely they will face financial distress due to debt servicing. Hence, such financial constraints put them in a difficult situation to invest in social programs. Most of the financial resources tend to be diverted towards the repayment of debts. (Gohou et al, 2010)

Furthermore, it is argued that inflation affects poverty mainly through its impact on real wages because nominal wages fail to increase as fast as prices in episodes of rising inflation rates. Our findings indeed prove this fact. We note that the higher the rate of inflation in the selected Sub Saharan African countries the higher is the poverty level. Unemployment on the other hand also affects poverty level. In fact those who are down the income ladder, depends a lot on employment to receive an income. They usually do not have any investment income and do not really receive income in the form of interpersonal transfers from family or friends (Atkinson, Rainwater, and Smeeding 1995; Kenworthy 2004).

Relating to openness and poverty level, we note that our results are statistically insignificant. Normally by increasing the proportion of foreign trade in their national product, many countries have experienced long term growth. However, we should note that trade liberalisation has proved successful when combined with opportunities offered by global markets with strategies for domestic investment and institution building, to boost domestic entrepreneurs. In most Sub Saharan African countries we find that there are not enough of institutional backup nor infrastructural backup. Finally referring to the results, the size of government spending seems to have non-significant impact on welfare in the long run.

The Short Run Equation

As observed from the preliminary tests, the variables are co integrated, in the short run; deviances from the long run equilibrium will feed back on the changes in the dependent variables so as to force their movements towards the long run equilibrium state. The deviation from the long-run equilibrium is corrected gradually through a series of partial short term adjustments, the co-integration term or the error correction term. It indicates the rate at which any disequilibrium is adjusted towards the long-run equilibrium. The empirical results of the short run estimates of the PVECM are displayed in the table 2.

Table 2: SHORT RUN ESTIMATES OF PVECM

| | D(LPOV) | D(LFDI) | D(LGDP) | D(LDEB TGDP) | D(LEDU) | D(LUNEM) | D(LOPEN) | D(LCPI) | D(LGOVT SP) |
|-----------------------------|-----------------|----------------|----------------|-------------------------|---------------------|-----------------|-----------------|----------------|------------------------|
| Error | | | | | | | | | |
| correction | -0.0005 *** | -0.1173 * | -0.0049 *** | -0.0088 *** | -0.0301 ** | -0.0021 ** | -0.0082 ** | 0.0309 *** | 0.0229 * |
| D(LPOV(- 1)) | 0.1851 ** | 4.1009 | -0.4548 * | -0.9288 | -0.0045 ** | -0.1423 | -0.2526 | 0.0614 | -0.1615 |
| D(LFDI(- 1)) | -0.00021 *** | 0.3318 * | 0.0300 *** | -0.0022 *** | 0.0023 *** | -0.0008 ** | 0.0021 | 0.0023 *** | 0.0065 * |
| D(LGDP(- 1)) | -0.01841 ** | 0.0797 * | 0.0772 *** | -0.1065 * | 0.0147 | -0.1575 ** | 0.1564 * | 0.0162 ** | 0.0251 |
| D(LDEBTG DP(-1)) | 0.00769 *** | -0.2462 | -0.0165 ** | -0.0886 ** | 0.0060 * | 0.0516 | -0.0086 | -0.0227 *** | 0.0395 |
| D(LEDU(- 1)) | -0.0526 ** | 6.5273 | 0.2377 * | 0.3265 | 0.3223 ** | 0.3880 | 0.1608 | 0.0913 | 0.2441 |
| D(LUNEM(- 1)) | 0.0130 *** | 0.3849 | -0.1524 ** | 0.2830 | 0.0044 | -0.0072 ** | 0.0301 | 0.0201 * | -0.1441 |
| D(LOPEN(- 1)) | -0.068 *** | -0.2513 | 0.0173 ** | -0.1055 | -0.0162 * | 0.0066 * | -0.0974 ** | 0.0531 ** | 0.0143 |
| D(LCPI(- 1)) | 0.0117 | 1.444 | 0.0507 | -0.2719 | 0.0094 ** | -0.1931 | 0.0501 | -0.06633 ** | -0.0001 |
| D(LGOVTS P(-1)) | -0.0013 *** | -0.2324 | -0.0124 ** | 0.0427 ** | -0.0034 | 0.0220 | 0.0123 ** | 0.0222 * | -0.5697 * |
| Constant | -0.0019 *** | 0.2102 | 0.0244 ** | -0.0175 ** | 0.0158 *** | -0.0036 ** | 0.0244 ** | 0.0612 *** | -0.0471 ** |

*Indicates the significance at 10%, ** significance at 5% and ***significance at 1%

Table 2 is a composite table, where each column can be viewed and analyzed as an independent function, that is, each column in the table corresponds to an equation in the PVECM. The variable named in the first cell of each column is viewed as the dependent variable. The estimated coefficient of the explanatory variables is reported in the cells. Results of the short run estimates turn out to be different from the long run ones.

Analysing the short run results in column 2 that is the equation having D (LPOV) as the dependent variable we find that the coefficient FDI is negative and significant. It implies that as FDI increases poverty level fall in the short run as well. However, it is important to note that the coefficient has a very low value. (0.0002%) It thus implies that foreign capital flows take some time to have its full effect on poverty alleviation in Africa. A close look at the results gives further useful insights on the other possible determinants of welfare. For instance, we note that in the short run economic growth as measured by GDP per capita is a determinant of welfare. Apart from this, high education level and low unemployment together help to increase welfare in the set of African countries considered under the study. This result confirms the economic theory analysing the link between welfare and other economic variables.

The short run estimates of the PVECM allow us to make further analysis of the results. Considering the third column (FDI equation) of table 2 and focusing on the poverty coefficient, to analyse the impact of poverty reduction on FDI, we note that it is positive and insignificant. This implies that an increase in welfare does not necessary increase the level of FDI in the countries considered under this study. This can be again explained by the fact that most of the foreign capital flowing in the African countries are resource seeking and therefore the actual welfare state of the countries does not affect their investment decision. To confirm this result, and to analyse the causal relationship between poverty reduction and FDI, a granger causality test was performed and the results confirm a uni-directional causality between FDI and the welfare proxy, which is poverty reduction. The results are shown in table 3.

Table 3: PAIRWISE GRANGER CAUSALITY TEST BETWEEN FDI AND WELFARE

The symbol ‘→’ indicates the direction of Granger Causality

| | F-Statistic | Prob. | Direction of causality |
|----------------------|--------------------|---------------|-------------------------------|
| fdi → Welfare | 4.32710 | 0.0141 | fdi→ Welfare |
| Welfare → fdi | 0.82116 | 0.4410 | |

The economic growth variable is another widely used measure of welfare documented in past studies. Hence, referring to table 2, we can further investigate the link between FDI and welfare by focusing on column 4, which is the GDP equation. Analysing the results for GDP per capita as a measure of welfare, it is observed from table 2 that as FDI increases, GDP per capita also increases. For instance, a 1% increase in foreign investment leads to a 0.03% increase in GDP per capita. Likewise, referring to column 3 and further analyzing the relationship between FDI and GDP per capita, we witness a positive and significant relationship. It implies that the growth rate of a particular country influence the flow of foreign capital. Based on the above discussion, we can conclude that there is a bi-directional causality between FDI and economic welfare of the countries considered under this study. However, it is important to point out that GDP is only a measure of economic welfare and not social welfare. It is highly criticised on the ground that it does not describe whether or not growth is actually improving the welfare of the people. Hence, the GDP variable is a less informative variable for social welfare. It is subject to various constraints.

Government spending is regarded as an injection in an economy, and acts as a booster of economic growth. However, it does not necessary leads to poverty reduction. For instance, we could not find a long run relationship between government spending and poverty alleviation. (Refer to table 1) Conversely, in the short run government spending does contribute towards boosting social welfare, but the coefficient is very small. This may be explained by the nature of the welfare programs. These might be in terms Social Security benefits which help to alleviate poverty by a marginal amount. These programs are of short term nature and fail to address the poverty problem on a long term basis.

Furthermore, analyzing the table, we observe other interesting results. For instance, it is observed that there is an inverse relationship between unemployment and GDP. This result confirms economic theory propounding that output depends on the amount of labour used in the production process, so there is a direct relationship between output and employment or a negative relationship between output and unemployment.

5.0 CONCLUSION

This paper investigates the impact of foreign direct investment on poverty alleviation across selected Sub Saharan African countries for the period 1990-2010. As welfare measure, we used the poverty head count index which is being regressed on economic variables. A dynamic panel analysis has been undertaken based on the PVECM framework. We observed a uni directional relationship between FDI and poverty reduction and a bi directional causality between FDI and economic welfare (Economic growth). Interestingly, economic growth, high education level, high employment and low inflation rate all contribute towards increasing welfare. However, government spending and openness is seen to have less effect on poverty reduction in the long run.

For instance, although Foreign Direct Investment can contribute to countries' development and poverty reduction in Sub Saharan Africa, policies put in place to attract these foreign investments should be properly formulated. Governments should implement inclusive development policies to ensure a reduction in poverty level. More so, it is observed that there is a need to effusively develop the physical, institutional and human backup of the countries to fully internalize the benefits from trade policies. Hence, in order to maximize the benefits from FDI flows and ensure adequate economic growth and social development with the presence of FDI, appropriate policies and institutions are of utmost importance.

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ⁱ Burundi, cote d'ivoire, Guinea, Kenya, Lesotho, Mali, Madagascar, Mauritania, Mozambique, Niger, Nigeria, Rwanda, Senegal, Tanzania, Uganda, Zambia