

## External Financial Flows, Policies and Growth in Sub-Saharan Africa

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### **Abstract**

*Despite the relatively mild external capital inflows, Sub-Saharan Africa is still bewildered with high rate of poverty, income inequality and decline in per capita income. Using panel data from 1981-2011 and applying Generalized Method of Moments (GMM) approach in SSA, the study shows that FDI inflows contribute more to economic growth compared to remittances; and ODA is positively and significantly related to growth. However, the interaction of external inflows and policy index yields opposite results. Specifically, FDI and remittance are insignificant and negatively related to growth while ODA is positive and significantly related to growth. The study concludes that for ODA to impact favourably on growth, monetary, fiscal and trade policies should be properly formulated and implemented, though, FDI and remittance are not affected by these policies.*

**Keywords:** FDI, ODA, Remittance, Economic Growth and Sub-Saharan Africa

**JEL Classification:** F21, O23, O40

### **1. Introduction**

It is widely acknowledged that most developing countries in Africa are capital starved. Following the principles of national income accounting which equate saving with investment, it could then be stated that the chances of the latter stimulating economic growth is uncertain in the African context. This is accompanied by limited availability of domestic capital to meet Millennium Development Goals (MDGs). Hence, there is no gainsaying about the urgency for such countries to source for external financial flows. As such, this study hypothesizes three sources: remittances, Foreign Direct Investment (FDI) and Official Development Assistance (ODA) and it further argued that these sources would individually or collectively impact on economic growth of the recipient countries.

Remittances are defined as the private transfer of funds from an expatriate to the home country. The remittance-growth nexus is burgeoning in both the academic environment and among the policy makers based on the following reasons: First, there has been rapid increase in the flow of remittances to developing countries most especially to the low and middle income countries<sup>3</sup>. Second, for many developing countries, the volume of remittances exceeds that of ODA and FDI. It is also argued that other forms of external finance (particularly, ODA) are more volatile and countercyclical. Third and most importantly, studies have proved and demonstrated how remittances alleviate the effects of poverty and income inequality.

In recent times, developing countries, especially in Africa, see the role of FDI as crucial to their economic growth and development. FDI is viewed as an engine of growth as it provides the much needed capital for investment, increases competition in the host country industries, and aids local firms to become more productive by adopting more efficient technology or by investing in human and/or physical capital.

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<sup>3</sup> Computation from UNCTAD reveals that the global value of remittance stood at \$440.1 billion in 2011, which represented about 0.30% of the global GDP. Developing countries were able to receive about 75% of the total flow and about 27% of GDP in developing countries is being accounted for by Remittance.

ODA is usually associated with official development assistance, which in turn is a subset of the official development finance, and normally targeted to the poorest countries for the purpose of development (World Bank, 1998). ODA is primarily the official government-to-government transfer of financial and technical resources for the programs of social and economic development. The main objective of foreign aid is to produce accelerated economic growth by supplementing domestic sources of finance such as savings, and also reduce the incidence of poverty and income inequality in recipient countries.

The role of foreign aid in the growth process of developing countries has been a topic of intense debate. Due to the importance of this issue, the impact of foreign aid has been the subject of very extensive investigation given its implications for poverty reduction and income inequality in the recipient countries. The key question that both the donor and the recipient countries ask is whether aid has any effect on developing countries' growth and their level of poverty. This issue has been approached from various perspectives; nevertheless, a single and definite answer still does not exist. On one side of the arguments are those who claim that aid has undoubtedly been supportive of growth in some countries and prevented decline in others. Some researchers however found that aid can spur growth but that it has diminishing returns, that is, the effectiveness of aid decreases as the level of aid infused into the economy increases. Whereas, some other researchers suggest that aid is effective but only in a stable macroeconomic environment while others conclude that macroeconomic environment has no significant influence on the link between aid and growth.

Despite the increased flow of external funds to developing countries, SSA countries are still characterized by low per capita income, high poverty rate and income inequality, high unemployment rate as well as low and falling growth rate of GDP. These are developmental problems that such funds or inflows are supposed to ameliorate to a great extent. An overall evaluation of the economic performances as well as socio-economic conditions of African continent in general and of SSA in particular has not been impressive over the years. This shows a strong assertion that it is not the volume and/or amount that is important as there must be certain conditions that would favorably enhance the positive impact of these inflows on growth.

In furtherance to the above, studies on FDI had shown that the benefits accruing from FDI are conditional upon certain issues. Blomstrom et al. (1994), Borensztein et al. (1998), Agosin and Mayer (2000), Alfaro et al. (2000) and Herzer et al. (2008) report that FDI exerts a positive effect on economic growth, but that there seems to be a threshold level of income, stock of human capital, financial sector development and technological progress above which FDI has positive effect on economic growth and below which it does not. On ODA, Burnside and Dollar (2000), Collier and Dehn (2001), Guillaumont and Chauvet (2001), Chauvet and Guillaumont (2002), Collier and Dollar (2002), Collier and Hoeffler (2002) have shown that aid works better in countries with sound macroeconomic policies. Faini (2002), Sorensen (2004) and Ratha (2004) orate that the non-performance of remittance is based on a missing important variable (institution)- a situation where the recipient's countries' political, economic and social policies (hereafter, referred to as policies) and institutions create the incentives for financial and business investment and savings from remittances. In addition to this, Giuliano and Ruiz-arranz (2009); Aggarwal et al. (2010); Bettin and Zazzaro, (2012) opined that the developed financial sector of the remittance recipient countries is a precondition for remittance to impact favourably on growth and subsequently development.

The gap identified by this study is that most existing studies tend to suppress the fact that macroeconomic policies work along with these capital inflows. However, the few studies

that made attempt in this regards only considered ODA<sup>4</sup> while ignoring remittances and FDI. Hence, this study serves as an extension to the work of Burnside and Dollar (2000) among other studies and thus, hypothesizes that these financial inflows cannot significantly impact individually on growth rather with their interaction with macroeconomic policies. Hence, the proposition that is being put forward is that the beneficial effects of these flows are conditional upon having a stable, developed and effective macroeconomic policy framework. To the best of our knowledge, this will be the first attempt to make this hypothesis, which also serves as novelty to the existing literature. The rest of the paper is arranged as: sections two and three provide the literature review and methodology respectively. Empirical results are presented in section four while section five concludes the study.

## 2. A Review of Empirical Evidence on Aid-Growth-Poverty Nexus

The empirical literature on the effects of external financial flows (FDI, ODA and Remittance) on economic growth is presented in table 2.1 below. The empirical findings are categorized into the following:

- (i) Evidence on the positive relationship between aid and growth;
- (ii) Evidence on the negative relationship between aid and growth;
- (iii) Evidence on the significant role of policy in aid-growth nexus;
- (iv) Evidence on the insignificant role of policy in aid-growth nexus
- (v) Evidence on the positive relationship between FDI and growth
- (vi) Evidence on the negative relationship between FDI and growth;
- (vii) Evidence on the conditional effect of FDI on growth
- (viii) Evidence on the positive relationship between remittance and growth.
- (ix) Evidence on the negative relationship between remittance and growth.
- (x) Evidence on the conditional effect of remittance on growth

**Table 1: Tabular Description of Empirical Evidence**

Empirical Evidence	Description of Empirical Evidence	Authors
Positive relationship between aid and growth	Foreign aid promotes economic growth by supplementing limited domestic savings as well as foreign exchange constraints of recipient countries.	Chenery and Strout (1966), Fayissa and El-Kaissy (1999), Hansen and Tarp (2000), Gomanee, Girma, and Morrissay (2005), Karras (2006).
Negative relationship between aid and growth	There is no significant, positive influence of aid inflow on investment and growth in recipient countries. Aid was shown to increase unproductive public consumption and failed to promote investment.	Papanek (1972), Mosley <i>et al.</i> (1987, 1992), Reichel (1995), Boone (1996), Shah, Ahmad and Zahid (2005).
Macroeconomic policy affects aid-growth nexus	Foreign aid has some positive impact on growth conditional on a stable macroeconomic policy environment, and other country characteristics such as export price shocks, climatic shocks and the terms of trade, policy and institutional quality, institutional quality alone, policy and warfare.	Burnside and Dollar (2000, 2004), Collier and Dehn (2001), Guillaumont and Chauvet (2001), Chauvet and Guillaumont (2002), Collier and Dollar (2002), Collier and Hoeffler (2002).
Macroeconomic policy does not have a significant influence on aid-growth nexus	Aid-growth nexus is sensitive to changes in data set. If the data set of studies suggesting positive and significant role of policy in aid-growth nexus is updated, the role of policy disappears.	Hansen and Trap (2001), Easterly <i>et al.</i> (2004), Tashirifov (2005), Murphy and Tresp (2006), Mehmet (2008).

<sup>4</sup> Burnside and Dollar (2000, 2004), Collier and Dehn (2001), Guillaumont and Chauvet (2001), Hansen and Trap (2001), Easterly *et al.* (2004), Tashirifov (2005) among others.

Positive Effects of FDI on Economic Growth	FDI promotes growth by supplementing limited domestic investment, weak technological advancement and poor human capital development.	De Gregorio (2003), Hansen and Rand (2006), Mun (2009), Massa (2011) .
Negative Effects of FDI on Economic Growth	Crowding Out Effect and capital flight through profit repatriation retards economic growth. Also, FDI takes advantage of market imperfections and leverages vertical and technological spillovers	Carkovic and Levine (2002), Blomstrom and Kokko (2003), Globerman and Shapiro (2003), Mecinger (2003)
Conditional effects of FDI on growth	It is argued here that before FDI would impact positively on growth, there seems to be certain conditions that must be met by the host countries. i.e there seems to be a threshold level of income, stock of human capital, financial sector development and technological progress above which FDI has a positive effect and below which it does not.	Blomstrom et al. (1994), Borensztein et al (1998), Agosin and Mayer (2000), Alfaro et al (2000) and Herzer et al (2008).
Positive effects of remittance on growth	Remittance augments low savings and investment rates in the recipient country. Also, it reduces the effect of income inequality and helps solve poverty related issues.	Chamai et al (2006), Piracha (2004), Ratha (2004), Portes (2009) and Serino and Kim (2011)
Negative relationship between remittance and economic growth	Remittance can help fuel inflation, lead to dutch disease and reduce labour market participation rates as households opt to live off on migrants transfer rather than working.	Azam and Gubert (2002), Chamai et al (2005) and Kieyev (2006).
Conditional effects of remittance on growth	Remittance would impact positively on economy whose financial sector development is weak. In addition, it is argued that if remittances are expended on human capital development, economic growth would be established. Also, encouragement of better institutional structures and high and “stable” governance level would further attract remittance which in turn will lead to economic growth.	Fassiya and Nsiah (2010), Giuliano and Arranz (2009), Fall (2003), Luna and Martinez (2008) and Catrinescu et al. (2009)

Source: Author’s computation.

### 3. Data and Methodological Issues

#### A. Data and Methodological Issues

Unlike other financial flows, remittance is subjected to debatable measurement issues. There is no consensus as regards the definition and concept of remittance among the policy makers and academics. Workers' remittances and compensation of employees comprise current transfers by migrant workers and wages and salaries earned by non-resident workers. Remittances are classified as current private transfers from migrant workers resident in the host country for more than a year, irrespective of their immigration status, to recipients in their country of origin. Migrants' transfers are defined as the net worth of migrants who are expected to remain in the host country for more than one year that is transferred from one country to another at the time of migration. Compensation of employees is the income of migrants who have lived in the host country for less than a year. In essence, it can be said to consist of three items: workers remittance, compensation of non-resident employees and migrants transfer. The first two items belongs to the current account while the last item is classified into capital account. It should be noted that the unofficial channels (“hawala” or “hundi”, sending money through friends and family members who are visiting their home country and money laundering among others) account for a significant proportion of the total money being remitted<sup>5</sup>. Despite this deficiency, better technology, low cost of transfer<sup>6</sup> and

<sup>5</sup> Aggarwal et al. noted that about 50%-250% of the recorded remittance is being accounted for by the unofficial channels; Fassiya and Nsiah (2010) were of the view that about US\$186billion was remitted through the unofficial channels in 2005 while Freund and Spatafora (2005) as cited in Cooray stated that about 35-75% of the unofficial flow is being accounted for by the official remittance to developing countries.

efforts to check money laundering might have served as incentives to remit money through the banking sector rather than the unofficial means.

FDI is the net inflow of investment to acquire a lasting management interest (10 percent 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, other long-term capital, and short-term capital as shown in the balance of payments. ODA consists of disbursements of loans made on concessional terms (net of repayments of principal) and grants by official agencies of the members of the Development Assistance Committee (DAC), by multilateral institutions, and by non-DAC countries to promote economic development and welfare in countries and territories in the DAC list of ODA recipients. It also includes loans with a grant element of at least 25 percent (calculated at a rate of discount of 10 percent).

All the definitions are culled from World Development Indicator (WDI) of the World Bank; and our dataset is also collected from WDI. Due to data limitation, the scope of this study is limited to 20 countries in SSA for the period between 1981-2010. The list of the countries in the sample is presented in the Appendix.

## B. Model Specification

This study modifies the models of Driffield and Jones (2013) and Benmamoun and Lehnert, (2013) to account for the interactive term between capital inflows and the policy index created. Hence, the following system equations are specified:

$$GDP_{it} = \alpha_0 + \alpha_1 GDP_{i,t-1} + \alpha_2 REMIT_{it} + \alpha_3 FDI_{it} + \alpha_4 ODA_{it} + \alpha_5 GFCF_{it} + \alpha_6 POPULATION_{it} + \alpha_7 SCHENROL_{it} + \alpha_8 INTREMIT_{it} + \alpha_9 INTFDI_{it} + \alpha_{10} INTODA_{it} + \varepsilon_{1it} \quad \text{-----}(i)$$

$$FDI_{it} = \beta_1 FDI_{i,t-1} + \beta_2 ODA_{it} + \beta_3 REMIT_{it} + \beta_4 GFCF_{it} + \beta_5 POP_{it} + \beta_6 GDP_{it} + \beta_7 SCHENROL_{it} + \varepsilon_{2it} \quad \text{-----}(ii)$$

$$ODA_{it} = \theta_1 ODA_{i,t-1} + \theta_2 FDI_{it} + \theta_3 REMIT_{it} + \theta_4 GFCF_{it} + \theta_5 POP_{it} + \theta_6 GDP_{it} + \theta_7 SCHENROL_{it} + \varepsilon_{3it} \quad \text{-----}(iii)$$

$$REMIT_{it} = \gamma_1 REMIT_{i,t-1} + \gamma_2 ODA_{it} + \gamma_3 FDI_{it} + \gamma_4 GFCF_{it} + \gamma_5 POP_{it} + \gamma_6 GDP_{it} + \gamma_7 SCHENROL_{it} + \varepsilon_{4it} \quad \text{-----}(iv)$$

Taking a cue from Burnside and Dollar (2000), the policy index is a combination of fiscal policy (using Budget Surplus as a proxy), monetary policy (using money supply as a proxy) and trade policy (using trade openness as a proxy). We regress these variables on FDI, ODA and Remittance individually. The constant term in each regression serves as the policy index. The index takes the following form:

$$CAP_{it} = \tau_0 + \tau_1 BUD_{it} + \tau_2 TRA_{it} + \tau_3 MS_{it} + \mu_{it} \quad (5)$$

Where CAP is FDI, ODA and Remit. BUD is budget balance, MS is money supply and TRA is trade openness. All the variables are expressed as a percentage of GDP.

<sup>6</sup> The average cost of remitting money fell from 8.8% in 2008 to 7.3% in 2011. Specifically, the cost of remittances between Latin America and Spain corridor on the average is about 5-7% of every \$200.

Where  $GDP_{i,t}$  is GDP per capita of country "i" at time "t", REMIT is the ratio of remittance to GDP, FDI is the ratio net FDI inflow to GDP, ODA is the proportion of total ODA received to GDP. The set of control variables used in this study are population growth (population growth rate), domestic investment (Ratio of gross fixed capital formation to GDP), school enrolment (School enrollment, secondary % gross), INTFDI is the interaction of FDI with policy index, INTAID is the interaction of ODA with policy index and INTREMIT is the interaction of international remittance with policy index.

### C. Estimation Technique and Sources of Data.

In recent years, Ordinary Least Square (OLS) has been the most common estimation technique for both time series and panel data. However, this technique has been considered to exhibit biasness behaviour and endogeneity problems, thus, recent empirical analysts tend not to base their policy recommendations on OLS result only. Hence, we employ a more robust technique: the Generalised Method of Moments (GMM) which was initially proposed by Hotz-Eakin et al. (1988) and later developed by Arellano and Bond (1991), Arellano and Bover (1995) and Blundell and Bond (1998).

The differenced GMM estimators applied to panel data models address the problem of the potential endogeneity of all explanatory variables, measurement errors and omitted variables. The basic idea of the differenced GMM is to take first differences to remove unobserved time invariant country specific effects, and then apply instruments to the right hand-side variables in the differenced equations using levels of the series lagged one period or more, under the assumption that the time varying disturbances in the original levels equations are not serially correlated (Bond, Hoeffler and Temple 2001). The System GMM estimator combines the previous set of equations in first differences with suitable lagged levels as instruments, with an additional set of equations in levels with suitably lagged first differences as instruments. We applied the dynamic panel differenced GMM in our study. To run our tests, we used the statistical software STATA, version 11 and David Roodman (2006)'s proprietary program (xtabond2). The regression results are presented in Tables 3 and 4. All data used in the study are collected from World Development Indicators of the World Bank dataset.

## 4. Empirical Results and Discussions

This section of the paper empirically analyzes the objectives of the paper, by employing statistical and econometrics techniques. Tables 1 and 2 present the description of the variables used in the study.

The average value of FDI, REMIT and ODA expressed as a percentages of GDP in SSA account for 2.66%, 6.25% and 0.21% with standard deviation of 5.02, 15.73 and 0.16 respectively. Also,  $gdpper$ ,  $gfcf$ ,  $population$ ,  $sch enrol$  and  $debt$  on the average amounted to 1.32, 5.74, 2.61, 27.91 and 1.33 with standard deviation of 5.34, 20.6, 1.15, 18.83 and 11.83 respectively.

**Table 1: Description of Key Variables in SSA**

Variable	Min	Max	Mean	Std. Dev.
FDI	-8.59	46.49	2.66	5.02
GDPPER	-47.29	37.12	1.32	5.34
GFCF	-81.77	155.78	5.74	20.60
Population	-7.53	9.77	2.61	1.15
Schenrol	2.49	87.53	27.91	18.83
Debt	-74.92	95.25	1.33	11.83
REMIT	0.00	96.94	6.25	15.73
ODA	0.00	1.29	0.21	0.16

Source: Authors' computation with underlining data from WDI (2012)

Table 2 presents the descriptive statistics (minimum, maximum, mean and standard deviations) of variables based on each region in SSA. Southern Africa accounts for the highest GDP growth rate, migrant remittance and FDI. West African accounts for the highest average rate of population growth and ODA.

**Table 2: Description of Key Variables in SSA Based on Regions**

	East Africa				Middle Africa				Southern Africa				West Africa			
	Min	Max	Mean	Std. Dev	Min	Max	Mean	Std. Dev	Min	Max	Mean	Std. Dev	Min	Max	Mean	Std. Deviation
FDI	-0.09	23.17	1.94	3.59	-8.59	46.49	3.44	7.61	-6.90	36.11	4.41	6.56	-2.14	17.50	1.91	2.86
GDPPER	-47.29	37.12	1.21	7.24	-19.69	29.10	0.89	6.46	-8.99	16.96	2.49	3.89	-19.08	12.52	0.99	4.07
GFCF	-81.77	155.78	8.22	24.16	-50.45	95.04	4.39	24.06	-39.44	73.19	4.60	17.26	-45.80	96.62	4.86	17.75
Population	-7.53	9.77	2.72	2.02	1.86	3.61	2.71	0.40	0.13	4.42	2.12	1.06	0.86	4.86	2.74	0.64
Schenrol	5.12	60.17	19.59	12.39	5.61	72.49	32.50	17.79	18.14	82.01	45.08	17.19	2.49	87.53	23.06	18.31
Debt	-45.699	70.94	2.44	14.48	12.34	95.25	3.49	9.93	-74.92	32.94	4.50	12.48	-32.47	60.96	3.45	15.67
REMIT	0.04	4.24	1.17	1.11	0.00	0.50	0.14	0.12	0.24	96.94	23.32	31.05	0.01	28.17	4.13	5.13
ODAGDP	0.00	1.29	0.26	0.18	0.00	0.49	0.11	0.11	0.00	0.70	0.12	0.15	0.00	0.98	0.27	0.14

Source: Authors' computation with underlining data from WDI (2012)

Table 3 shows the relationship among capital inflows (FDI, Remit and ODA) and economic growth in SSA. The explanatory variables in the estimated model are jointly significant in explaining changes in economic growth. Arellano-Bond Test (abond) for autocorrelation shows the absence of second order auto-correlation in the model. A major focus of the study is to empirically examine the impact of capital inflows on economic growth and development. Considering panel (1), a positive relationship is established between the three sources of capital inflows and economic growth. However, the impact of each inflow varies; ODA accounts for a major impact on economic growth followed by FDI and international remittances. Specifically, economic growth will increase by about 5.3, 3.7 and 2.03 percentage point given a percentage point increase in ODA, FDI and international remittances respectively. This result is in line with recent studies on capital inflows and economic growth (see Hansen and Rand, 2006; Mun, 2009; Massa, 2011; Portes, 2009; and Serino and Kim, 2011).

From panel (2), it is evident that remittance inflow and human capital proxied by school enrollment are important drivers of direct investment from foreign investors. Panel (3) presents evidence of a positive influence of capital inflows (FDI and ODA) on remittances,

however, capital inflow through FDI will accounts for a higher impact on remittances compared to inflow through ODA. Drawing from panel (4), inflows via international remittances, FDI, population and human capital will increase the inflow of ODA. In summary, a growing economy with high capital inflow will experience an increase in FDI and ODA from other countries.

Suffice to say, the interaction of macroeconomic policy and ODA boosts economic growth, thus international aids in a more conducive policy environment will improve the growth of an economy<sup>7</sup>. This fact has also been established in previous studies (like Burnside and Dollar, 2000; Collier and Dollar, 2002; Collier and Hoeffler, 2002). In addition, we established a negative relationship between the interactions of policy index with FDI and remittance inflows (although the negative relationships are not significant). This implies that its effect on growth is not dependent upon stable and conducive macroeconomic policies.

**Table 3: Estimated Results showing the relationship between FDI, REMIT, ODA and GDP in SSA**

	Panel 1 - GDP	Panel 2 - FDI	Panel 3 - Remit	Panel 4 - ODA
<b>First lag</b>	0.337*** (0.076)	0.291** (0.128)	1.223*** (0.268)	0.666*** (0.152)
<b>lngdpper</b>		0.659* (0.352)	2.808 (2.753)	-0.009*** (0.003)
<b>remit</b>	2.026* (1.151)	0.041** (0.020)		0.002*** (0.001)
<b>odagdp</b>	5.329*** (1.335)	3.04 (5.198)	1.344** ( 0.6498)	
<b>fdi</b>	3.723** (0.979)		3.771* (2.212)	0.004*** (0.0008)
<b>gfcf</b>	0.009* (0.005)	0.029 (0.032)	-0.248 (0.307)	0.034 ( 0.026)
<b>population</b>	0.171** (0.081)	-0.023 (0.68)	-3.294 (5.413)	0.047*** (0.018)
<b>schenrol</b>	0.001** (0.0005)	0.066** (0.027)	0.646** (0.317)	0.002 ** (0.001)
<b>debt</b>	-0.351** (0.167)	0.453 (0.378)		0.134 (0.138)
<b>intaid</b>	2.2341*** (0.328)			
<b>intfdi</b>	-7.205 (26.109)			
<b>intremit</b>	-1.01 (1.408)			
<b>_cons</b>	0.672** (0.332)	-1.442 (2.156)	-0.937 ( 0.024)	-0.118*** (0.042)
<b>Wald chi2 (P-value)</b>	343.55 (0.000)	54.51 (0.000)	53.84 (0.000)	208.44 (0.000)
<b>Arellano-Bond test for AR(2) (P-value)</b>	0.85 (0.397)	0.66 (0.512)	1.03 (0.305)	0.14 (0.891)
<b>Sargan (P-value)</b>	176.56 (0.136)	41.41 (0.625)	2.73 (0.950)	29.86 (0.525)

Source: Authors' computation with underlining data from WDI (2012). Values in parenthesis are the standard error, while \*\*\*, \*\* and \* present level of statistical significance at 1%, 5% and 10% respectively.

<sup>7</sup> All the stated results were still obtainable when the sample size is divided into low and middle income groups in SSA. Due to space conservation, the results are not stated in the study but can be made available upon request from the authors.



Table 4 presents the relationship between the three sources of capital inflow and economic growth on a regional basis in SSA<sup>8</sup>. The results are robust since the explanatory variables jointly are significant in each model. The autocorrelation test indicates the absence of second order autocorrelation and instruments used are valid. In East Africa, FDI inflow is driven majorly by remittances, ODA and capital investment (gfcf), while capital investment, FDI past value and international remittances are seen as the major determinants of FDI flows in Middle Africa. ODA positively influences FDI in Southern Africa. This impact is consistent with evidence from recent studies such as Benmamoun and Lehnert (2013). In all regions, with the exception of southern Africa, capital investment is a significant driver of FDI.

It is evident from the result that remittances in Eastern Africa depends on the level of economic growth, past value of remittance, ODA and foreign direct investment inflow, while capital investment, past value of remittance, and population are major factors responsible for changes in remittance in Middle Africa. Also, capital inflows (FDI and ODA) positively affect remittances in Southern Africa while capital investment and population level influence remittances in West Africa.

ODA depends on its past level and FDI inflow in both East and Middle Africa regions, while population and human capital proxied by school enrollment affect the level of ODA in Middle Africa. Capital inflow (FDI and remittance), past level of ODA and investment capital affect the current level of ODA in Southern Africa, while past value of ODA and school enrollment significantly affects ODA in West Africa.

Considering the effect of capital inflows on economic growth in East Africa, ODA and FDI are significant determinants of economic growth. This finding is consistent with studies on capital inflows and economic growth (see Mun, 2009; Massa, 2011; Hansen and Tarp, 2000; Gomanee, et al. 2005; Karras, 2006). Specifically, an increase in ODA and FDI inflows by 1percentage point increases growth by 1.79 and 4.14 percentage point respectively. In addition, population and human capital also influence economic growth positively, while debt is negatively related to economic growth. The interaction of macroeconomic index and ODA is significant in explaining changes in economic growth. Specifically, an increase in ODA in a more conducive policy environment will lead to an increase in economic growth in East Africa region. This result is also consistent with the work of Burnside and Dollar (2000) which emphasized the need for the interaction of institution and ODA to spur economic growth

On the one hand, in Middle Africa, economic growth will increase by 5.97 percentage point given a percentage increase in ODA inflow (see Chenery and Strout, 1966 and Fayissa and El-Kaissy, 1999 for a similar result). On the other hand, international remittance negatively affects economic growth. Furthermore, the interaction of macroeconomic policy index with either remittances or ODA will significantly increase economic growth in Middle Africa. This implies that growth will thrive given a more conducive policy on ODA and remittances (see Luna and Martinez, 2008; Catrinescu et al., 2009 and Burnside and Dollar, 2000) for similar findings). Also, capital investment is found to boost the level of economic growth in Middle Africa.

In Southern Africa, economy growth will increase by 3.9 and 2.6 percentage point given a 1 percentage point increase in remittance and ODA inflows respectively, also, capital investment and human capital significantly affect economic growth. Focusing on West Africa, ODA and

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<sup>8</sup>The regions considered are; **East Africa** (Djibouti, Ethiopia, Kenya, Mozambique and Rwanda), **Middle Africa** (Cameroon, Chad, Congo Rep. and Gabon), **Southern Africa** (Botswana, Namibia, Swaziland and Lesotho) and **Western Africa** (Benin, Burkina Faso, The Gambia, Mali, Cape Verde, Ghana, Togo and Senegal).

**Table 4: Estimated Results for showing the relationship between FDI, REMIT, ODA and GDP in SSA regions**

	East Africa				Middle Africa			
	1 - GDP	2 - FDI	3 - Remit	4- ODA	5 - GDP	6 - FDI	7 - Remit	8- ODA
First lag	0.424*** (0.08)	0.799*** (0.133)	0.866*** (0.092)	0.823*** (.069)	0.427** (0.190)	0.704*** (0.139)	-0.15* (0.081)	0.794*** (0.221)
lngdpper		0.012 (0.273)	-0.112* (0.067)	-0.003 (.007)		-1.544 (1.089)	0.014 (0.016)	0.008 (0.006)
remit	-2.696 (2.500)	-0.274*** (0.062)		0.034 (0.021)	-1.048*** (0.0141)	4.439* (2.488)		0.183 (0.147)
odagdp	1.794*** (0.640)	0.299*** (0.090)	1.131** (0.537)		5.977*** (1.106)	8.311 (25.645)	-0.508 (0.483)	
fdi	4.147*** (1.290)		-0.02** (0.01)	0.004* (0.002)	3.748 (2.433)		0.003 (0.006)	0.002** (0.001)
gfcf	-0.002 (0.005)	0.061*** (0.016)	0.005 (0.006)	0.034 (.0005)	0.051* (0.029)	0.163*** (0.040)	-0.003** (0.0013)	0.012 (0.333)
population	-1.194*** (0.041)	0.004 (0.166)	-0.016 (0.056)	-0.003 (.004)	1.089 (1.468)	3.014 (4.749)	-0.196** (0.083)	-0.058* (0.035)
schenrol	0.002** (0.001)	-0.027 (0.028)	0.011 (0.009)	-0.001 (.0008)	-0.004** (0.0021)	-0.167 (0.155)	-0.001 (0.002)	0.001*** (0.0003)
debt	-0.271*** (0.072)	0.093 (0.069)		0.054 (0.050)	-0.387** (0.193)	0.072 (0.380)		0.079 (0.439)
intaid	4.496*** (1.450)	-	-	-	7.960*** (0.239)	-	-	-
intfdi	2.142** (1.020)	-	-	-	0.714 (6.742)	-	-	-
intremit	1.342 (1.2494)	-	-	-	3.752*** (0.403)	-	-	-
_cons	1.501*** (0.338)	0.525 (1.292)	-0.192 (0.451)	0.044 (.037)	-3.879 (4.222)	-5.089 (16.481)	0.707*** (0.241)	0.142 (0.094)
Waldchi2 (p-value)	63.59(0.000)	82.38(0.000)	125.38(0.000)	292.27(0.000)	65.42(0.000)	92.16(0.000)	22.01(0.003)	61.82(0.000)
AR2 (p-value)	0.94 (0.346)	1.26 (0.209)	<b>0.301(0.766)</b>	0.39 (0.700)	-0.71 (0.480)	0.53 (0.594)	-0.78 (0.437)	-1.20 (0.230)
Sargan (p-value)	29.46(0.103)	23.26(0.387)	23.47(0.890)	43.27 (0.628)	12.04 (0.099)	13.43 (0.747)	7.33 (0.396)	5.77 (0.449)
	Southern Africa				West Africa			
	9 – GDP	10 – FDI	11 – Remit	12- ODA	13 – GDP	14 – FDI	15 – Remit	16- ODA
First lag	0.102 (0.172)	0.773*** (0.087)	0.855*** (0.055)	0.804*** (0.051)	0.345*** (0.134)	0.396*** (0.100)	0.885*** (0.065)	0.879*** (0.078)
lngdpper		0.304 (0.453)	-0.003 (0.733)			-0.003 (0.153)	0 (0.216)	-0.001 (0.005)
remit	3.966*** (1.267)	0.01 (0.039)		0.001*** (0.0002)	-7.268 (5.111)	-0.09* (0.054)		0.001 (0.002)
odagdp	2.622*** (0.510)	4.067*** (0.444)	3.918*** (0.501)		3.077*** (0.638)	2.834 (1.605)	2.434 (2.794)	
fdi	6.878 (6.947)		0.233* (0.131)	-0.001** (0.0006)	3.912** (1.760)		-0.216 (0.137)	0.001 (0.003)
gfcf	0.033*** (0.010)	-0.049 (0.038)	-0.100* (0.059)	0.001** (0.0003)	0.013 (0.009)	0.043*** (0.015)	0.016** (0.0081)	-0.001 (0.0005)
population	-0.16 (0.172)	0.133 (0.595)	-0.263 (0.931)	-0.003 (0.004)	-0.792* (0.429)	-1.05* (0.596)	-0.669*** (0.079)	-0.017 (0.018)
schenrol	0.003** (0.001)	0.039 (0.043)	0.014 (0.071)	0.115 (0.266)	-0.024* (0.014)	0.061*** (0.019)	0.025 (0.023)	-0.001*** (0.0002)
debt	0.063* (0.037)	0.165 (0.132)		0.098 (0.072)	0.064 (0.042)	0.081 (0.091)		0.036 (0.039)
intaid	2.111** (1.066)	-	-	-	2.468** (1.100)	-	-	-
intfdi	-6.874 (5.977)	-	-	-	3.917 (5.095)	-	-	-
intremit	-1.981 (2.644)	-	-	-	3.633*** (0.877)	-	-	-
_cons	0.426 (0.799)	-1.746 (2.816)	-1.445 (4.608)	-0.009 (0.020)	2.227 (1.506)	1.83 (2.046)	1.478 (2.414)	0.093 (0.064)
Waldchi2	56.68(0.000)	65.26(0.00)	67.7(0.000)	76.69(0.000)	27.87(0.002)	<b>59.06(0.000)</b>	71.62(0.000)	91.57(0.000)
AR2	1.13 (0.259)	21.01(0.311)	<b>1.17 (0.243)</b>	0.64(0.520)	0.75(0.451)	1.27(0.203)	0.24(0.810)	<b>0.80(0.421)</b>
Sargan	57.71(0.159)	55.76(0.559)	63.28(0.207)	59.30(0.465)	11.79(0.813)	72.52(0.129)	37.67(0.964)	50.67(0.868)

Source: Authors' computation with underlining data from WDI (2012). Values in parenthesis are the standard error, while \*\*\*,\*\* and \* present level of statistical significance at 1%, 5% and 10% respectively.

FDI inflows will lead to changes in economic growth. Specifically, economic growth in West Africa will increase by 3.07 and 3.912 percentage point given a 1 percentage point increase in ODA and FDI inflows respectively. The interaction of macroeconomic policy index with ODA positively impacts on growth in both Southern and West Africa.

## 5. Conclusion and Policy Recommendations

The study ascertains the impact of capital inflows on economic growth in SSA. It is evident that remittances inflow account for the largest source of capital inflow compared to ODA and FDI. Also, ODA accounts for the least in the region. The empirical evidence obtained in this study shows that for SSA to enjoy a high inflow of FDI or ODA must be an overshoot in the inflow of remittances from abroad. This indicates that remittances inflow is indispensable in SSA because they to promote FDI and ODA capital flow. FDI and ODA are positively related to growth, however, the interaction of FDI and policy index is negatively related to economic growth in SSA. (though insignificant).

ODA from various countries is positively related to economic growth, also, the interaction of ODA with policy index will significantly improve economic growth. Thus, we conclude that ODA inflows into sub-Saharan Africa would be more effective if conducive macroeconomic policies are put in place.

On the other hand, the study analyzed the effect of capital inflow on growth based on four regions in SSA (Eastern, Middle, Southern and Western Africa). Consistent with other studies, we conclude that ODA inflow is a major driver of economic growth in SSA. In order to reduce the level of poverty in SSA, various international organizations have increased the inflow of ODA, however, in spite of the fact that the need for foreign assistance is inevitable, the crux of growth lies in conducive and developmental policies. The study recommends that countries in SSA pursue a good fiscal, monetary and trade policy in order to promote economic development and growth.

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