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How can Africa attract different forms of capital flow: theoretical perspectives

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Abstract. *This paper explores the capital flow landscape in Sub Saharan Africa and other regions and reviews the capital flow theory and its allocation puzzle. The different mechanisms in which the volume and structure of capital flow can be increased are discussed. It concludes by presenting a modified theoretical model to guide the policy makers' decisions process in designing pro-growth incentive mechanism to attract more capital to region.*

Keywords: Capital Allocation Puzzle, Capital flow, Sub Saharan Africa.

JEL Classification: F2, G1, F3.

REL Classification: 10F.

1. Introduction

The prediction of neoclassical economic theory of trade and growth imply that capital should flow from regions with low marginal product to where it attract higher marginal product (Lucas, 1990). Contrary to the prediction, more capital is flowing to countries with higher to medium income and little less to developing countries where it is most needed. Sub-Saharan Africa is poorest region but with a relatively higher return on investment. However it is the lowest recipient of capital flow to date, actually the FDI inflow grew by only 59% between 1980-1989 and 1990-1998 while it grew by 5.200% for East Europe and Central Asia and by 942%, 740% for East Asia and Pacific and for South Asia respectively (Asiedu, 2002). The observed capital allocation puzzle has attracted interest of many scholars since the seminal paper by Lucas in 1990s.

Despite a relatively low rate of capital flow to Africa, there is a general consensus that without significant amount of new capital injection Africa's development objective cannot be achieved (Rice 2003, Asiedu, 2002 and Gourinchas and Jeanne, 2008). The argument of the finance on economic growth is further supported by the proponent of the theory of finance growth nexus like Schumpeter and Patrick. The critical need of the capital flow in boosting the economic growth in the region calls for more work to be done. While there is a series of work which have been documented after the Lucas master piece, yet there is a dearth of literature focusing on Sub-Saharan Africa. The slow rate of capital flow compared to other regions provides some signal that African context may be different and may need a different variant of the model for attracting capital flow. Therefore there is a need to develop a nuanced theory which incorporates context specific in order to guide responsive policy options. In the effort to provide more light to capital flow allocation puzzle and contribute towards capital flow and growth debate, this paper aims to review the existing literature and propose a theoretical scheme on how to increase capital flow in Africa. The rest of the paper is organized as follows: The next section presents stylized facts on capital flow in Africa. A concise review of theoretical and literature is provided in section three. Section four layout the proposed theory and conclusion is presented in section five.

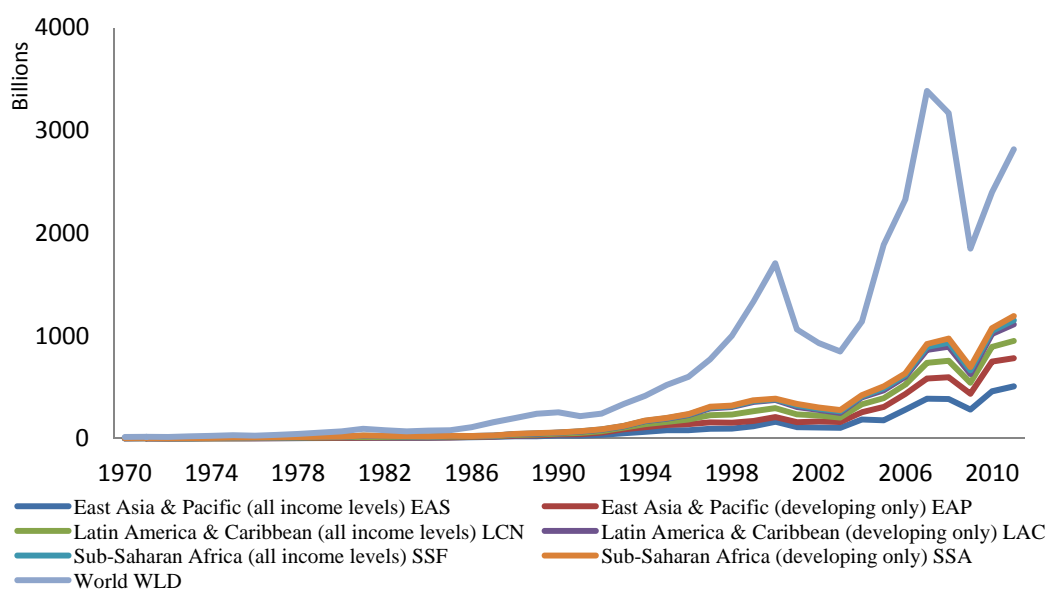
2. Stylized facts about capital flow in Sub-Saharan Africa

This section, presents the observed trend in capitals flow in Africa and its comparison with other regions around the world. The section is meant to provide broader perspectives on the empirical evolution on capital flow, delineate what works and what needs to be fixed based on the historical data. The information in this section will further guide the theorizing process and in determining the likely composition of the capital flow which may be relatively easier to attract taking into the short term crunches and capital flow inertial resulting from the recent global crisis.

Fact 1: Sub-Saharan Africa has consistently been the least recipient of capital flow

When analysing the trend from historical data on capital flow especially in term of FDI, Sub-Saharan Africa (all income levels) have been consistently lagging behind other regions in terms of the net inflow. Using the data from the World Bank Development Indicators over the span of 40 years, Figure 1 below provides clear evidence that the rate at which Sub-Saharan Africa attracts capital is relatively lower than all other regions.

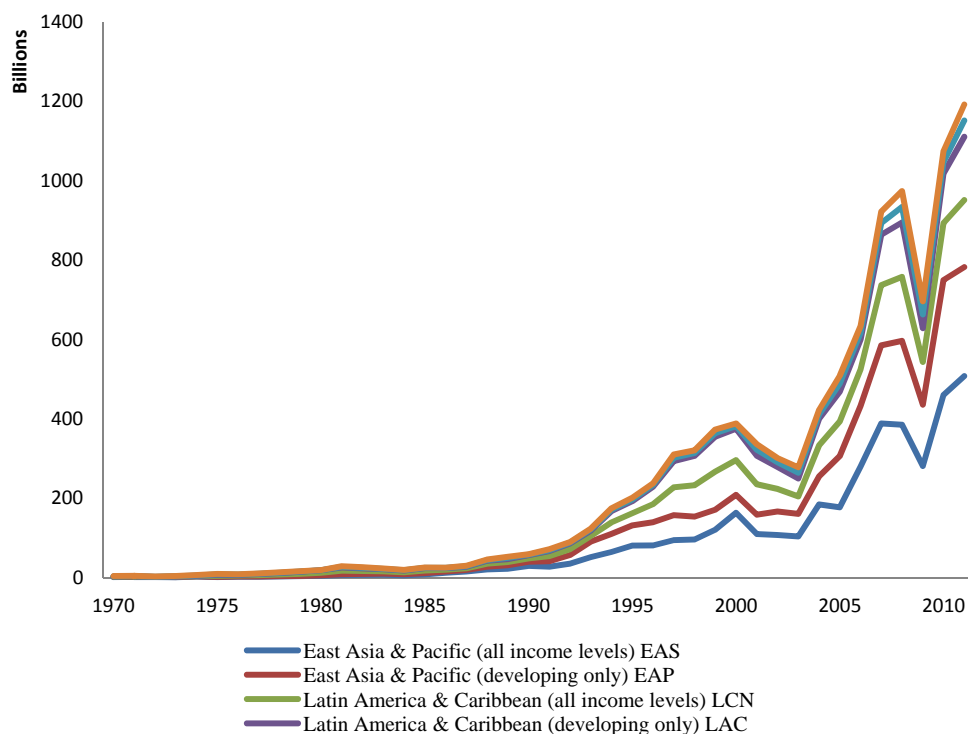
Figure 1. *The trend of FDI inflow across regions (Including World average)*



Data source: WDI, 2013.

Fact 2: The Gap of FDI inflow between SSA and other regions is widening over time

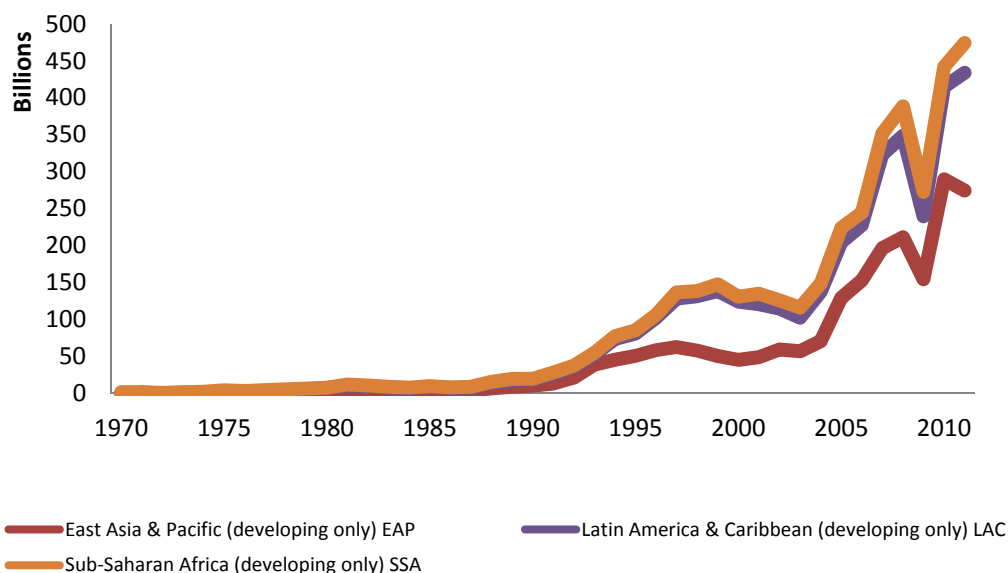
A careful analysis of the trend of FDI inflow across regions shows that even though the volume of FDI inflow has been consistently increasing across all the regions. The rate at which is increasing for SSA (all income levels) is slower compared to other regions. In other words there is a divergence of capital flow between SSA and other regions. During 1980s the inter-regional difference in terms of capital flow was relatively narrow but it has widened dramatically in the past 10-15 years. Figure 2 below demonstrates the growing trend of capital flow across countries over time.

Figure 2. *The trend of FDI inflow across regions (Excluding the World average)*

Data source: WDI, 2013.

Fact 3: Some segments of SSA countries are exceptionally doing well

Despite the fact that, the region as a whole has been persistently underperforming, there is a glimmer of hope for some countries within the region. A closer look of the data by disaggregating them into developing economy only, shows that some countries in SSA have consistently outperformed others regions at least in terms of the volume of FDI inflow. However, the questions about overall impact of such investments on the local economy remain controversial. Most of the best performers in SSA include those countries endowed with extractive resources (oil, gas and minerals). The previous empirical study has shown that the overall impact of FDI in extractive sectors is limited. More surprisingly for every dollar invested in SSA about 80% (0.8 cents) is being repatriated back leading to capital haemorrhage (Ndikumana and Boyce, 2008). The figure in South East Asia is relatively lower in the neighbourhood of 50%. Also most of the investment in Asia are inclined in manufacturing and service sectors which by large have high impact to the economy. Hence, the caveat here is that, even though the volume seems to be impressive in some countries in SSA, the net gains from the FDI may not be that impressive.

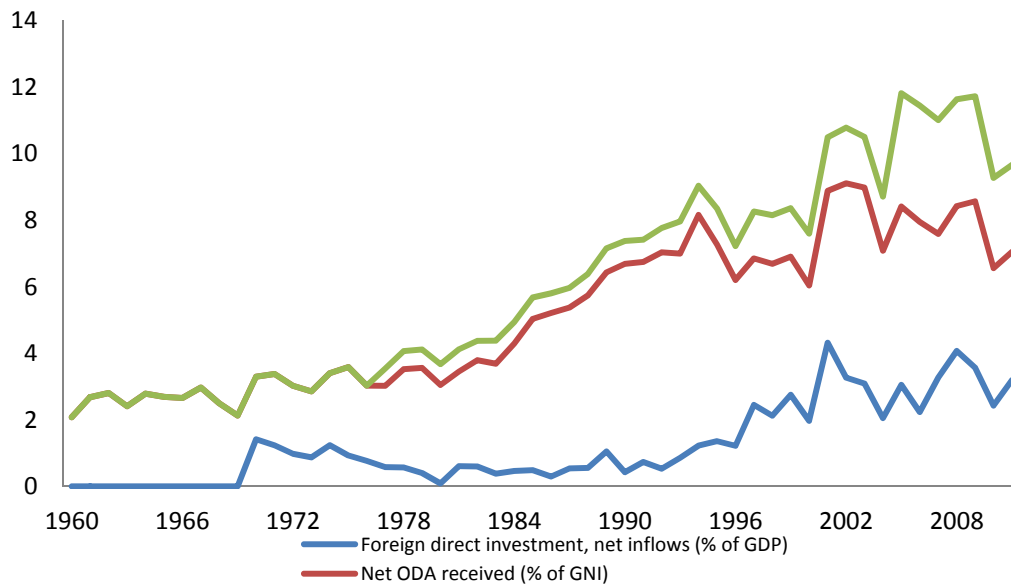
Figure 3. *The trend of FDI inflow across regions (developing economy only)*

Data source: WDI, 2013.

Fact 4: Remittances are more promising

Remittances are becoming significant source of capital flow in most developing countries. As demonstrated in Figure 4 below, the growth rate of remittances as percentage of GDP is consistently growing with faster rate than FDI and official development assistance. Such growth rate signals a strategic niche for SSA as an economic opportunity for attracting more capital inflow. Some countries like Philippines, Bangladesh and India have took as more aggressive stance of recruiting highly specialized expertise for global export in the areas of nursing and medicines for Philippines and Bangladesh, IT for India . Such dedicated effort may worth considering in boosting the future flow of remittances. Also in order to optimize remittance flow the need for well-designed incentive mechanism like Diaspora bond, developed financial market and financial institution cannot be over-emphasized. Figure 4 below illustrates the flow of FDI, ODA and Remittances over time.

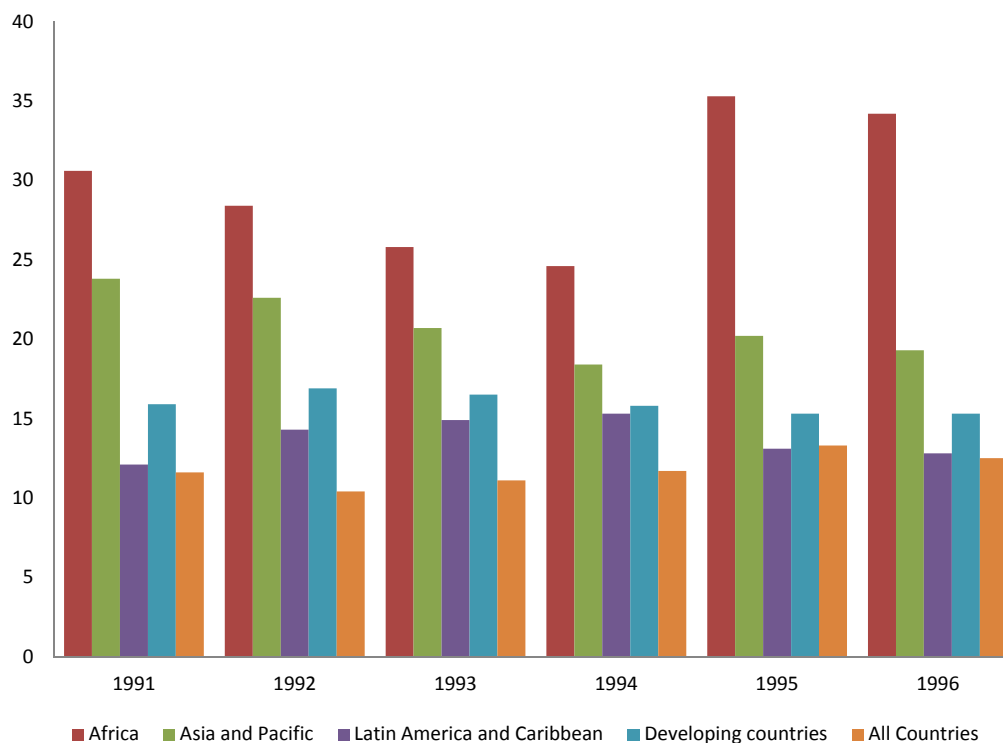
Figure 4. *The growth trend in the inflow of FDI, ODA and Remittances as a percentage of GDP in SSA*



Data source: WDI, 2013.

Fact 5: SSA has the highest return on investment

Return on investment (RoI) on USA investment is highest in Africa compared to other regions. More specifically RoI in Africa ranged between 25.6-35.3 % as compared to world average of 10.4 -12.5% and 18.4 -23.8% for Asia and Pacific (the second highest) in the same period as from 1991-1996. Figure 5 below provides a more details on the RoI comparative analysis across region from 1991-1996. While the figures may have changed but the overall ranking is likely to remain robust due to diversity of the production and service industry across regions. SSA countries should design the incentive mechanism which allows them to take advantage on the cross regional RoI differentials.

Figure 5. Rate of RoI on US investment across regions

Data source: UNCTD (1999).

3. A concise review on theoretical and empirical literature on capital flow

The theoretical debate on the capital flow may date back several decades ago. However the most significant turnaround on this debate was the seminal paper of Lucas on capital flow puzzle. In his work, he started with a rhetorical question why capital doesn't flow from rich countries to poor countries. He critically questioned the neoclassical prediction on the direction of the capital flow based on the marginal analysis of capital productivity. He further demonstrated a part of the paradox using Cob-Douglas production function. What stood out as the stumbling block was inadequate human capital development and capital market imperfection due to political risk. His conclusion emphasized the need to focus reduction of political risk, increased human capital mobility and openness to foreign investment in competitive terms.

Lucas' paper attracted a lot of attention from different scholars with significant empirical work being done on the capital flow allocation puzzle. Regardless of the

existing differences in their methodological approach, definition and composition of the capital flow variables, the following finding seems to be robust across studies: quality institutions, stable and predictable politics and policies, human capital development and openness of the economy. Others factors identified included technological innovation, infrastructural development and return on investments (Ahmed et al., 2005; Asieude, 2002; Ralhan, 2006; Dorsey et al., 2008 and Papaioannou, 2009).

According to Caselli and Feyrer 2007, the key explanation of the Lucas paradox lies on the lack of complementarity of human capital to total factor productivity in poor countries and high transaction cost. On other side Gertler and Rogoff, 1990 argues that capital flow to poor countries may be blocked by moral hazard and lack of collaterals or due to information friction. In addition some scholars have urged that capital flows upward to rich countries because of large market size, superior diversification opportunities and low transaction costs (Portes and Rey, 2005). More empirical research has demonstrated a positive correlation between high institutional qualities, low corruption, well-functioning bureaucracy and international capital flow (Alfaro et al., 2005; Portes and Rey, 2005 and Wei and Wu, 2002). Further suggestions shows that weak protection of property rights, legal inefficiency and a high risk of expropriation are major impediments to foreign banks capital (Papaioannou, 2009).

In summary the early debate on capital flow to Africa during 1980s was largely dominated by the need for more overseas development aid and more trade. The lack of significant capital flow was mainly attributed by the missing market, poor policy environments, poor macro economies fundamentals and political instability (Chea 2011; Njugo, 2011; Dorsey et al., 2008; Lucas, 1990). The pressures from the donors, IMF and World Bank have lead to a significant macroeconomic restructuring in many countries, liberalized their current account, became more open and developed their institution and infrastructure to some extent. These may be part of the reason explaining the recent increase in capital flow especially private capital and portfolio investment in Africa relatives to others sources of capital flow. It signals the gain of some confidence by the foreign investor's to the continent.

Despite the registered progress still much more need to be done. The current debates on how to attract more capital in Africa is centred on the need to maintain macroeconomic stability, more investment in the quality of institutions and public infrastructure, maintain good growth record and more innovative way of attracting capital. Some countries like Nigeria, Gabon Ghana have taken a further step in creating sovereign bond like Euro bond to boost the effort of attracting capital flow. Other innovative avenues may include designing of diaspora bond and

creating good environments to attract foreign capital small and medium enterprises funding including microfinance, saving and credit cooperatives, housing finance and education finance. The areas mentioned are the ones which are more likely to have positive growth impact and their demand seem to outstrip the supply.

4. Landscape of capital flow SSA and low-income countries

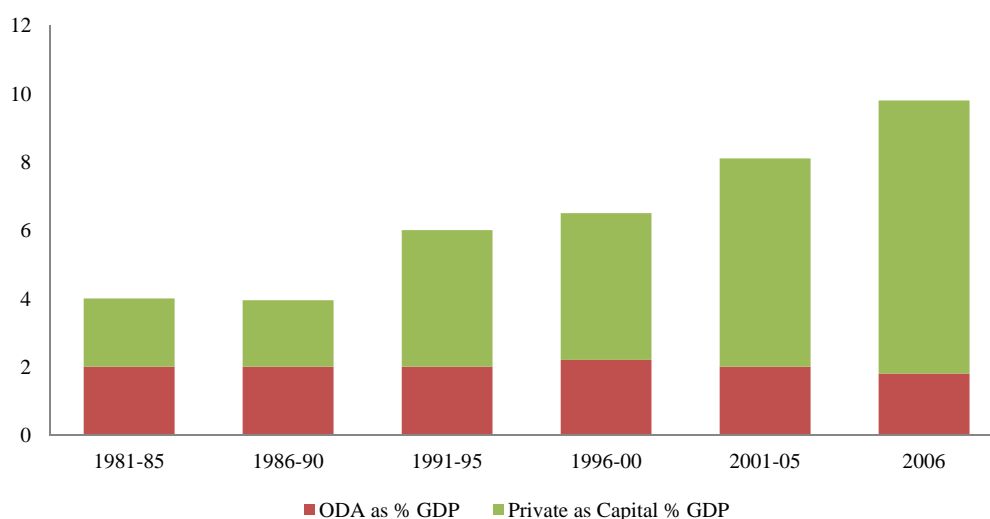
Sub Saharan Africa has been lagging behind other regions in attracting private capital except FDI in extractive industry. Some of the reasons behind the observed pattern can be attributed to relatively weak economic policies, shallow market with low purchasing power, and relatively high perceived risk (Chea, 2011; Asiedu, 2002). However it seems that the efforts which have been done by the region over the past three decades or so have started yielding dividends. As a result SSA recorded the highest level of capital flow for the first time in history during 2007. More specifically the private capital increased in six folds between 2000 and 2007 which is twice the amount of ODA to region (Chea, 2011). In 2007 it is estimated that the private capital flow in the region was \$84billion mainly from the increase in FDI, portfolio investment and private debt flows (Delechat et al., 2009). Most of the FDI is being directed in extractive industry while the portfolio investment is mainly concentrated in the countries with relatively well developed financial institutions.

South Africa is enjoying the lion share in terms of portfolio investment with other countries like Kenya, Tanzania, Ghana and Nigeria sharing the remaining residual. Important factor to note with portfolio investment is its sensitivity to both systematic and idiosyncratic risk. For example, during the recent economic crisis the portfolio investment started drying up and with reversal flow for countries like South Africa (Chea, 2011). On the other side most of the FDI in extractive industry are non-market seeking investments and their overall impact to the economy is negligible at least on the long run. The situation is further exacerbated for some countries like Tanzania where the negotiation of the contract in the extractive industry is flawed and biased towards the investors benefit. There have been a series of unresolved debate going on about the corruption scandal involving the multinational companies and the key policy makers and politician during the contractual agreement of the mining investments in Tanzania. The situation in the other countries with extractive industries is not that promising either except for Botswana and South Africa.

Comparing the region with other low income countries, the trend seems to be the same. Generally the inflow of official assistance as percentage of the GDP have

consistently remaining the same (around 2%) while the private capital have shown a significant increase over time (Dorsey et al., 2008). Figure 6 below demonstrates the dynamics of capital flow to low income countries during 1980-2006. The observed trend is likely to remain at steady increases as more low income countries are starting to grow faster, their income is rising and they are improving further their macroeconomic fundamentals. Despite the impressive trend observed in private capital inflow, the recipient country needs to be more strategic in designing the incentive to attract specific capital which will have a more lasting impact to their local economy than just blindly focusing at the levels of capital flow. The strategic choice of the relevant type of capital flow become even more important as the previous historical data shows that for every dollar invested in Africa about 0.8 cents is repatriated back. The implication is that the residual impact of such investment especially is non-marketing seeking is quite small.

Figure 6. *The Official assistance and Private Capital inflow to low income countries*



Data source: IMF, 2007.

5. A proposed modified theoretical framework

While there is no a single theory which provides a unified framework for the capital flow apart from the “imperfect” neoclassical theory, there is a consensus on what are key deriver of capital flow across countries. For example, stable macroeconomics fundamentals (controlled inflation, better fiscal policies, liberalized current account and controlled external balance of trade), openness, rising income, strong institutions, predictable policy environments and

functioning bureaucracy have positive impacts on all forms of capital flow (Chea 2011; Asiedu, 2001; Ralhan, 2006). On the other side liberalized capital market, strong property right regimes, strong financial system development seems to have a further influence portfolio investment (Eichengreen, 2007; Asiedu, 2001). Also human capital development and improved risk rating seems to have positive impact across the board (Lucas, 1990; Chea, 2011). All these factors are playing significant role in guiding the reform in SSA and other low income countries in their effort to attract more capital. However what is missing in earlier theoretical and empirical literature is their inadequacy in addressing the issue of heterogeneity across countries in their modeling and theorizing. Accounting for heterogeneity is of particular importance because the usually reforms requires heavy investment in human capital and financial resources to start with. Unfortunately most of the developed countries are already outstripped on these factors.

Taking into account heterogeneity factor in our modeling approach, we provide a more responsive policy guidance which take into account both systemic and idiosyncratic factors. Since the required investment in terms of human capital and financial resources is limited, then it may be optimal for each country to focus more investment on sectors where it is likely to gain most in its resource allocation. Such policy framework is important in order to maximize the gains from capital flow and minimizing the cost of reform. To put thing into perspectives, let use South Africa as an example, the country is relatively well developed, with significant high level of human capital and natural resources endowment. Hence its needs in terms of the volume and structure of the capital flow may be different compared to a country like Congo DRC where most of such factors are missing. Therefore in designing an effective policy, South Africa may gain more by focusing on the incentive mechanism of attracting more of portfolio investment and non-extractive industry's FDI as compared to Congo DRC which may need to spread its resources across different sectors.

To accommodate the heterogeneity among the countries, this paper proposes the introduction of the parameter to accounts for idiosyncratic differences. Such adjustment may improve the way countries design their strategy to optimize their effort of not only attracting capital flow but also maximize the mutual gain from the capital flow. At least theoretically, and based on the previous empirical literature, capital flow can be explained as function of systemic variables and idiosyncratic variables. Systemic variables have similar cross country effect while idiosyncratic variables have different effect across countries. The relationship can be summarized algebraically as flows:

$$CF = f(X, Z) \tag{1}$$

CF is a capital flow, X is systemic factors and Z is idiosyncratic factors. The systemic factor may include global recession, global economic boom, climatic change etc. The idiosyncratic factors may include policy environment, macroeconomic fundamentals, resource endowment, openness, market size, institutions, and governance. The standard model of capital flow has been emphasizing the need for the reform to improve on the idiosyncratic factors and collective action to mitigate systemic problems like climate change. The problem with the standard modeling is that it gives similar weight to all idiosyncratic factors cross countries which may lead to biased policy guidance for some countries depending on their specific context.

We propose to extend equation one to equation two by including the parameters lambda which takes into account idiosyncratic differences across countries. The value of lambda is to be estimated as the weighted index per idiosyncratic variable depending on the country ranking of priority and endowment. It is also assumed that the ranking will take into account the expected cost (in term of human and financial resources) and expected gains from the investment. For example, if attracting FDI will involve the construction of regional railway to the most remote area or attracting portfolio investment which may bring in the same amount of capital flow by building network of office complexes for running the business and technological innovation centers. Depending ramifications of the capital flow mix both on the short term and long term, the later project may have higher value of lambda compared to the former. However the sum of lambda should be normalized to 1 for easy comparison and mathematical tractability.

$$CF = f(X, \lambda Z) \quad (2)$$

Equation two can be further operationalized into the following regression model

$$CF = BX + \delta\lambda Z + \varepsilon \quad (3)$$

Where B is a vector of regression parameter, X is a vector of systemic variables, delta is a vector of regression parameters, lambda is vector of heterogeneity weights, Z is vector of idiosyncratic variables and eta is a random errors. The questions whether the proposed model will lead to more informative results and policy guidance on capital flow to Africa remain to be empirical. Further research on sensitivity analysis and empirical application of the proposed framework need to be put into test to validate the argument and claims made which is beyond the scope of this paper.

Also significant effort in reducing risky perception, political risk, improving good governance, functioning institutions needs to work hand in hand with the proposed theory for pro-growth capital flow.

5. Conclusion

Sub-Saharan Africa has been lagging behind other regions in term of attracting capital flow. Yet there is a significant need for capital injection for the region to meet its development agenda. In order to attract more capital there is a need to maintain and improve the achievement recorded in the past two decades in the areas of macroeconomics fundamentals, good governance and development of human capital. However a strategic choice of type and nature of capital required is critical for a meaningful impact of capital flow to the local economy. A revised model presented here might help policy makers to make more effective and pro-growth decisions on resource allocation towards the effort of attracting more capital have been proposed. Also the effort to reduce further political risk and the need to be more strategic in choosing the type and structure of capital flow to be attracted has been emphasized.

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