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EXPLORING DETERMINANTS AND EFFECTS OF FOREIGN DIRECT INVESTMENT: THE CASE OF SUB-SAHARAN AFRICA

A Thesis Presented

by

JOAN O. W. KIIRU

Submitted to the Office of Graduate Studies,
University of Massachusetts Boston,
in partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE IN FINANCE

August 2014

College of Management Master of Science in Finance Program

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ABSTRACT

EXPLORING DETERMINANTS AND EFFECTS OF FOREIGN DIRECT INVESTMENT: THE CASE OF SUB-SAHARAN AFRICA

August 2014

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Foreign Direct Investment (FDI) is among the most dynamic international resource flows to developing countries. FDI's is usually a mix of investments in both tangible and intangible assets and firms that deploy such assets are often important players in the global economy. Many argue that FDI can be expected to facilitate the transfer of new technology, help improve workers' skills and welfare in recipient countries. Others argue that FDI focuses primarily on resource extraction and may have little broad contribution to recipient economy. But what are the determinants of FDI? What is the role of resource prices, macroeconomic and country-specific factors? What is the contribution of FDI to welfare of populations in recipient countries? This paper attempts to answer these questions for the economies of sub-Saharan Africa (SSA) for the last quarter century. Using panel data methods, this study finds that historical levels of

development, economic growth, monetary policy and resource prices appear to have some explanatory power for FDI flows over time. Additionally, comparative cross-country analysis suggests that country-specific circumstances and policies may be as important as or even more important for determinants of FDI than common factors affecting all SSA economies. Lastly, the paper finds that FDI has no impact on household consumption per capita growth in SSA, indicating little broad direct benefit of FDI for private consumption of SSA populations.

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CHAPTER 1

INTRODUCTION

Foreign Direct Investment (FDI) is known to be one of the most dynamic international resource flows to developing countries. FDI is usually a combination of tangible and intangible assets and firms that deploy FDI are often important players in the global economy. Some argue that FDI responds to local economic growth and business opportunities, improves access to local markets, facilitates transfer of new technology, and helps to improve workers' skills and well being. Others suggest that FDI focuses primarily on resource extraction and makes little broad contribution to recipient economy.

Understanding the determinants and impact of FDI is especially relevant for sub-Saharan Africa (SSA). Countries of sub-Saharan Africa have experienced dramatic changes in economic growth in past several decades and exhibit a significant variation in economic policy, political systems and access to natural resources. For a long time SSA demonstrated lagging growth in household well-being; however, in the last two decades,

some countries have experienced dramatic improvements in living standards, while living standards in other countries stagnated or deteriorated. The objective of this study is twofold: first, I would like to explore the factors that determine FDI as a percent of GDP, and distinguish between the role of broad economic factors that may be influenced by macroeconomic policies and the role of resource prices determined by supply and demand in the world markets; second, I would like to investigate the possible impact that FDI and natural resource prices may have on household welfare in recipient sub-Saharan countries. Both objectives can help SSA policy makers identify the limits on their ability to influence FDI and also gauge the importance of FDI for the well-being of SSA populations.

To understand the factors determining FDI as a percentage of GDP in sub-Saharan Africa the analysis is based on both country-specific factors (initial wealth, economic growth and inflation) and on prices for key export commodities that are determined in the world markets. Identification of common trends in commodity prices is accomplished by using principal components analysis (PCA) and resulting common trends (factors) to explain variation in FDI to GDP ratio. Because countries in SSA differ significantly in their history, geography, policies and institutions the panel data method is used to control for unobserved heterogeneity or differences across countries that are hard to control for directly. In addition, the panel data method is used to gauge the impact of FDI on household consumption growth in order to ascertain whether variation in FDI contributes to changes in living standards in recipient countries.

Key results indicate that once cross-country heterogeneity is taken into account, macroeconomic factors such as lagged GDP growth and lagged inflation as well as lagged resource prices are found to have an effect on FDI to GDP ratio in SSA countries. Greater economic growth has positive effect on FDI to GDP ratio during 1988 to 2011 period and the sensitivity of FDI to GDP growth rate has increased over time. Greater inflation has a negative impact on FDI to GDP ratio, but the negative effect is much greater in the late 1980s and 1990s and for SSA countries that were relatively poor in the late 1980s. If the objective is to increase FDI then both factors point to the importance of policies promoting economic growth and price stability, especially for poorer SSA countries. Further findings suggest that the impact of greater resource prices on FDI to GDP ratio is positive, statistically significant and similar in magnitude to the impact of GDP growth. Moreover, the impact of resource prices on the FDI to GDP ratio has increased in magnitude over time. Thus, during the last quarter century volatility of market resource prices has increasingly influenced the variation in FDI to GDP ratio in SSA countries. This result indicates that SSA countries continue to depend on favorable price dynamics for its FDI inflows despite exhibiting better economic growth in the last quarter century.

It is important to point out that in all models tested the R squared does not exceed 0.20, suggesting that country-specific factors may be more important in determining FDI than any factors common to SSA economies. Therefore, a comparative analysis of South Africa, Kenya and Nigeria has been conducted in order to understand how hard-to-measure country-specific policies and institutions may determine the size of FDI relative

to GDP. The choice of these countries is driven by fact that they represent different levels of development and resources dependence. For example, while South Africa and Kenya are relatively diversified economies, Nigeria is much more resource dependent. In the review of country studies, it has been found that these countries differ significantly in the number of social, economic and political aspects suggesting that country-specific mix of factors may be as important or even more important than common factors affecting SSA economies.

Results also indicate that the size of FDI relative to GDP does not have any independent impact on household consumption per capita growth, suggesting that on average FDI to GDP ratio does not seem to affect the growth in well being of the recipient populations in SSA countries. Therefore, a public policy that suggests targeting absolute or relative levels of FDI in order to improve welfare does not find any support in the data. Instead the results seem to suggest that policies promoting economic growth, price stability and less dependence on commodity price volatility would be more beneficial for public welfare.

The study is organized as follows: Chapter 2 reviews relevant literature. Chapter 3 describes data and empirical methodology. Chapter 4 presents results and discussion and Chapter 5 concludes.

CHAPTER 2

LITERATURE REVIEW

2.1 Measurement and determinants of FDI

There are numerous empirical studies examining the determinants of FDI. Most empirical studies use country level cross sectional and panel data available from sources such as World Bank while some studies additionally use survey data. Measuring FDI accurately and appropriately is difficult as such measurements are unavailable or unreliable for many developing countries. The most frequently used measure of FDI is "the inflows of investment to acquire a lasting management interest (of 10% or more of voting stock) in an enterprise, other long-term capital, and short term capital as shown in the balance of payments" (see appendix C2). Notably, many studies use the ratio of FDI to GDP in order gauge an overall importance of FDI in local economy.

Empirical studies have tested various variables that can potentially attract or repel foreign direct investment. Such variables include market-driven variables such as rate of return, labor cost; structural variables, such as infrastructure development and political stability; and policy variables such as macroeconomic policies targeted at economic growth, price stability and taxation. Table 1 and the section below present key findings of previous literature. Previous studies rely on observational data making it hard to justify causation between independent variables and FDI. Overall the evidence is mixed for most variables: while some studies find positive effect, other studies find negative or no effect of a variable on FDI.

Table 1: Literature summary – Determinants of FDI inflows to Africa

Determinants of FDI	Positive Effect	Negative Effect	No Effect
Real GDP Per Capita/ Market Size	Dupasquier and Osakwe (2005) Blonigen and Piger 2011 Grubaugh S G (2013) Onyeiwu and Shrestha (2004) Kok and Ersoy (2009) Yasin M (2005) Addison and Heshmati (2003) Demirhan and Masca (2008) Sawkut et al (2007) Quazi (2007)		
Infrastructure quality	Asiedu (2006) Groh and Wich (2012) Dupasquier and Osakwe (2005) Goodspeed, Martinez-Vazquez, Zhang (2006) Grubaugh S G (2013) Kok and Ersoy (2009) Mina (2007) Demirhan and Masca (2008) Moosa I.A. and Cardak B.A. (2006)		Blonigen and Piger 2011 Onyeiwu and Shrestha (2004)
Labor cost		Gopinath and Chen (2003) Sawkut et al (2007) Chakrabarty (2001)	Demirhan and Masca (2008)
Openness	Liargovas and Skandalis (2012) Grubaugh S G (2013) Onyeiwu and Shrestha (2004) Kandiero and Chitiga (2006) Asiedu (2006) Yasin M (2005) Mina (2007) Addison and Heshmati (2003) Demirhan and Masca (2008) Sawkut et al (2007) Chakrabarty (2001) Moosa I.A. and Cardak B.A. (2006) Al Nasser, O. M. (2007)		Blonigen and Piger 2011
Taxes and tariffs	Chakrabarty (2001)	Goodspeed, Martinez-Vazquez, Zhang (2006) Demirhan and Masca (2008)	
Political instability		Busse and Hefeker (2007) Dupasquier and Osakwe (2005) Sawkut et al (2007) Quazi (2007) Al Nasser, O. M. (2007)	Onyeiwu and Shrestha (2004) Yasin M (2005) Demirhan and Masca (2008)
Natural Resources	Asiedu (2006) Onyeiwu and Shrestha (2004) Campos and Kinoshita (2003)	Asiedu and Lien (2003, 2010)	

Return on investment in the host country/Market size

Among factors that may influence FDI are return on investment and market size. Previous studies focus more on market size than on the required return on investment as the latter is much harder to measure. Greater rates of return on investment in the host country ought to attract greater FDI inflows (Quazi, 2007). The study by Addison and Heshmati (2003) defines return as the real annual interest rate and finds that higher return promotes FDI. Similarly, a greater market size attracts more FDI inflows. The rest of the studies listed in the first row of Table 1 use market size as an FDI determinant as opposed the return on investment. All find that an increase in the market size increases FDI inflows (positive effect).

Infrastructure development

The majority of the previous studies found that the quality of infrastructure is positively related to FDI. Groch and Wich (2012) found that countries with well-developed infrastructure are very attractive to foreign investors. Dupasquier and Osakwe (2005) found that improving the provision of infrastructure may improve the FDI climate. They also found that infrastructure presents "the best long term opportunities for foreign investments" (p.258) and that improvements in infrastructure quality reduces transaction costs. Goodspeed, Martinez-Vasquez, Zhang (2006) evaluated different proxies of measuring infrastructure and found that better infrastructure attracts FDI no matter what proxy is used. Kok and Ersoy (2009) found that quality of infrastructure significantly and positively affects FDI and that quality of communications infrastructure is the best FDI

determinant as it has a strongest positive effect on FDI. Asiedu (2006), Mina (2007), Grubaugh (2013), and Demirhan and Masca (2008) found similar results. However, Onyeiwu and Shrestha (2004) and Blonigen and Piger (2011) found that there was no relationship between infrastructure quality and FDI.

Labor Cost

While there is a limited number of papers on importance of labor cost, Gopinath and Chen (2003) found that inward FDI flows increase the wage gap between skilled and unskilled workers in developing countries. Sawkut et al. (2007) found that greater labor cost has a negative impact on FDI inflows. Chakrabarty (2001) mentioned that there was no agreement in the literature with respect to the effect of labor cost on FDI - the effect varied from positive to negative to insignificantly different from zero.

Openness

There is an overall consensus about the effect of openness on FDI. Blonigen and Piger (2011) found that openness is an insignificant determinant of FDI flows while all others found that openness positively affects FDI. Liargovas and Skandalis (2012) and Kandiero and Chitiga (2006) focus specifically on FDI and trade openness. Liargovas and Skandalis (2012) found that trade openness positively affects FDI, while Kandiero and Chitiga (2006) expanded on their study to find that trade openness in manufactured goods, primary commodities and services sectors also positively affects FDI. Mina(2007) found that "FDI is more directed towards the tradable sector with potential foreign

exchange earnings" (p.341), while Sakwut et al., (2007), stated that, "Openness had a positive impact on FDI as well as suggesting that an efficient environment that comes with more openness to trade is likely to attract foreign firms" (p.11).

Taxes and Tariffs

Previous studies do not reach a decisive conclusion about the effects of tariffs and taxes on FDI. Chakrabarti (2001) finds that the taxes (taxes on income, profits and capital gains) have positive and statistically significant effect on FDI. However, Goodspeed, Martinez-Vazquez, Zhang (2006) and Demirhan and Masca (2008) found that taxes negatively affect FDI. Goodspeed, Martinez-Vazquez, Zhang (2006) found that high tax countries have less FDI inflows on average. When assessing the impact of taxes on FDI using the corporate tax rate, Demirhan and Masca (2008) found that low tax rates stimulate FDI.

Political Instability

Previous literature is roughly split between studies that find negative effect and studies that find no impact of political instability on FDI. Because most investors are risk averse and political instability increases the risk of investments, it is expected that political instability will negatively affect FDI inflows. A significant number of studies found that political instability negatively impacts FDI. Busse and Hefeker (2007) focus on various aspects of political risk by identifying components that are important for multinational corporations. Dupasquier and Osakwe (2005) note that "political stability is

one of the most important determinants of FDI in Africa" (p.13). Quazi (2007) found that political instability decreased FDI inflow into East Asia and suggested that promoting economic and political stability is helpful for economic planning, investments and FDI in particular. In Demirhan and Masca (2008)'s study, political risk was inversely related to FDI. However, this relationship was not found to be statistically significant. The authors also note that political risk is sometimes discounted when host country presents an opportunity to earn high returns. Onyeiwu and Shrestha (2004) found insignificant effect of political instability on FDI, but suggest that the result may be due to their choice of the proxy variable for political instability.

Natural Resources

Asiedu (2006) analyses the impact of natural resources, market size, physical infrastructure, human capital, the host country's investment policies, the reliability of the host country's legal system, corruption and political instability on FDI flows. Using panel data for 22 countries in SSA ranging from 1984 to 2000, the author found that countries with larger markets and high volume of natural resources attracted more FDI. However, "good infrastructure, an educated labor force, macroeconomic stability, openness to FDI, an efficient legal system, less corruption and political instability also attracted more FDI inflows" (p. 65). For example, her estimates suggest that a hypothetical decline in the level of corruption in Nigeria's to that of South Africa would have an equivalent effect on FDI as a 35% increase in the share of fuels and minerals in total exports. A similar

hypothetical decline in corruption would have the same effect as increasing GDP by 0.37 percent.

Poelhekke and van der Ploeg found that "subsoil assets exert a negative effect on non-resource FDI, but a positive influence on resource FDI." (2010, p. 30). Trade openness, free trade agreements did not impact non-resource FDI, but institutional quality had a positive effect on resource FDI.

Using fixed and random effects models on a panel dataset of 29 African countries covering the period of 1975 to 1999, Onyeiwu and Shrestha (2004) found that natural resource availability is a significant factor affecting FDI in sub-Saharan Africa. They concluded that natural resource abundant countries receive more FDI than resource-poor countries.

Asiedu and Lien (2011) find that natural resources (measured as the sum of minerals and oil in total merchandise exports) have a negative impact on FDI. They also investigate how democracy affects foreign direct investment in resource exporting and non-resource exporting countries. Using data from 112 developing countries over the period 1982 to 2007, the authors found that the impact of democracy on FDI depends on the importance of natural resources in the host country's exports. Democracy increases FDI in countries where the share of natural resources in total exports is low, but decreases FDI in countries where exports depend significantly on natural resources.

2.2 FDI in sub-Saharan Africa

Lack of political stability, institutional reform and growth in many SSA countries since 1960, has historically put sub-Saharan Africa at a significant disadvantage relative to other developing countries in Eastern Europe, Asia and Latin America. Figure 1 illustrates recent FDI in Africa in global perspective. Even in 2008, the best year for African FDI, the FDI level did not reach that of the FDI levels for Transition Economies, South and Central America as well as Asia. While this snapshot indicates a low share of Africa in global FDI, recent trends point to possible reversal in FDI flows in favor of Africa. Figure 2 illustrates long-term dynamics of FDI for African countries. Generally stagnant up to mid-1980s, FDI picked up in the 1990s and took off in 2000s.

Figure 1: FDI flows to Africa in global perspective

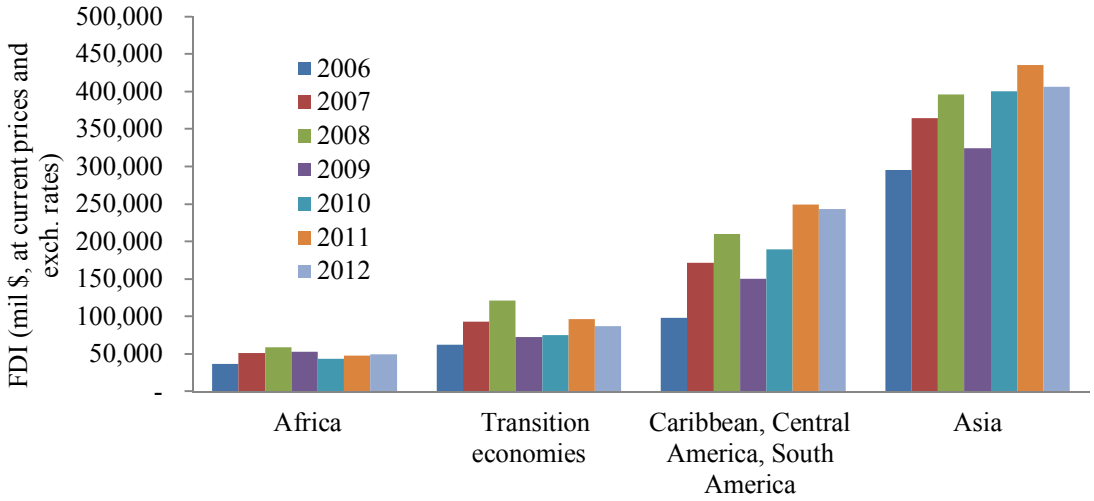
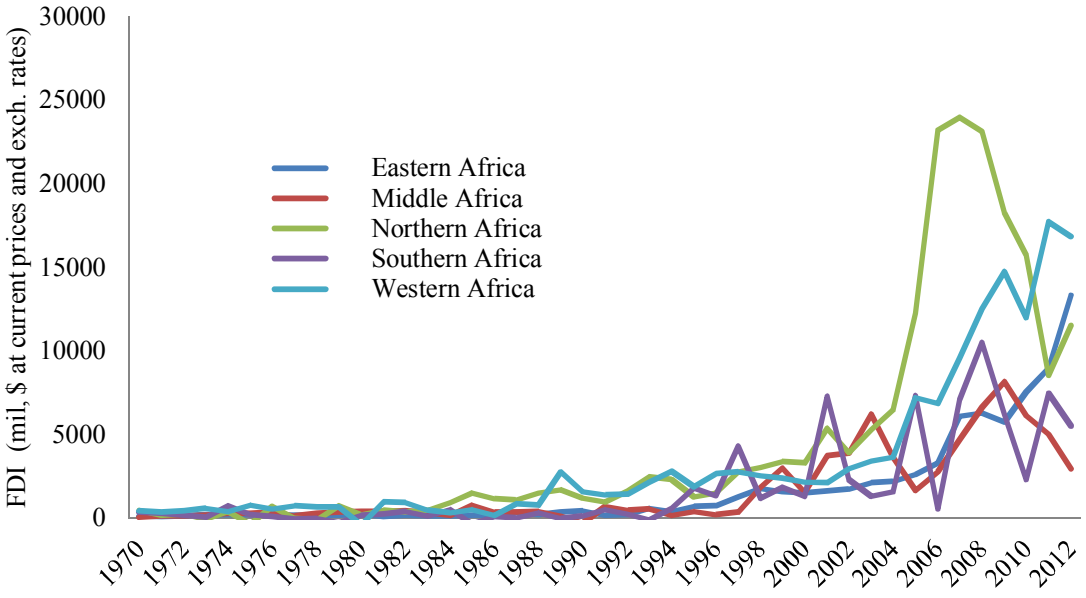


Figure 2: FDI inflows to Africa, 1970 - 2012



It is unclear to what extent this trend is driven by improved economic performance of African countries (as it has been in Asia) or by commodity price boom of 2000s. It is likely that both factors have contributed to FDI increases in Africa. While improving economic performance cannot be discounted, African countries and SSA countries in particular still rely heavily on primary commodity exports. According to UNCTAD in 2009 – 2010 the ratio of commodity export to total merchandise export ranged between 61% in Southern Africa and 77% in Eastern Africa to 93% and 98% in Middle and Western Africa, respectively (Figure 2, UNCTAD, 2012). The latter two regions' share was significantly greater than 2009 – 2010 global average for less developed countries (78%). At the same time commodity exports for Middle Africa, Western Africa and Eastern Africa countries have reached 64%, 28% and 13% of GDP in 2009 – 2010, respectively (Figure 3, UNCTAD, 2012). Such differences suggest that while the overall importance of commodity exports for Africa remains high, it varies significantly by region.

The heterogeneity of reasons for FDI in sub-Saharan Africa is emphasized by Dupasquier and Osakwe (2005), who point that "there are two main types of investments made by foreign investors in African countries: greenfield investments, which involve investments in a new establishment and cross-border merger and acquisition (M&A) of an existing local firm" and that such investments are "often attracted by factors such as the desire to: exploit natural resources (as in Nigeria, Angola, Equatorial Guinea); take advantage of export opportunities created by certain investment locations (as in Lesotho and Swaziland); reap the benefits of domestic investment incentives (Mauritius,

Seychelles); and respond to economic policy reforms, especially privatization (as in Mozambique and Uganda)" (p. 245). These observations confirm the importance of commodities exports as well as country-specific reasons for FDI in sub-Saharan Africa. Unfortunately, FDI data for developing countries is often aggregated, so it is often not possible to ascertain the exact amounts of FDI targeted towards natural resources and exported commodities.

Recent studies also point to the importance of economic growth. The 2013 Economic Report on Africa states that,

> "Many African countries saw notable improvements in policy space especially before the recent global financial crises thanks to prudent macroeconomic management." (p. 5.)

and that,

> "Following two decades of near stagnation, Africa's growth performance has improved hugely since the start of the 21st century. Since 2000 the continent has seen a prolonged commodity boom and sustained growth trend. And although growth slowed from an average of 5.6 per cent in 2002–2008 to 2.2 per cent in 2009—hit by the global financial crisis and steep food and fuel price rises—Africa quickly recovered with growth of 4.6 per cent in 2010. The continent's growth slipped again in 2011 owing to political transition in North Africa, but rebounded strongly once more to 5.0 per cent in 2012, despite the global slowdown and uncertainty." (p. 6)

Given significant heterogeneity of reasons for undertaking FDI in sub-Saharan Africa, reliance on commodity exports and recent improvement in economic performance and macroeconomic policies in many sub-Saharan African countries it is important to quantify contributions of different factors to determination of FDI in sub-Saharan Africa.

The initial analysis begins by comparing primary FDI drivers in three sub-Saharan countries that differ significantly in their development histories, institutions and resource dependence: South Africa, Kenya and Nigeria. Understanding the commonalities and differences between those countries is helpful for understanding the range of determinants of FDI in sub-Saharan Africa.

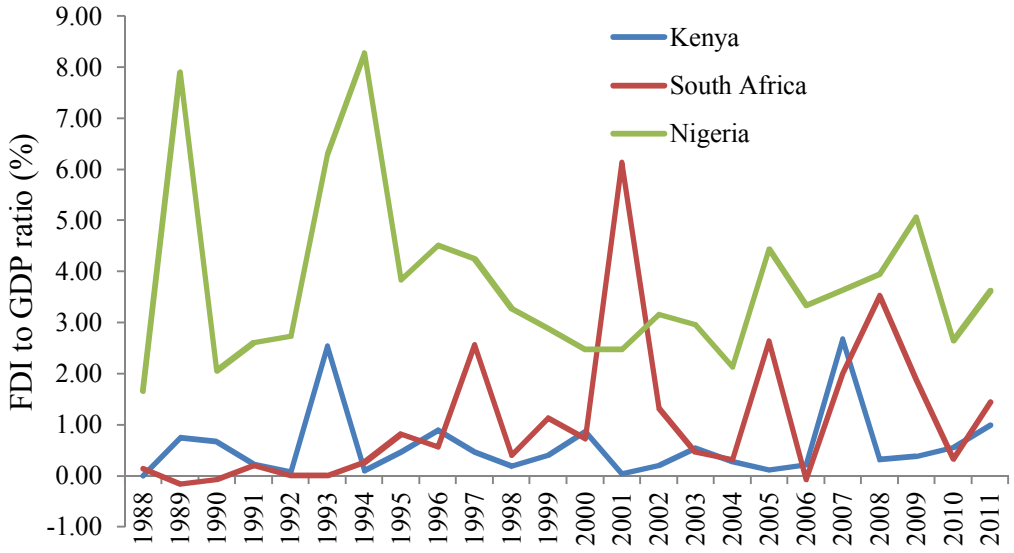
2.3 Three country comparison

Country Studies

Review of existing literature suggests that global FDI and FDI in SSA countries, in particular, are likely to be influenced by many factors and such factors may influence FDI differently in different countries. Whereas there is a broad agreement about the importance of economic growth and price stability for FDI, there is much less agreement about the degree of importance of other factors. A number of country studies has been conducted that looked in-depth into country-specific determinants of FDI. Country studies targeting South Africa, Kenya and Nigeria are examined. The three countries are commonly perceived as having different issues and development levels. South Africa is often perceived as the most advanced economy in Africa while Nigeria is perceived as

being oil dependent and facing significant political as well as ethnic and religious conflicts. Kenya on the other hand is perceived to be somewhat in the middle. Figure 3 shows FDI to GDP ratio dynamics for the three countries over time.

Figure 3: FDI to GDP ratio: Kenya, South Africa and Nigeria (1988 – 2011)



Among important country analyses are studies of South Africa by Akinboade et al. (2006), Arvanitis (2005), South African Department of Finance (1996); study of Kenya by Mwega and Ngugi (2006) and a study of Nigeria by Ogunkola and Jerome (2006). These studies identify primary factors influencing FDI in each country. Table 2 below indicates the key findings and Appendix B lists relevant excerpts from those studies.

Table 2: Primary factors influencing FDI in South Africa, Kenya and Nigeria: Review of country studies

Factors:	Countries: / Studies: South Africa: Akinboade et al.; Arvanitis; S.A. Dept. of Finance	Kenya: Mwega and Ngugi; Odinga	Nigeria: Ogunkola and Jerome
Economic growth	x	x	x
Inflation		x	x
Indebtness			x
Political stability		x	x
Ethnoreligious conflicts			x
Red tape	x	x	x
Corruption		x	x
Fraud			x
High Crime/Safety	x		x
Health	x		
Oil dependence			x
Lack/speed of reform		x	x
Restrictions on foreign investments	x		
Market concentration	x		
Foreign exchange restrictions	x		

Country studies generally agree on importance of economic growth, stable monetary policy for stimulating FDI in each country. Political instability, red tape and corruption are among institutional factors hindering FDI in those countries. Notably there are factors whose importance for FDI differs across three countries. Among such factors are ethno-religious conflicts, prevalence of fraud and oil dependence that play much more important role in Nigeria than in South Africa or Kenya. On the other hand factors such as restrictions of foreign investment, foreign currency transactions and market concentration play more important role in hindering FDI in South Africa than in Nigeria or Kenya.

The three-country comparison suggests that there are common factors such as economic growth and monetary policy influencing FDI. However, in countries with

different quality of institutions, level of development and history there are many other important factors that are country-specific and hard to measure consistently across different countries. It appears that many aspects of policies encouraging FDI need to be tuned to each specific country under consideration. Therefore, in order to understand the importance of macroeconomic policies, resource prices and country specific factors, a proper econometric model that takes such hard-to-measure differences into account would need to be relied on.

Econometric evidence

There is a relative scarcity of econometric studies investigating determinants of FDI in Kenya. Using data on exchange rates, taxes, inflation, levels of GDP and openness for 21 years from 1991 to 2012 Muema (2013) investigated the impact of those variables on FDI. Muema found that the coefficient of annual rate of change in exchange rates was statistically significant. The remaining variables (tax rate, inflation, GDP growth and openness) were not statistically significant individually. However, all independent variables were jointly significant as they were able to explain the variation in the rate of change in FDI. The study's key policy recommendation was to keep the Kenyan shilling cheaper to attract more FDI.

Schoeman et al. (2000) focus on fiscal policy as a determinant of FDI. Authors found that deficit to GDP ratio, representing lack of fiscal discipline and the tax burden on foreign and domestic investors is negatively related to FDI. Arvanitis (2005) found that the degree of infrastructure development, trade liberalization, skills availability, and

potential market size are among the factors determining FDI in a group of countries that are similar to South Africa.

A significant number of econometric studies investigating determinants of FDI exist for Nigeria. Using OLS and 2SLS methods Ayanwale (2007) determined that between 1970 and 2002 openness and human capital did not affect FDI. The author suggested that insignificance of human capital variable is as a result of a shortage of skilled labor in the country. However, the author found that market size, infrastructure and stable macroeconomic policy had positive effect on FDI. Dinda (2008) found that FDI inflows in Nigeria is affected by macroeconomic risk factors (e.g. inflation), natural resources, trade intensity and exchange rates. However, the author argued that in the long run the market size does not significantly affect FDI inflow into Nigeria.

Ibrahim and Saidat (2008) found market size, real exchange rate and political factors to be the major determinants of FDI in Nigeria. They find that political instability negatively affected FDI, indicating that political stability is important for FDI in Nigeria. They also suggest that in the short run Nigeria can increase its FDI inflows by increasing its market size. Additionally, government policies also seem to affect FDI inflows into the country.

Imoudu (2012) investigated the relationship between FDI and economic growth in Nigeria between 1980 and 2009. FDI was disaggregated into several components agriculture: mining, manufacturing, telecommunication and petroleum sectors and these sectors were found to have little influence on FDI apart from the telecommunications

sector which was said to have a promising future for the country's economy in the long run.

Using data from 1970 to 2007, Nurudeen, Wafure and Auta, (2011) find that openness of the economy to trade, privatization, the level of infrastructural development, and exchange rate depreciation were positively related to FDI. Moreover, host country's market size was found to have a significant negative effect on FDI, while inflation is statistically insignificant. Okafor (2012) found that real gross domestic product, interest rate, and real exchange rate are important determinants of FDI inflow in Nigeria.

Using ordinary least squares on the panel data covering the period of 1987 to 2006 Oyatoye et al. (2011) found that there was a positive relationship between FDI and economic growth. Udoh and Egwaikhide (2008) focused on the relationship between exchange rate volatility and inflation uncertainty and foreign direct investment in Nigeria. Applying GARCH model to data covering a period between 1970 and 2005 they found that both exchange rate volatility and inflation uncertainty had negative effect on FDI. Additionally, quality of infrastructure, size of the government sector and international competitiveness have significantly affected FDI inflow into the country. Lastly, Wafure and Nurudeen (2010) found that the factors determining FDI in Nigeria were market size of host country, the degree of deregulation, political instability and exchange rate depreciation. Openness of the economy and inflation were found to be statistically insignificant.

Both the econometric evidence and country studies point to significant differences across countries in terms of factors that determine FDI. However, despite such

differences both country studies and econometric evidence suggest an important role for economic growth and macroeconomic stability in inducing FDI in Kenya, Nigeria and South Africa.

CHAPTER 3

DATA AND EMPIRICAL METHODOLOGY

3.1 Data and sample period

Data for my study comes from World Bank[1]. World Bank Open Data initiative provides access to various indicators and variables including FDI, macroeconomic indicators and commodity prices. The time frame for the analysis spans a period between 1988 and 2011. This sample period is chosen because of significant changes in FDI dynamics that have occurred between the late 1980s and the present. As Figure 2 in Chapter 2 indicates during this period FDI flows to SSA have become much more prominent relative to an earlier period. In particular, the early 1990s saw a significant increase in FDI relative to 1980s and 1970s, while 2000s saw a boom in FDI flows.

[1] http://datacatalog.worldbank.org

Given these observations, exploring determinants of FDI during this period is particularly interesting.

3.2 Empirical methodology

Estimating equations for FDI model

Given existing literature's significant disagreement about factors deemed to be important for determination of FDI and results of three country comparisons between South Africa, Kenya and Nigeria, a simpler model that takes into account fundamental economic growth and policy environment and trends in resource prices for commodities exported by SSA countries has been relied upon. While such a simple model has its shortcomings, however, indicators of economic growth and stable monetary policy tend to be correlated with variables considered in previous studies (infrastructure development, tariffs, taxes, openness and others). Therefore, economic growth and monetary stability variables in my study should be viewed as variables that may have many channels of impact on FDI.

Further, to account for the fundamental differences between SSA countries that are likely to be constant over time but are hard to measure, a fixed effects model that is suitable for panel data sample has been implemented for the study (Wooldridge, J.M., 2013). The baseline estimating equation is,

Equation 1:

$$\frac{FDI}{GDP_t} = \beta_0 + \beta_1 GDPGR_{t-1} + \beta_2 CPInfl_{t-1} + \beta_3 BRPF_{t-1} + \beta_4 T\&TPF_{t-1} + u_t + e_t$$

Here the dependent variable is FDI to GDP ratio measured in year t. The independent variables include (GDPGR) GDP growth in year t-1, measured in constant units of local currency; CPI Infl - consumer price inflation in year t-1; BRPF – Broad Resource Price Factor measured in year t-1, and T&TPF Tea & Tobacco Price Factor measured in year t-1. Both factors are defined and explained in the next subsection. The next component is country specific fixed effect u_t. Countries may exhibit fundamental differences that affect the level of FDI to GDP ratio. Because it is hard to measure all such differences, fixed effects allow such unmeasured differences to be reflected in the model without introducing bias in estimated coefficients. By using variation in independent variables within each country over time, the fixed effects model allows the control of fundamental differences across countries that are hard to measure and that are likely to be constant over time.

The last component is the error or disturbance term e_t - which reflects factors that may change over time and that were not included in the model. The e_t has mean zero and is possibly heteroskedastic. The possibility that shocks to e_t may be correlated across time periods for each country has been allowed in the sample. Equation 1 is estimated on the data spanning the time period between 1988 and 2011 using fixed effect model. Adjusted standard errors of estimated coefficients that allow for heteroskedasticity of the error term and clustering within each country over time have been used. Also, 1-year lags of independent variables have also been used to eliminate any feedback (or reverse causality) that FDI may have on independent variables.

Model extensions

In order to explore the possibility that the above relationship may change over time and that relatively poor countries may have different relationships between FDI and its determinants than relatively rich countries, adjustments have been made to above estimating equation along two dimensions. For the first adjustment, all independent variables were interacted with a dummy variable that reflects country wealth at the beginning of the sample period (1988). The dummy variable is defined as that which is equal to 1 if in 1988 a country's GDP per capita (in constant US$) was below median for the group of 32 SSA countries, and 0 otherwise. Estimated coefficients for interaction terms will reflect the difference between relatively poor and relatively rich countries. For the second adjustment, the sample has been split into two equal periods: 1988 to 1999 or the "early" period and 2000 to 2011 or "late" period and defines a corresponding dummy variable that equals 1 for the 2000 - 2011 ("late") period and 0 otherwise. All independent variables were interacted with this dummy variable. Estimated coefficients on interaction terms will reflect the differences between the "late" and the "early" period in my sample.

Resource price factors

SSA economies export a significant variety of primary commodities and their dependence on such exports is well documented (see Chapter 2). As FDI is likely to depend on commodity price dynamics over time, the influence of commodity price trends

needs to be accounted for. Given that the panel data model that measures average effect for all SSA countries has been used, it is important not to choose in advance which commodities are deemed "important" for FDI as importance will vary by country. Previous literature has identified petroleum, precious metals, cocoa, coffee, tea, tobacco, cotton, peanut (ground nut) oil, potash and KDP (phosphate) as commodities representing primary resource exports in SSA (UNCTAD, 2012 & Akiyama, T., 1994). One possibility is to include price changes or returns for all commodities in the estimating equation. Another possibility is to create a returns index that reflects blended effect of all or some commodities. Return indexes (or factors) were created because returns on some commodities are often significantly correlated (see Table 3) and therefore including all returns separately in Equation 1 would lead to less precise coefficient estimates. Additionally, to the extent that there are broad market movements in commodity prices it is more relevant for this study to see what is the impact of such movements on FDI than to test the impact of price changes in individual commodities.

Table 3: Export commodity returns correlation matrix (1988-2011)

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
[1]	Petroleum	1.00									
[2]	Precious Metals	0.19	1.00								
[3]	Cocoa	-0.31	0.31	1.00							
[4]	Coffee	-0.06	0.30	0.27	1.00						
[5]	Tea	0.09	0.09	0.15	0.09	1.00					
[6]	Tobacco	0.01	-0.08	0.14	0.01	0.70	1.00				
[7]	Peanut Oil	0.13	0.13	0.11	0.33	0.02	-0.12	1.00			
[8]	Cotton	0.26	0.45	0.09	0.49	0.08	0.03	0.61	1.00		
[9]	Potash	0.11	0.06	0.11	-0.02	0.15	0.07	0.22	-0.18	1.00	
[10]	KDP (phosphate)	0.24	0.29	0.24	0.28	-0.10	-0.22	0.57	0.37	0.50	1.00
	Annual returns	8.3%	4.8%	2.1%	6.0%	1.5%	1.2%	7.4%	3.3%	10.2%	8.4%
	Annual Std.	22.7%	12.3%	21.4%	32.9%	11.3%	12.3%	26.2%	21.1%	35.7%	31.6%

To create returns indexes (factors) for the ten commodities that represent primary commodity exports for SSA countries Principal Component Analysis (PCA) is used. The use of PCA for index construction is well established in the literature (Kolenikov, S., & Ángeles, G., 2004, 2009). The PCA is a multivariate technique that identifies common and independent variation components among the set of correlated variables (in my case price changes or returns for ten commodities). The advantage of PCA is that it enables to reduce the number of independent commodity return variables from ten to less than ten.

Applying PCA to commodity return variables will create a number of indexes. To create first index, PCA will assign a weight (positive, negative or zero) for each commodity return variable such that the combined index (factor) will explain the maximum possible variation in commodity returns. Table 4 indicates that the first index (Factor 1) accounts for approximately 28% of variation in commodity return variables. To create the second index (Factor 2) PCA will use remaining variation in commodity returns and assign a new weight to each return variable such that the combined second index will explain the maximum possible *remaining* variation in commodity returns and will be uncorrelated with Factor 1. From Table 4 we can see that the second index (Factor 2) accounts for approximately 18% of variation in commodity returns. This procedure will continue until all variation in commodity returns is explained.

Table 4: Principal Component Analysis of export commodity returns (1988 - 2011)

Variance in Commodity Returns Explained by Principal Component Factors			Factor Loadings for 10 commodity returns		
Factor	**Proportion Explained**	**Cumulative**	**Variable**	**Factor 1 (BRPF)**	**Factor 2 (T&TPF)**
Factor 1	**0.28**	**0.28**	Petroleum	**0.27**	-0.11
Factor 2	**0.18**	**0.46**	Precious Metals	**0.59**	0.08
Factor 3	0.14	0.60	Cocoa	**0.36**	0.35
Factor 4	0.14	0.74	Coffee	**0.62**	0.14
Factor 5	0.09	0.83	Tea	0.10	**0.88**
Factor 6	0.06	0.89	Tobacco	-0.07	**0.90**
Factor 7	0.04	0.93	Peanut Oil	**0.75**	-0.14
Factor 8	0.03	0.96	Cotton	**0.77**	0.02
Factor 9	0.02	0.99	Potash	**0.29**	0.08
Factor 10	0.01	1.00	KDP(phosphate)	**0.77**	-0.24

Given these results, the first two indexes (factors) were retained for the analysis. The two factors explain close to 50% of variation in commodity returns. A closer look at Table 4 indicates that all commodity returns (except tea and tobacco) make significant contributions to the variation in the first index (Factor 1). For this reason the first index (Factor 1) is labeled as the Broad Resource Price Factor (BRPF). Contributions of tea and tobacco returns to the second index (Factor 2) dominate all others; therefore the second index (Factor 2) is labeled as Tea & Tobacco Price Factor (T&TPF). Given the properties of principal component analysis, BRPF and T&TPF will be uncorrelated with each other, which represents an additional advantage in estimating Equation 1.

Estimating equation for Household Consumption Per Capita Growth model

In order to test if FDI to GDP ratio has an independent effect on the well being of local populations household consumption per capita growth is regressed between 1988 and 2011 on FDI to GDP ratio and other independent variables from Equation 1. The advantage of using household consumption per capita is twofold. First, this variable directly measures local populations' well being as it excludes government consumption. Given prevalent corruption government consumption may not benefit broader population and therefore household consumption is more reliable and conservative measure of welfare. Second advantage is data availability – household consumption per capita is available annually for 30 out of 32 countries in my sample. The estimating equation is,

Equation 2:

$$HCCGR_t = \alpha_0 + \alpha_1 \frac{FDI}{GDP_{t-1}} + \alpha_2 GDPGR_{t-1} + \alpha_3 CPInfl_{t-1} + \alpha_4 BRPF_{t-1} + \alpha_5 T\&TPF_{t-1} + u_t + e_t$$

Here the dependent variable is household consumption per capita growth (HCCGR) at time t. Note that household consumption per capita is measured in constant local currency units. The first independent variable is FDI to GDP ratio at time t-1. The remaining independent variables are all measured at time t-1 and defined as in Equation 1. As in Equation 1, this model is estimated using panel data fixed effect methodology, and heteroskedasticity and cluster-correlation robust standard errors are reported.

CHAPTER 4

RESULTS AND DISCUSSION

4.1 FDI to GDP ratio

Tables C.1 and C.2 in Appendix C present summary statistics for 1988 – 2011 period and define variables used in this study. An average FDI to GDP ratio was 2.72%, while sample average GDP growth rate was 3.49% per annum - both variable exhibited a significant variation over time as indicated by their standard deviations. However, even more variable was the consumer inflation rate averaging 102% annually for the entire sample. Because some SSA countries experienced very high inflation rates over the period the standard deviation for consumer inflation rate significantly exceeded its mean.

Column 1 of Table 5 presents baseline fixed effects panel regression results of FDI as a percentage of GDP on lagged GDP growth, lagged consumer price inflation, lagged Broad Resource Price Factor (BRPF) and lagged Tea & Tobacco Price Factor (T&TPF). Given changing variability in FDI and persistence of FDI across time, all panel

regressions report standard errors adjusted for heteroskedasticity and intra-country (cluster) correlation. The baseline model indicates that FDI to GDP ratio depends positively on economic growth rate and negatively on inflation rate, although the coefficient on inflation rate is statistically insignificant.[2] Further it shows that the impact of both BRPF and T&TPF are positive and statistically significant. These results are consistent with previous studies that find that growth of internal markets, strong economic growth in general and low inflation are all conductive to FDI. The results also show even after controlling for economic growth, inflation measures and other unobserved differences between SSA countries resource prices remain important determinants of FDI as percentage of GDP.

To understand relative importance of different independent variables on FDI to GDP ratio, beta or normalized regression coefficients is calculated. A value of normalized (beta) regression coefficient indicates the number of standard deviations by which dependent variable changes in response to one standard deviation change in an independent variable. Using betas makes coefficient estimates for different variables directly comparable. Beta coefficients reported in column 1 of Table 5 indicate that both lagged GDP growth and lagged BRPF have approximately the same effect on FDI to GDP ratio – a one standard deviation increase in lagged GDP growth and in lagged BRPF results in 0.16 and 0.14 standard deviation increase in FDI to GDP ratio, respectively. The magnitude of the impact of lagged T&TPF is about half of that value. This result

[2] One, two and three asterisks indicate statistical significance at 10%, 5% and 1% levels, respectively.

suggests that all else equal, in the last 20 to 25 years the variation in resource prices and the variation in economic growth rates were equally important for determination of FDI.

Table 5: Determinants of FDI to GDP ratio and household consumption per capita growth in sub-Saharan Africa (1988 - 2011)

	Dependent Variable			
	FDI to GDP ratio (Equation 1)			Household consumption per capita growth rate (Equation 2)
Independent variables	**Baseline (p-values in parentheses)** [1]	**Interaction with "1988 GDP per capita below median" dummy** [2]	**Interaction with "Post-1999 period" dummy** [3]	**Baseline (p-values in parentheses)** [4]
Main (Base Group) Effect				
Lagged FDI to GDP ratio				0.000522
				(0.589)
beta				0.0209
Lagged GDP per growth	0.138	0.177	0.089	0.00163
	(0.001)***	(0.019)**	(0.002)***	(0.073)*
beta	0.158			0.0749
Lagged Consumer Price Inflation (CPI)	-0.0000908	0.0000122	-0.0000826	-1.08E-06
	(0.184)	(0.314)	(0.000)***	(0,115)
beta	-0.029			-0.0138
Lagged BRPF	0.575	0.558	0.0117	0.00912
	(0.000)***	(0.016)**	(0.912)	(0.051)*
beta	0.141			0.0898
Lagged T&TPF	0.291	0.306	0.213	0.00592
	(0.037)**	(0.138)	(0.040)**	(0.006)***
beta	0.071			0.0583
Interaction Effect				
Dummy			2.112	
			(0.000)***	
Dummy x Lagged GDP per growth		-0.072	0.093	
		(0.383)	(0.044)**	
Dummy x Lagged CPI rate		-0.000216	0.0000369	
		(0.000)***	(0.303)	
Dummy x Lagged BRPF		0.064	0.465	
		(0.820)	(0.079)*	
Dummy x Lagged T&TPF		-0.033	0.452	
		(0.901)	(0.171)	
Constant	2.246	2.248	1.029	0.00812
	(0.000)***	(0.002)***	(0.000)***	(0.075)*
Country Fixed Effects?	Yes	Yes	Yes	Yes
Within R-squared	0.063	0.066	0.181	0.022
Number of Observations	681	681	681	523

Column 2 of Table 5 tests whether initial economic and institutional conditions in the late 1980's were important in determining FDI as percentage of GDP over subsequent

quarter century. In order to test this hypothesis a dummy variable is defined that is equal 1 if in 1988 a country's GDP per capita was below median for the group of 32 SSA countries, and 0 otherwise. The dummy variable is interacted with all right hand side variables in Equation 1. Results in column 2 of Table 5 indicate that lagged economic growth is an important determinant of FDI to GDP ratio whether a country was relatively rich or poor in the late 1980s. However, the same cannot be said of inflation. Between 1988 and 2011 higher inflation rate had no statistically significant impact of FDI to GDP ratio for countries that were relatively rich in the late 1980s, but it had significantly negative impact on the ratio for countries whose GDP per capita was relatively low in the late 1980s. The impact of lagged BRPF and lagged T&TPF on FDI to GDP ratio did not differ significantly by initial per capita wealth. Thus, controlling for unobserved heterogeneity the differences in initial per capita wealth had significant impact only through inflation channel: poorer countries seeing FDI declining relative to GDP with greater inflation. This result seem to indicate that monetary stability is much more important to FDI for SSA countries with historically weaker economies and institutions.

Column 3 of Table 5 presents evidence that the relationship between FDI to GDP ratio and its determinants has changed over time. As discussed earlier, the sample is divided into two equal periods, the "late" period that spans years between 2000 and 2011 and "early" period that spans 1988 to 1999. A corresponding dummy variable is defined that equals 1 for 2000 - 2011 ("late") period and 0 otherwise. This dummy variable is interacted with the right hand side variables in Equation 1 allowing their coefficients to change between the two periods. Estimates reported in column 3 indicate that in the

"early" period (1988 to 1999) lagged GDP growth had positive and lagged inflation rate had negative impact on FDI to GDP ratio. Both effects are statistically significant. Interestingly while both lagged BRPF and lagged T&TPF had positive impact prior to 2000, only T&TPF coefficient was statistically significant. After 2000, the impact of GDP growth and BRPF has increased in magnitude and coefficient on BRPF became statistically significant. The impact of lagged T&TPF and lagged inflation rate remained the same. These results suggest that after 2000 both economic growth and broad trends in resource prices became much more important for determining FDI. Specifically, while between 1988 and 1999 there is little indication that broad trends in resource prices have influenced FDI to GDP ratio (except for tea and tobacco prices), after 2000 the broad impact of resource prices have increased significantly.

Despite the increase in sensitivity to economic growth and resource prices after 2000, this model can explain no more that 20% of variation in FDI to GDP ratio. This result may indicate the need for more extensive specification and more control variables, but it may also indicate that variation in major determinants of FDI may not be sufficient to explain the bulk of variation in FDI to GDP ratio. Overall, the results validate and confirm previous literature's findings and the three country comparison – while economic growth, monetary policy and resources prices have an impact on FDI's share in GDP in sub-Saharan Africa, the country-specific factors are likely to exhibit a major if not determining influence on FDI to GDP ratio dynamics over time.

4.2 Household consumption per capita growth

Column 4 of Table 5 investigates whether FDI to GDP ratio had any independent effect on household consumption per capita growth in SSA countries between 1988 and 2011. Household consumption per capita growth averaged 1.63% per annum over this period; with significant variation across SSA countries (see Table C.1 in Appendix C). To test whether this variable was influenced by FDI to GDP ratio, regression of household consumption per capita growth rate (HCC growth rate) on lagged FDI to GDP ratio, lagged GDP growth rate, lagged inflation rate as well as lagged BRPF and lagged T&TPF (Equation 2) was conducted. As expected, results indicate that lagged GDP growth has positive and statistically significant effects on HCC growth, while lagged inflation has negative, but statistically insignificant effects. Both lagged BRPF and lagged T&TPF have positive impact on HCC growth rate, suggesting positive impact of increasing resource prices on household well being that is independent of FDI. Estimates of beta or normalized regression coefficients indicate that economic growth and BRPF have weak but quantitatively similar impact on household consumption per capita growth – one standard deviation increase in GDP growth variable and in BRPF variable increases HHC growth rate by approximately 0.0749 and 0.089 standard deviations, respectively. Finally, variation in FDI to GDP ratio does not seem to affect household consumption per capita growth once macroeconomic factors, resources prices and time-invariant unobserved factors have been controlled for. This last result indicates that FDI to GDP ratio on its own does not seem to have an impact on private household consumption and

therefore policies targeting FDI specifically to promote welfare may not be as productive as broad policies encouraging economic growth and monetary stability.

These findings stand in contrast to Asiedu's view who stated that "FDI serves as a source of capital, stimulates domestic investment, creates employment, promotes the transfer of technology and enhances economic growth" (2004, p.42) and Moran (1998, p.121) who mentioned that "FDI can play an important, and in some way unique, role in promoting broad based economic and social development". The findings also differ from findings of Tamer (2013). Tamer finds a significant positive impact of FDI on human development index (HDI) that is a composite of various socio-economic development indicators. She finds that the impact is significant for high- and mid- income countries and not for low-income African countries. However, the current measure is narrower in scope and also more direct measure of household welfare. Also included are country fixed effects to account for hard-to-measure differences across countries, while Tamer uses pooled OLS that does not control for such differences. Such specification choices may account for the differences in our findings.

CHAPTER 5

CONCLUSION

This study explores the determinants of foreign direct investments (FDI) in sub-Saharan Africa, focusing on the role of economic growth and macroeconomic stability relative to the impact of resource prices. Previous studies identify both factors as relatively reliable predictors of FDI. Positive economic growth and macroeconomic stability tend to attract foreign capital as foreign investors recognize that both factors typically go hand-in-hand with improvement in infrastructure, in the rule of law, business environment and most importantly to increase in market size of recipient country. In this study these two factors appear to be broad measures of how attractive or friendly the country is towards foreign direct investments. At the same time the ability to extract and export natural resources is often viewed as a factor that attracts FDI despite the lack of economic growth, price stability and strong institutions. Historically, African countries-

sub-Saharan countries- in particular relied heavily on export of natural resources such as oil and precious metals.

The principal objectives of this study are to quantify the relative impact of those factors on FDI in the last quarter century, explore whether such impact changes over time and whether it depends on country's initial conditions of recipient country population's well being. It is often argued that FDI can be beneficial to development of industrial infrastructure and that it facilitates skill and knowledge transfer to recipient countries' workers that in turn can raise wages. To the extent that this is true, all else equal, we should expect favorable impact of FDI on living conditions.

In order to address those questions, this analysis first recognizes that there are significant differences among countries in sub-Saharan Africa that are hard to measure. Such differences include geographic location, history, culture and other factors whose impact on recipient's country conditions and inflow of capital is likely to be long term. Disregarding such factors in my analysis may result in inaccurate or biased estimates. Therefore, the panel fixed effects model is used to control for such unobserved factors. Secondly, the study recognizes that sub-Saharan countries export a variety of commodities and thus cannot rely on any single one of them to reliably estimate the role of resource exports. To incorporate all prices, principal component analysis is used to construct indexes of returns for commodities that are primary African exports and use them to measure the impact of commodity valuations on FDI in sub-Saharan Africa.

The major main findings indicate that over past quarter century, the FDI to GDP ratio in sub-Saharan Africa was equally sensitive to variation in economic growth

conditions and resources prices. This result suggests that both external (resource prices) and internal factors (economic growth) exert influence on FDI in sub-Saharan Africa. In addition, sensitivity of FDI to GDP ratio to resource prices grew in past quarter century. Further, I find that inflation or easy monetary policy in general disrupts FDI as it creates significant price uncertainty and depreciation of local currency. Such disruption is found to be the strongest for poorer sub-Saharan countries. The results also indicate that macroeconomic factors and resources factors account for a relatively small fraction of variation in FDI to GDP ratio and that there are many hard-to-measure dynamic institutional and policy factors that differ across sub-Saharan countries that may determine FDI to GDP ratio. Overall these results highlight the importance of economic growth, price stability, resources prices and country-specific factors and policies for determination of FDI. Finally, while controlling for economic growth, inflation and resources prices, FDI does not affect household consumption growth per capita in sub-Saharan countries. Hence, it appears that targeting FDI to promote economic well-being should not be a policy goal. Instead, household consumption per capita growth increases with stronger economic growth and higher resource prices.

Suggestions for future research

Future research warrants the expansion of the current study in two directions. First, while current study uses economic growth, inflation and resources prices as broad factors expected to determine FDI, future research should expand the list of independent variables. Adding demographic, social, political and economic policy factors may help

better explain FDI in sub-Saharan Africa and identify specific channels thorough which such factors may influence FDI.

Second, the exploration of country-specific time series models may be better suited for predicting FDI. Because country specific factors seem to be important for FDI, focusing on a specific country and identifying factors that are important for that country may be a better strategy for forecasting and understanding evolution of FDI over time.

APPENDIX

A: COUNTRY LIST

List of countries in sample
Benin
Botswana
Burkina Faso
Cameroon
Cape Verde
Central Africa
Congo Democratic Republic
Congo Republic
Cote d'Ivoire
Gabon
Gambia
Ghana
Guinea
Guinea Bissau
Kenya
Madagascar
Malawi
Mali
Mauritania
Mauritius
Mozambique
Niger
Nigeria
Senegal
Sierra Leone
South Africa
Swaziland
Tanzania
Togo
Uganda
Zambia
Zimbabwe

B: EXCERPTS FROM COUNTRY STUDIES

South Africa	Kenya	Nigeria
[1] Akinboade, Siebrits and Roussot **[2] Arvanitis** **[3] South African Department of Finance**	**Mwega and Ngugi**	**Ogunkola and Jerome**
[1] Decrease in macroeconomic imbalances in the last several has helped capture some of the FDI flows	FDI in Kenya generally declined from the 1980s to the 1990s by almost 50%. As a percentage of GDP however, it fell from 0.57% to 0.2%.	Nigeria is the largest FDI recipient in Sub Saharan Africa. However, as a percentage of GDP, the country only comes forth when FDI inflows are a percentage of GDP.
[2] Receives far less FDI than countries with broadly similar credit characteristics	In the early 2000s, FDI increased as a result of ”new investments by mobile phone companies (involving mergers and acquisitions of US$3 million) and accelerated offshore borrowing by private companies to finance electricity generation activities which became necessary because of the drought	The nation is also the fourth largest economy in Africa and has an internal market with no rival within the African continent.

	that prevailed that year.”	
[1] "gross capital formation is finance from two sources: gross saving and foreign investment."	Kenya does not have significant mineral resources thus they depend more on agriculture and manufacturing and services and very little on mining.	The country is known for its abundant human and natural resources-it is ranked the seventh oil producer in the world.
[1] In need of direct and other investments from abroad to supplement domestic saving needed to raise capital formation and economic growth.	During the colonial periods, the main investment focus was in “agriculture and commerce, and the railway and telegraph that linked the productive highland regions of the interior with the port of Mombasa and the Indian Ocean.” With the Second World War came the industrial investment used “to manufacture substitutes for imports disrupted by the war.”	However, “economic growth had been poor averaging just 1.6% through the 1980s and 2.4% in the early 1900s” resulting from “economic mismanagement and corruption”. This led the country to be placed “amongst the 20 poorest countries in the world. “
[3] Gross investment of 26% of GDP is required to raise the GDP growth rate by 6% per annum	Foreign investment has also greatly assisted Kenya in financing the manufacturing as	The nation depended heavily on oil and failed to diversify which

	well as primary and tertiary sectors.	resulting in the "economy's performance" to "mirror international oil prices."
[1] FDI's instability in earlier years substantiated by political shocks (Sharpeville massacre in 1960, the Soweto riots in 1976 and the 1985 foreign-debt standstill)	The macroeconomic environment could be better. Economic performance was weak in the 90s. This was mainly blamed by the failure to "sustain low inflation and current the widening of account deficit with the deterioration terms of trade" causing macroeconomic instability.	The country is "highly indebted" and "undergoing substantial economic reform under the new civilian administration."
[1] Inflows resumed in 1995 but remained below 2% of GDP	Lending rates were also affected; they rose "increasing the cost of capital and therefore the cost of doing business"	"The fragile democracy is threatened by recurrent political tension and heightened communal, religious and ethnic violence in the quest for access to economic resources and political power."

[1] The business and investment environment are conducive to the attraction of FDI.	The fiscal deficit improved but happened “in the context of worsening terms of trade and instability in the financial sector”	Another major factor that inhibits FDI inflow is corruption and the associated advance fee fraud or “419” scam.
[1] "…recent portion of FDI inflows involved acquisition of equity stakes in privatized parastatals."	Weak performance was also attributed to the “failure to sustain prudent macroeconomic policies, slow pace in structural reforms and governance issues.”	The country “… has unfortunately acquired a reputation as one of the most corrupt societies in the world.”
[1] HIV/AIDS pandemic a huge factor affecting FDI inflows. This affects the labor market and the country's businesses in general. "This results in additional health care for infected workers, absenteeism, funeral contributions to name a few"	The political environment is in a somewhat mixed position. A demand for a new constitution has been raised since Kenya’s independence from colonialism. This caused a great deal of “political tension and uncertainty to the investors.”	“Corruption constitutes a significant barrier to entry for new foreign investors, who may not have political connections or cannot be sure that those they establish will be sufficient to navigate the complicated maze of doing business in the country.”

[1] The South African government approved a comprehensive drug treatment back in November of 2003 and increased the budget allocation for HIV/AIDS by 1052% from 2001/2 to 2005/6 to help combat the epidemic and assure investors of the seriousness of government in helping tackle the epidemic and reduce its business impact	Political instability has been an issue in the country mainly during the election period. Tribal clashes also occurring in multi-party elections in 1992 and 1997 also took place in 2007.	Also, Nigerian businesses are approached- if at all- with caution by companies abroad as foreign businesses are often unwilling to share information or even respond to enquiries
[1] High income rates are another factor that influences investor's decisions. Considering the country has the highest crime rates in the world, 52 out of 100,000 people are murdered annually. Among other high crimes are car hijackings, cash-in-transit robberies	The recent post-election violence of 2007 was widely aired worldwide and compared by some to the Rwandan genocide although not as extreme. In part due to ethnic and geographical diversity in Kenyan politics, non-violent protests were staged after the electoral loss of a presidential candidate (that was speculated to have resulted from electoral rigging from both sides) which escalated to violent rampage killing several ordinary citizens	Nigeria has taken action regarding the eradication of corruption by passing the Corrupt Practices Act and forming the Independence Corrupt Practices and Other Related Offences Commission. However, “actual progress has been slow” and no change has appeared on the “ground for most businesses where corruption remains a fact of life.”
[1] Suggestions have been made to	During that period, prices of	Lack of physical security

improve the social environment by cracking down on crime and handling the HIV/AIDS pandemic which seem to negatively affect investors' perceptions towards the country.	staple goods and services hiked to almost 200% of their pre-crisis prices. Even without worldwide airing of the event, the increased costs would have been more than enough to deter foreign investors from investing in the country.	as a result of a high crime rate has also affected Nigeria's FDI inflows. These translate to added security costs for a business as well as higher costs for attracting and housing foreign individuals.
[1]The country has been in the news concerning security issues and general perspectives for South Africa which could deter future investors.	The government-donor relationship has been strained mainly because "government failed to demonstrate adequate commitment to the reforms and to adhere to the set conditions for disbursement of funds.	On paper, Nigeria appears attractive for FDI inflows. However, in practice, the nation still has to make progress
[1] A number of regulatory and institutional conditions affect FDI. Regulatory policies will ensure equal access to resources and ensures the investors that special arrangements that advance one investor faster than the other will not be available. However, the requirement that regulations be approved by the ministry created a backlog that led to delays in vital	Policy incentives such as the reform process brought about "liberalization of interest rates and exchange rates, removal of import controls and relaxation of capital controls."	"Beyond oil, where the returns are exceedingly high, the international investment community considers Nigeria a risky and costly place to invest"

developments of the sector for months and even years.		
[1] "Traditionally identified as a determinant of investment, price regulation is usually introduced as a means of ensuring improved access to vital resources by the historically advantaged groups in the country."	"Interest rates were liberalized in 1991; a floating exchange rate regime was established in 1993 and capital controls were relaxed in 1995." In addition, "trade liberalization policies were implemented in 1993 while in 1994 price decontrols were finalized."	In addition, "there is a perception gap" where "its risk rating is worse than its economic fundamentals warrant."
[1] The focus on fortifying access for those citizens who do not receive services at all is the logic. By increasing tariffs of those with services, the funds from the tariffs can be used to get services out of those who do not have such services. Unreasonable rate of returns and inadequate generated revenues may be a result of the absence on regulatory clarity where by cost-based price increases and therefore, infrastructure expansion decreases.	The cost of doing business is somewhat strenuous in terms of time length. The process of registering a company in Kenya is longer and tedious. Multiple licenses and permission from different sectors of the government (for example, Ministry of Finance, ministry of Trade etc.) are required.	The country will therefore require FDI promotion to overcome this situation by getting rid of the biggest irritant to foreign investors and creating some factors that export-oriented investors seek.

[1] Non-local investors are offered limited incentives in South Africa. Government policy mainly focuses on infrastructure in industrial development zones. Funds are used to improve transport through investments. Tax breaks and grants encouraging large-size investments with grants being targeted at research and development and technology-oriented startup companies.	The time all permission is granted and licenses are obtained may take from 6 months to eight years. Special authority is required for certain sectors of the industry. However, the process is not as costly.	Recognizing and solving problems associated with insufficient infrastructure, prevalent corruption and unreliable regulations is vital in the country's future endeavors of attracting more FDI.
[1] However, if South Africa wishes to compete for FDI with other developing countries, the country will have to at least offer more attractive terms on the same level as elsewhere. "Restricting foreign operations to protect local companies can be a hindrance once FDI has been secured. Local content and joint venture requirements are such restrictions." Without the competition from foreigners, a firm's production efficiency and labor productivity will remain stagnant or poor and hinder foreign investment distribution.		Nigerians need to be more proactive towards its policies.

[1] Factors that have helped boost FDI inflow into the country are its world class legal framework; its rich array of mineral resources, political and economic stability and opportunity; good infrastructure facilities; low cost of doing business, high annual rate of return on investment; market size, and labor growing domestic investment. Corruption was low in the 1990s and early 2000s but seems to be prevalent now especially among government officials.		
[1] Factors that deter FDI inflows are domestic market structure and potential; highly concentrated industries; declining infrastructural comparative advantage and poor market intelligence of foreign investors		

C1: SUMMARY STATISTICS

	Equation 1		Equation 2	
	Mean	**Std**	**Mean**	**Std**
FDI inflow to GDP ratio (%)	2.72	4.06	3.03	4.35
Household Consumption Per Capita Growth (%)			1.63	9.12
GDP Growth (%)	3.49	4.35	3.86	3.73
Consumer Price Inflation (%)	101.68	1323.33	60.76	1044.60
Annual commodity price returns:				
Petroleum	9.68%	21.58%	9.75%	21.78%
Precious Metals	5.65%	12.04%	6.18%	12.05%
Cocoa	3.57%	20.41%	3.93%	20.35%
Coffee	6.14%	32.95%	6.55%	32.38%
Tea	2.06%	11.05%	2.23%	11.00%
Tobacco	1.97%	11.67%	2.14%	11.56%
Peanut Oil	7.33%	26.39%	7.15%	26.64%
Cotton	4.45%	20.50%	4.70%	20.77%
Potash	10.35%	36.81%	11.36%	39.09%
KDP(phosphate)	8.99%	32.38%	9.80%	34.13%
Observations	681		523	

C2: VARIABLE DESCRIPTION

Variable	Definition	Definition notes
FDI inflow to GDP ratio (%)	FDI_t/GDP_t	"Foreign direct investment are the net inflows 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. This series shows net inflows (new investment inflows less disinvestment) in the reporting economy from foreign investors, and is divided by GDP." Source: World Bank.
Household Consumption Per Capita Growth (%)	Household consumption per $capita_t$/Household consumption per $capita_{t-1}$ - 1	"Household final consumption expenditure (formerly private consumption) is the market value of all goods and services, including durable products (such as cars, washing machines, and home computers), purchased by households. It excludes purchases of dwellings but includes imputed rent for owner-occupied dwellings. It also includes payments and fees to governments to obtain permits and licenses. Here, household consumption expenditure includes the expenditures of nonprofit institutions serving households, even when reported separately by the country. This item also includes any statistical discrepancy in the use of resources relative to the supply of resources. Data are in constant local currency." Source: World Bank.
GDP per capita (constant US dollars)	$GDPt/Population_t$	"GDP per capita is gross domestic product divided by midyear population. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data are in constant 2005 U.S. dollars." Source: World Bank.
GDP Growth (%)	GDP_t/GDP_{t-1} - 1	"Annual percentage growth rate of GDP at market prices based on constant local currency. Aggregates are based on constant 2005 U.S. dollars. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources.". Source: World Bank.
Consumer Price Inflation (%)	Price $Level_t$/Price $Level_{t-1}$ - 1	"Inflation as measured by the consumer price index reflects the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals, such as yearly. The Laspeyres formula is generally used." Source: World Bank.

Annual commodity price returns	$Price_t / Price_{t-1} - 1$	Calculated for 10 commodities. Commodities are petroleum, precious metals, cocoa, coffee, tea, tobacco, cotton, peanut (ground nut) oil, potash and KDP (phosphate).

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