The Determinants of Foreign Direct Investment in a Comparative Perspective: Is there a Bias against Sub-Saharan Africa?[1]

by

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Abstract

This paper explores the determinants of foreign direct investment in a comparative perspective and looks for evidence of a bias on the part of foreign investors against sub-Saharan Africa. The paper examines whether Africa's tiny share of world FDI flows is a consequence of inappropriate policies or a general investor bias against the region (perhaps due to the lingering effects of bad reputation). The empirical results suggest that Africa's marginalization in the global competition for FDI is of its own making – the result of a generally inferior investment environment. The findings also reveal important differences in the determinants of FDI between SSA countries and the rest of the world.

Keywords: Foreign Direct Investment, Sub-Saharan Africa

JEL Classification: F21 F14 O57

[1] Forthcoming in the University of Mauritius Research Journal (2003)

I. INTRODUCTION

Developing countries are increasingly aware of the role of foreign direct investment (FDI) as an engine of growth in their economies. Foreign investors can contribute to growth by providing much needed capital and skills, by sharing risks in large projects and by serving as a vehicle for technology transfer. For many developing countries, FDI is a mechanism by which to promote industries in which they have a potential comparative advantage that cannot otherwise be exploited.

The globalization of economic activity has been marked by a surge in FDI flows. Over the decade 1988-1997, global FDI flows have increased almost three-fold. Unfortunately, these trends have largely bypassed sub-Saharan Africa. In 1997, SSA received less than 1 percent of world FDI inflows, or 1.7 percent of total FDI flows to developing countries (Table A.1). These statistics, moreover, conceal large disparities in the distribution of FDI among host African countries. For example, 55 percent of FDI flows to Africa in 1997 went to the three traditionally biggest recipients – Nigeria, South Africa and Egypt (Table A.2). There are also worrying signs that the whole of the African continent is being marginalized in the global competition for FDI. FDI flows to Africa have *decreased* 6.1 percent annually between 1994 and 1997. Since the recent years have seen significant improvements in the conditions governing FDI – including, but not limited to, economic reform, democratization, privatization, greater peace and political stability – these trends raise important questions about foreign investors' attitude towards Africa.

Consider the following argument from Haque et al. (1999) cited in Collier and Gunning (1999: 20):

> "Investment rating services list Africa as the riskiest region in the world. Indeed, there is some evidence that Africa suffers from being perceived as a 'bad neighborhood.' Analysis of the global risk ratings shows that while they are largely explicable in terms of economic fundamentals, Africa as a whole is rated as significantly more risky than is warranted by these fundamentals."

This argument prompts pertinent questions: Is there a systematic and irrational FDI-bias against sub-Saharan Africa? Have the conditions for FDI in SSA countries really improved? Does SSA remain an inferior location for footloose investment relative to competing regions or countries? It is the aim of this paper to answer the first question and, in the process, throw some light on the other two.

The literature on the empirical determinants of inbound FDI flows in developing countries is wide and varied. Important contributions in this area have been made by Shah and Toye (1978), Root and Ahmed (1979), Lim (1983), Schneider and Frey (1986), Balasubramanyam and Salisu (1988), Shah and Slemrod (1991), Shamsuddin (1994), Tsai (1994), Harrison and Revenga (1995), and Jun and Singh (1996). Agarwal (1980) and UNCTAD (1992) survey the empirical literature on FDI.

However, the empirical work has not *directly* and *fully* addressed the question of FDI-bias against sub-Saharan Africa. Two recent studies that shed some light on this issue while pursuing other objectives are Elbadawi and Mwega (1998), and Wilhelms (1998). The first study uses panel data on 43 countries during the period 1970-94 to assess the impact of regional integration schemes on FDI flows to sub-Saharan African countries. Two variants of a random-effects model are estimated. The first includes a dummy variable for SSA countries, which is replaced in the second equation by a set of binary indicators representing regional trading arrangements in Africa and elsewhere. The SSA dummy is not significant, suggesting that FDI behavior in SSA is not different from that in other regions. This finding could be interpreted to mean that, other things equal, SSA attracts as much FDI as other regions.

Wilhems (1998) uses the concept of "institutional FDI fitness" to test the hypothesis that FDI inflows are influenced less by generic variables than by institutions and their policies. The institutional capacity of a country to attract FDI is postulated to be a function of "government fitness", "market fitness", and educational and sociocultural systems. Regression analysis confirms that government and market variables are the most significant determinants of FDI inflows. A dummy variable for sub-Saharan Africa, intended to capture regional sociocultural differences, shows up as statistically insignificant.

This paper seeks to provide additional evidence on the question of investors' bias against SSA by developing and statistically testing a set of FDI determinants within the context of a cross-country regression that singles out SSA as the focal group. As a second step, the paper investigates whether there are significant differences between SSA and non-SSA countries in the conditions that affect FDI. Section II presents the basic model, describes the data and discusses the estimation results. Section III compares SSA with other regions and statistically tests the hypothesis that investors are biased against SSA. The paper concludes with a summary and some policy implications.

II. EMPIRICAL ANALYSIS

Theoretical Considerations

There exists no unified theory of FDI. Instead, the theoretical literature is choked with an array of hypotheses drawing heavily on theories of imperfect competition and market failure to explain the FDI phenomenon. These hypotheses find their roots in Hymer's (1960) seminal work, refined and publicized by Kindleberger (1969), but they emerged in a more consistent manner from Dunning's (1977, 1979) "eclectic approach." Essentially, this approach seeks to explain the motives for international production, and thus FDI, in terms of the ownership advantages of multinational firms, the desire to "internalize" these advantages, and the locational advantages of the host country. Ownership advantages are factors that enable the firm to overcome the handicaps of producing in an alien environment, such as differences in language and culture, legal systems, tax regimes and access to inputs. These "firm-specific" advantages include superior technology and marketing skills, which help the multinational differentiate its product successfully. This competitive advantage is usually created through substantial investments in advertising and in research and development (McCulloch, 1993).

But ownership advantages do not, of and by themselves, justify foreign production. They only suggest that the firm commands a competitive edge in a foreign market, which can be exploited in several ways other than through the establishment of foreign subsidiaries. For instance, the firm can simply sell part of its domestic output to the foreign market. Indeed, exporting would be a more attractive avenue to the extent that it avoids the difficulties of operating a plant in an unfamiliar territory. Thus, a firm's decision to set up production facilities abroad can only be explained by the host country's locational advantages that provide a counterweight to the usual handicaps of offshore production. These advantages typically derive from lower costs of production, which reinforce the multinational's initial competitive advantage. The availability of a pool of cheap labor is an important factor, especially for labor-intensive operations. Many countries are also – increasingly – offering tax holidays and duty concessions as part of an incentive package to attract FDI. Locational advantages may also result from trade barriers (including transport costs) that make it difficult to export to the country.

An alternative – and perhaps more practical – classification of the host-country determinants of FDI distinguishes between business facilitation measures, the policy framework for FDI, and economic determinants. Business facilitation measures include investment incentives, measures directed at reducing the hassle costs related to corruption and administrative inefficiency, and social amenities. Policy determinants of FDI comprise policy and political stability, rules relating to FDI, international agreements on FDI, and privatization, trade and tax policies. The economic determinants are further categorized into market-seeking (market size and growth, market structure, access to regional markets), resource-seeking (availability of raw materials, labor, physical infrastructure) and efficiency-seeking (cost of resources, labor productivity).

The model

To determine whether sub-Saharan African countries receive less FDI than other countries, controlling for the determinants of FDI, it is necessary to adopt a comparative perspective. Thus, although the focus of the empirical analysis is on SSA, the data sample contains a large number of non-SSA countries as well. In this section, I present the basic model and discuss the results of estimating the FDI equation on the entire sample.

The empirical methodology is motivated by the literature surveyed above, but it is modified to accommodate the objective at hand. I propose the following rudimentary model:

$$\left(\frac{FDI}{GDP}\right)_{it} = g\left(GDP_{it}, GDPPC_{it}, GR3_{it-1}, INV_{it}, GSIZE_{it}, \Delta RER_{it}, DSX_{it}, INST_{it}, POL_{it}, SKILL_{it}, INFRA_{it}, OPEN_{it}\right), \tag{1}$$

where i indexes country and t year. Table 1 describes the variables and explains how they are measured.

Table 1: Description of variables

Variable	Definition
$(FDI/GDP)_t$	Share of foreign direct investment (as per balance of payments) in GDP.
GDP_t	Real GDP
$GDPPC_t$	Real GDP per capita
$GR(3)_{t-1}$	Average of real GDP growth rates over past 3 years.
INV_t	Share of gross domestic investment in GDP.
$GSIZE_t$	Share of government consumption in GDP (proxy for government size).
$\Delta(RER)_t$	Change in real exchange rate between year t and year t-1. The real exchange rate for country i is defined as $RER_i = E_{i/\$} \cdot \frac{P_{US}}{P_i}$, where E is the exchange rate (local currency per US\$), P_{US} is the US wholesale price index, and P_i is country i's consumer price index. Increase in RER means real depreciation.
DSX_t	Debt-service ratio (a proxy for transfer risk)
$INST_t$	Index of institutional quality, defined as the product of ICRG's "rule of law" and "corruption in government" indices.
POL_t	Index of policy instability, defined as the standard deviation of GSIZE over the past 4 years, including the current year.

$SKILL_t$	Secondary school gross enrollment ratio (a proxy for national skill level).
$INFRA_t$	Number of telephone mainlines per thousand population (a proxy for telecommunications infrastructure).
$OPEN_t$	Trade openness, defined as value of exports plus imports divided by GDP.

Notes: The variable *INST* is constructed using data from *ICRG* (1997). All other data are from the *World Development Indicators, 1999*.

The choice of the independent variables was dictated both by data availability and by the primary objectives of this study. The GDP variables are the traditional market-size determinants of FDI. Real GDP is a proxy for the absolute size of the domestic market, while real GDP per capita (*GDPPC*) is a measure of effective demand. Similarly, real GDP growth proxies market growth. To circumvent the simultaneity problem that may exist between this variable and FDI, average growth over the previous three years (*GR3*) is used in lieu of the contemporaneous growth rate.[1] Domestic investment (*INV*) is usually assumed to be complementary to FDI; therefore, we should expect a positive sign on the investment ratio. The size of government (*GSIZE*) captures several factors that are relevant to foreign investors. First, it may reflect the host country's stance towards the private sector. To the extent that government intervention in the economy beyond a certain optimal level constitutes an economic distortion, we should expect larger governments to be more distortionary and less conducive to FDI. Moreover, bigger governments typically represent more involved bureaucracies, and are often associated with administrative inefficiency and corruption, which significantly increase the hassle costs of investing in the country. This line of argument suggests a negative effect of government size on FDI inflows. Conversely, higher government spending may also mean greater expenditure on socially productive sectors such as education, health and infrastructure, which are critical to FDI. Hence, the sign of *GSIZE* in equation (1) is a priori ambiguous.

The effect of changes in real exchange rates on FDI flows is also ambiguous. Harrison and Revenga (1995), and Elbadawi and Mwega (1998) used the real exchange rate as an indicator of a country's international competitiveness, hypothesizing that a real depreciation would attract larger FDI flows. However, it may be argued that, unless the purpose of FDI flows to a country is to build an export platform, overvalued exchange rates should not represent a considerable hurdle to foreign investors. Quite to the contrary, a real depreciation increases the costs of imported inputs and reduces the foreign-currency value of profit remittances, both of which have adverse effects on the profitability of FDI projects. This effect will dominate if FDI is undertaken primarily to serve the domestic market. Thus, if we assume that the prospective investor uses the previous year's change in the real exchange rate as a guide to its evolution in the near future, we would expect a negative sign on the variable $\Delta(RER)_{it}$ (since an increase in the index represents a real depreciation).[2]

Heavily indebted countries represent higher transfer risk – the risk of potential restrictions on the ability to transfer funds across national boundaries. Transfer risk is an important component of country risk and a variable closely monitored by foreign investors. Higher transfer risk may cause foreign capital to move out of a country and new FDI flows to be rerouted to safer locations. The debt service ratio (*DSX*) is used as a measure of indebtedness, and hence of transfer risk. The sign associated with *DSX* is expected to be negative.

Policy and political instability weigh significantly in the foreign investor's decision whether or not to invest in a country.[3] In this study, I propose a measure of policy instability or policy risk based on the standard economic concept of risk (that is, variability). The policy risk for country i at time t is measured as the standard deviation of the share of government spending in GDP (*GSIZE*) over the last four years, including year t. This measure is fairly intuitive and is philosophically close to a measure of government policy risk suggested by Brewer (1985).[4] Its primary appeal is that it recognizes small deviations to be the likely result of short-term fluctuations, while attributing larger deviations to major policy shocks. The four-year horizon used for calculating the standard deviation is sufficiently short to allow investors to focus on the prevailing policy risk that really matters for decision-making; it is sufficiently long to allow investors to disregard policy instability in the past. Moreover, to the extent that political upheavals result in higher government spending, the proposed measure of policy instability will also capture some element of *political* instability.[5] Since policy and political instability are detrimental to FDI, we expect a negative sign on the coefficient of *POL*.

No single measure can effectively capture all the dimensions of political instability relevant to foreign investors. Existing studies have employed a variety of such measures. Some of these measures are direct indicators of political instability, such as number of revolutions and coups, number of assassinations, and presence of civil wars; others are symptoms of political instability, such as workdays lost due to industrial or civil strife, expropriation risk, corruption and rule of law. Since the nature of political risk varies across countries and over time, these different indicators are unlikely to perform uniformly in empirical studies of FDI that use different data samples.[6] Moreover, data on some of the commonly used measures of political instability are not consistently available for a number of countries and for recent years.[7] In light of these limitations, I focus in this study on the quality of institutions as a manifestation of political instability. I construct an index of institutional quality using data on "corruption in government" and "rule of law" compiled in the *International Country Risk Guide* (ICRG). Both variables are rated on a scale of 1 to 6 (where a higher value represents better conditions), and together they capture the elements of the political regime that are arguably most relevant to the foreign investor. Corruption is related to bureaucratic quality; a strong rule of law is usually associated with low risks of expropriation or contract repudiation by the government. The institutional quality index, *INST*, is simply defined as the product of the corruption-in-government and rule-of-law indices. This measure gives equal weight to each component and assumes that favorable levels of both characterize well-functioning institutions. Hence, the statistical analysis is expected to render a positive coefficient on *INST*.

SKILL and *INFRA* are two variables intended to capture the resource-seeking motives of FDI flows to developing countries. *SKILL* refers to the secondary school gross enrollment ratio and serves as a proxy for a country's skill base. The importance of an adequate supply of physical infrastructure as a magnet for FDI is well known. Nevertheless, only a few empirical studies have included a measure of infrastructure in FDI equations, probably because no variable satisfactorily captures all the dimensions of infrastructure (ports, roads, power, telecommunications, etc.) relevant to foreign direct investors. In this study, the number of telephone mainlines per thousand population is proposed as a measure of infrastructure. Although this measure is inherently deficient, it turns out that *INFRA* is highly correlated with GDP per capita, and so is excluded from the empirical analysis.[8] The same is true of the skill variable. This multicollinearity is not surprising since GDP per capita is a general proxy for a country's level of development, and, empirically, more developed countries typically have a larger skill base and better infrastructure.

The variable *OPEN* is defined as the share of total trade (exports plus imports) in GDP and is intended to serve as an indicator of a country's trade orientation. More-open economies usually follow "appropriate" trade and exchange rate policies and espouse a relatively liberal investment regime. In Africa, for example, export-oriented economies, such as Egypt, Mauritius, Morocco and Tunisia, have tended to attract large amounts of FDI into their textiles and apparel industries. On the whole, the balance of evidence seems to have shifted from the once-popular tariff-hopping motive of FDI to the efficiency-seeking motive. Harrison and Revenga (1995) used average tariff levels and Dollar indices as alternative indicators of a country's trade policy stance. In the absence of consistent data on these variables, I will adhere to the simple openness measure.

Regression results

The sample consists of an unbalanced panel of 84 countries pooled over 1982-1995. Details of the sample are given in the appendix. Table A.3 provides some descriptive statistics. The first sign of the marginalization of Africa in the global competition for FDI is already apparent from the table: sub-Saharan Africa, on average, received less FDI as a share of GDP over the period 1980-1997 than did other regions. A cursory analysis of the statistics also reveals some important differences between SSA and non-SSA countries, which have the potential to explain the observed low FDI flows into Africa. Thus, for example, Africa has lower average growth rates and investment ratios, larger governments, inferior levels of skill and infrastructure, and greater policy instability than the rest of sample. Interestingly, Africa is not significantly different from non-African countries in the openness and institutional quality dimensions.

The FDI equation was estimated for the entire sample, and separately for two groups of SSA countries and non-SSA countries. The results are reported in Table 2. Regression equations (1.2) through (1.4) are discussed in the next section. Here I focus on equation (1.1), which shows the results of estimating a fixed-effects model on the complete panel. The fixed effects are statistically significant, justifying this procedure.

Table 2: The determinants of foreign direct investment

Variable	Dependent variable: FDI/GDP			
	Eq. (1.1)	Eq. (1.2)	Eq. (1.3)	Eq. (1.4)
	All countries		*SSA countries*	*Non-SSA countries*
Constant	-0.12	-0.06	1.09	-0.22
	(-0.26)	(-0.11)	(1.13)	(-0.37)
Real GDP	4.68E-12	9.81E-13	2.29E-10	2.34E-12
	(1.88)	(0.56)	(0.98)	(1.04)
Real GDP per capita	-3.70E-5	2.80E-5	-1.87E-3	1.28E-4
	(-0.48)	(0.26)	(-4.69)	(1.70)
Growth Rate, lagged	0.05	0.05	3.30E-3	0.04
	(2.57)	(2.16)	(0.09)	(1.86)
Government Size	-0.08	-0.06	-0.05	-0.09
	(-4.28)	(-2.97)	(-1.48)	(-4.00)
Investment Ratio	0.02	0.01	0.09	2.03E-4
	(1.06)	(0.47)	(2.27)	(0.01)
Δ(Real Exchange Rate)	-9.01E-4	-7.13E-4	-0.01	-6.49E-4
	(-1.82)	(-2.04)	(-3.14)	(-1.51)
Debt Service Ratio	-0.01	-0.01	-0.02	-0.01
	(-3.54)	(-2.62)	(-3.16)	(-1.19)
Policy Instability	-0.09	-0.07	-0.08	-0.18
	(-2.83)	(-2.92)	(-1.79)	(-2.89)

Institutional Quality	0.03	0.04	-0.02	0.04
	(1.82)	(2.00)	(-0.65)	(2.30)
Openness	0.03	0.02	0.02	0.03
	(6.20)	(3.68)	(1.69)	(5.49)
SSA Dummy		-0.21		
		(-0.69)		
Fixed Effects	Mostly sig.		Mostly sig.	Mostly sig.
No. of observations	694	694	244	410
No. of groups	55	55	21	31
R-squared	0.22	0.23	0.26	0.34
Estimation Method	Fixed Effects	GLS	Fixed Effects	Fixed Effects

Notes: t-statistics in parentheses

The results offer some support for the market-related variables as traditional determinants of FDI flows: Real GDP is significant at the 10 percent level in equation (1.1), and its growth rate significant in all but equation (1.3). Also, as expected, the degree of openness appears to be strongly, positively correlated with FDI flows. The investment ratio bears the right sign, but it is not significant at conventional levels. The coefficient associated with the government size variable is negative and highly significant, lending support to the earlier proposition that too much government intervention in the economy may be detrimental to FDI. Interestingly, this finding is contrary to Harrison and Revenga (1995), who find that the size of government is positively correlated with FDI flows.[9] These conflicting results are more likely the outcome of differences in estimation methods than of sample differences. Since Harrison and Revenga (1995) do not allow for fixed effects in their model, their estimates are potentially biased and thus unreliable.

It was argued above that the international competitiveness of the host country would not weigh much in the foreign investor's decision if the purpose of FDI is to service the domestic market.[10] In that case, real exchange rate depreciation would reduce the expected return on investment, and curtail FDI flows. The statistical evidence strongly supports our hypothesis – this in contrast to Elbadawi and Mwenga (1998).

The debt service ratio (an indicator of transfer risk), the measure of policy instability, and the index of institutional quality are innovations that distinguish this study from most previous empirical studies of the determinants of FDI. All three variables show up as statistically significant and with the right sign. Hence, we have preliminary evidence that countries that exhibit higher transfer risk and policy instability, and low institutional quality receive smaller amounts of FDI.

III. COMPARISON OF SUB-SAHARAN AFRICA WITH OTHER REGIONS

Table A.1 shows some important trends in the regional distribution of FDI flows. Developed countries have maintained their position as leaders in the global race for FDI. Their dominance, however, has sharply declined over the years as some developing countries have emerged as powerful magnets for FDI. Significantly, developing countries' share of world FDI flows doubled over the decade 1988-1997, rising from 18.8 percent in 1988 to 37.2 percent in 1997. The situation in sub-Saharan Africa, on the other hand, is no cause for celebration. SSA has traditionally attracted a negligible percentage of world FDI flows. But even this share has declined in recent years. In 1991, SSA hosted 4.3 percent of FDI flows to developing countries; this share had fallen to less than 2 percent by 1997.

Within Africa itself, there is considerable variation in the distribution of FDI across countries. As shown in Table A.2, more than one-half of all FDI flows into Africa have been pocketed by the three traditionally biggest recipients – South Africa, Nigeria and Egypt. Since the latter two are mainly oil-exporting countries and South Africa is known for its rich natural-resource endowments, this suggests that the primary sector remains, by far, the magnet for FDI in Africa. UNCTAD (1999) estimates that 53.4 percent of SSA's FDI stock at the end of 1997 was in the primary sector. Except for a few countries (for example, Tunisia, Ghana, Mauritius and Egypt), Africa has not been favored as a location for export-oriented manufacturing FDI.

These trends paint a bleak picture of Africa's capacity to attract FDI. At a time when other developing countries are trying hard to woo foreign investors, the alleged marginalization of Africa is raising important policy issues. Haque et al. (1999) argue that while global risk ratings can be explained in terms of economic fundamentals, Africa as a whole is rated unaccountably more risky, suggesting that the region potentially suffers from the lingering effects of bad reputation. In this section, I test formally the hypothesis that foreign investors are biased against Africa. I also investigate whether the same set of determinants is relevant to both African and non-African countries.

As in Wilhelms (1998) and Elbadawi and Mwenga (1998), the "Africa bias" hypothesis can easily be tested within the framework of equation (1) by including a dummy variable, defined to equal 1 for SSA countries and 0 for non-SSA countries. Because the fixed-effects model rejects the dummy variable, I estimate equation (1) using generalized least squares (GLS).[11] The results are reported in equation (1.2) in Table 2. It is worth noting that adding the dummy variable and applying a different estimation procedure does not change the original results in any significant manner.[12] Interestingly, the coefficient on the SSA dummy is negative, but not statistically significant.[13] The statistical evidence, therefore, does not support the hypothesis that foreign investors are biased against Africa. This result complements the findings of the last two studies surveyed above, and constitutes further evidence that Africa's marginalization in the global FDI competition is due to its inferior investment climate.

Equations (1.3) and (1.4) display the results of estimating the basic model on the two sub-samples of SSA countries and non-SSA countries, respectively. The results reveal important regional variation in the determinants of FDI flows. First, GDP per capita now becomes a significant determinant of FDI in both groups, but in starkly different ways. Whereas GDP per capita is positively correlated with FDI flows in the non-SSA sub-sample, it appears with a negative sign in the SSA equation. This last result cannot be discarded as a statistical anomaly, given the remarkably high level of significance (1 percent) of the variable. It in fact reflects the deeper characteristics of FDI flows to the two groups of countries. We noted earlier that the bulk of FDI flows to Africa is destined to the natural resource-intensive primary sector. Other SSA countries have attracted relatively large amounts of FDI in labor-intensive industries such as textiles and apparel. The theory of FDI suggests that the determinants of FDI vary with industry characteristics. Thus, for example, FDI is expected to vary positively with a country's education level in skill-intensive sectors, but negatively in labor-intensive and resource-intensive sectors. Consequently, since GDP per capita is strongly correlated with the skill measure (see endnote 8), the negative sign is probably capturing the effect of skill levels on FDI flows. This otherwise perverse result can then be interpreted as a stylized fact: within sub-Saharan Africa, countries with large natural resource endowments and cheap, semi-skilled labor have attracted bigger shares of FDI.

Second, GDP growth and institutional quality are no longer significant in the SSA sub-sample although both continue to be potent determinants of FDI flows in non-SSA countries. Both the negative sign on the variable *INST* and its lack of significance in equation (1.3) are surprising. Perhaps our index of institutional quality is a poor proxy for the political risk environment in Africa, which is characterized by pervasive military rule, civil wars, and tribal conflicts. On the other hand, the elements of country risk that seem to matter most to foreign investors desirous of investing in Africa are policy risk and transfer risk, both of which remain significant variables in the SSA regression.[14]

The domestic investment ratio is statistically significant for the first time in the SSA sample, while it stays insignificant in the non-SSA sample. However, robustness tests indicate that the result for SSA could be due to interaction between the investment ratio (*INV*) and GDP per capita. In experimental regressions, *INV* is never significant in the absence of GDP per capita, while the latter remains robust to a wide range of specifications. Hence, the evidence relating to the effect of *INV* on FDI in the SSA sub-sample is at best inconclusive. Finally, the size of government, the change in real exchange rate and openness remain significant determinants of FDI in both groups.[15]

IV. SUMMARY AND CONCLUSION

This paper adopts a comparative perspective to investigate whether foreign direct investors are irrationally biased against Sub-Saharan Africa. The results indicate that larger domestic markets, higher average GDP growth, and greater openness are important magnets for FDI flows. On the other hand, larger governments, high levels of transfer risk and policy and political instability deter FDI. A dummy variable for SSA (and its interaction with the explanatory variables in experimental regressions) shows up as statistically insignificant. This finding can be interpreted as preliminary evidence that sub-Saharan Africa has not received lower FDI flows than other countries with similar characteristics. Separate regressions on SSA and non-SSA sub-samples however reveal important variations in the regional determinants of FDI. In SSA, countries with smaller governments and more open trade regimes have attracted larger FDI flows. The proxies for transfer risk and policy instability continue to be significant, but the index of institutional quality is not. These findings have two implications. First, the constructed measure of institutional quality (based on ICRG's "rule of law" and "corruption in government" indices) fails to capture the relevant dimensions of the political risk climate (for example, protection of property rights) prevalent in SSA. Second, the elements of risk that potentially matter most to FDI decision-making are transfer and policy risks. A seemingly paradoxical finding is that FDI flows are negatively associated with real GDP per capita. Since the latter variable is generally highly correlated with traditional measures of skill, the result implies that FDI has flowed to countries abundant in unskilled labor and natural resources.

Hence, the empirical results suggest that the marginalization of sub-Saharan Africa in the global competition for FDI is primarily of its own making, the result of bad policies and a generally inferior investment environment. There is little evidence to support the hypothesis that foreign investors are systematically or irrationally biased against the region. This finding is oddly comforting since it implies that Africa has room to improve the conditions conducive to FDI.

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APPENDIX

Data Sample

The sample excludes all the oil-exporting countries of the Middle East since FDI into the petroleum sector is not governed by the conditions discussed above. For the same reason, Angola, Congo, Gabon and Nigeria are deleted from the African set. Eastern European countries are excluded because of inadequate data. Moreover, since the interest of the study is in developing countries, all countries classified by the United Nations as "developed" (including South Africa) are excluded. Ultimately, the choice of countries in the data sample was dictated by data availability.

The following is a list of countries included in the sample:

African countries		*Non-African countries*		
		Latin America and the Caribbean		Asia and the Pacific
Algeria	Malawi	Argentina	Panama	China
Benin	Mali	Bahamas, The	Paraguay	Fiji
Botswana	Mauritania	Barbados	Peru	Indonesia
Burkina Faso	Mauritius	Belize	Suriname	Korea, Rep.
Burundi	Morocco	Bolivia	Trinidad and	Malaysia
Cameroon	Mozambique	Brazil	Tobago	Papua New Guinea
Cape Verde	Namibia	Chile	Uruguay	Philippines
Central African Rep.	Niger	Colombia	Venezuela	Solomon Islands
Chad	Rwanda	Costa Rica		Thailand
Congo, Dem. Rep.	Senegal	Dominica		Vietnam
Cote d'Ivoire	Seychelles	Dominican Rep.		Bangladesh
Egypt	Sierra Leone	Ecuador		India
Equatorial Guinea	Sudan	El Salvador		Nepal
Ethiopia	Swaziland	Grenada		Pakistan
Gambia, The	Tanzania	Guatemala		Sri Lanka
Ghana	Togo	Guyana		
Guinea	Tunisia	Haiti		
Guinea-Bissau	Uganda	Honduras		
Kenya	Zambia	Jamaica		
Lesotho	Zimbabwe	Mexico		
Madagascar		Nicaragua		

Table A.1: Regional distribution of world FDI flows, 1985-1997 (percent)

Region	1985-1990 (average)	1988	1991	1995	1997
World	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*
Developed regions/countries	82.3	81.2	72.2	63.9	58.2
Western Europe	39.2	36.3	51.4	37.1	28.7
European Union	37.1	34.3	49.6	35.3	27.0
Other Western Europe	2.1	2.0	1.8	1.8	1.7
North America	37.9	39.9	16.1	21.0	24.7
Other developed countries	5.0	5.0	4.8	5.8	4.8
Developing regions	17.6	18.8	27.8	31.9	41.8
Africa	2.0	1.5	1.7	1.6	1.2
North Africa	0.9	0.9	0.6	0.4	0.5
Sub-Saharan Africa (SSA)	1.1	0.6	1.2	1.2	0.7
Latin America and the Caribbean	5.7	7.2	9.7	9.6	14.0
South America	2.7	...	4.3	5.5	9.7
Other Latin America and the Caribbean	3.1	...	5.4	4.2	4.3
Developing Europe	0.0	...	0.1	0.1	0.2
Asia	9.5	9.9	14.6	20.3	21.7
West Asia	0.8	...	1.2	-0.2	0.5
Central Asia	...	...	0.0	0.5	0.7
South, East and Southeast Asia	8.7	...	13.4	20.1	20.6
The Pacific	0.1	0.1	0.2	0.2	0.1
Central and Eastern Europe	0.3	...	1.5	4.3	4.6
Memorandum					
SSA's share of developing countries	6.4	2.9	4.3	3.7	1.7

Source: Computed from *World Development Indicators, 1999.*

Table A.2: Distribution of FDI flows among major African host countries, 1980-1997 (percent of Africa total)*

Country	1985	1990	1994	1995	1996	1997
Africa	*100.00*	*100.00*	*100.00*	*100.00*	*100.00*	*100.00*
North Africa	*50.54*	*55.05*	*41.15*	*26.14*	*23.02*	*33.84*
Egypt, Arab Rep.	41.76	35.63	22.11	12.54	11.36	11.66
Libya	4.23	7.72	1.41	1.89	1.79	2.33
Morocco	0.71	8.01	9.70	6.08	5.55	15.71
Tunisia	3.83	3.69	7.61	5.53	4.25	4.14
Sub-Saharan Africa	*49.46*	*44.95*	*58.85*	*73.86*	*76.98*	*66.16*
Angola	9.86	-16.26	3.00	5.24	5.36	4.58
Botswana	1.90	4.61	-0.25	1.47	1.61	1.31
Cameroon	11.21	-5.49	-0.16	0.15	0.63	0.59
Congo, Dem. Rep.	2.45	-0.58	0.02	0.02	0.04	0.01
Côte d'Ivoire	1.04	2.33	1.37	4.44	3.68	4.28
Equatorial Guinea	0.00	0.53	0.30	2.66	6.71	0.26
Gabon	0.54	3.59	-1.81	-2.37	-1.16	-1.31
Ghana	0.20	0.73	4.10	2.24	2.14	1.70
Kenya	0.64	2.77	0.07	0.68	0.23	0.26
Mauritius	0.29	1.99	0.35	0.39	0.66	0.70
Namibia	0.00	1.41	1.73	2.50	2.72	2.44
Nigeria	16.96	28.54	34.49	22.62	28.45	20.14
Senegal	-0.56	2.77	1.18	0.67	0.80	0.39
Sierra Leone	-1.10	1.55	-0.07	0.02	0.09	0.05
South Africa	...	...	5.88	20.82	13.54	22.58
Swaziland	0.41	1.46	1.00	0.55	0.23	1.00
Tanzania	0.50	0.00	0.88	2.51	2.68	2.07
Uganda	-0.14	0.00	1.55	2.54	2.16	2.36
Zambia	1.83	9.85	1.00	1.40	1.04	0.92
Zimbabwe	0.10	-0.58	0.62	0.84	1.13	0.92

Source: Computed from *World Development Indicators, 1999.*

* Includes only countries that received at least 1 percent of total FDI flows to Africa in any one year during the period 1985-1997.

Table A.3: Descriptive Statistics

Variable	Unit	All countries Mean	All countries S.D.	SSA Mean	SSA S.D.	Non-SSA Mean	Non-SSA S.D.
FDI as a share of GDP (*FDI/GDP*)	Percent	1.3	2.6	0.8	1.9	1.6	3.1
Real GDP (*GDP*)	$ billions	37.7	100.0	3.0	2.6	67.7	133.0
GDP per capita (*GDPPC*)	$	2675	2297	1424	1334	3671	2509
Average GDP growth (*GR3*)	Percent	3.28	3.73	2.8	3.7	3.6	3.8
Domestic investment ratio (*INV*)	Percent	20.8	9.3	18.9	11.6	21.7	6.9
Change in real exchange rate (*ΔRER*)	Percent	6.8	86.9	6.6	33.8	7.4	114.4
Debt-service ratio (*DSX*)	Percent	21.4	15.6	20.4	16.3	21.6	14.8
Size of government (*GSIZE*)	Percent	14.5	6.4	15.2	6.3	13.4	6.1
Secondary school enrollment ratio (*SKILL*)	Percent	40.0	23.2	19.6	14.1	49.1	21.1
Telephone mainlines per thousand population (*INFRA*)	Number	38.8	61.7	8.1	16.4	63.8	74.8
Index of policy instability (*POL*)	Percent	1.5	1.8	2.0	2.2	1.2	1.3
Index of institutional quality (*INST*)	Percent	7.6	5.5	7.7	5.2	7.6	5.7
Openness (*OPEN*)	Percent	70.0	38.9	67.1	37.7	68.0	40.8

Source: Computed from *World Development Indicators 1999*, and *International Country Risk Guide* (various issues)

Note: S.D. = Standard deviation

ENDNOTES

[1] In other words, the lagged growth rate is treated as an exogenous variable.
[2] Note that this variable may also be capturing some element of exchange-rate risk.
[3] For instance, in a survey of investors' attitudes toward investing in Africa, political stability rated highest, with 75 percent of the respondents claiming it to be "extremely important," followed by policy stability (Africa Competitiveness Report 1998, pp. 38-40).
[4] Brewer (1985) demonstrates that regime changes are closely associated with fiscal policy deviations from trends. He refers to bureaucratic models of politics to argue that government agencies' policies are marked by a high degree of inertia, and are unlikely to change except as a result of substantial shocks, such as regime shifts. He, therefore, suggests that deviations of indicators of fiscal policy (for example, government spending) from their trends can be used as a measure of government policy risk.
[5] For example, a coup that brings to power a military regime is likely to be reflected in spikes in government expenditure.
[6] In Elbadawi and Mwega (1998), for example, revolutions and civil war variables are only weakly significant for sub-Saharan Africa and statistically insignificant for all other regions.
[7] Barro's (1991) data set on revolutions and coups, and assassinations covers only the period 1960-88. Existing Gastil indices for civil liberties and political freedom are averages for the period 1973-86. Data on workdays lost reported in ILO's *Yearbook of Labor Statistics* are generally incomplete. In addition, the data potentially suffer from a selection bias since major disruptions to economic activity are unlikely to be reported.
[8] In the complete sample, the correlation between *INFRA* and *GDPPC* is 0.83; the correlation between *SKILL* and *GDPPC* is 0.70.
[9] The finding is, however, in line with Edwards (1990).
[10] The significance of real GDP and GDP growth confirms this motive.
[11] GLS adjusts the standard errors for clustering on country.
[12] One notable difference between the two sets of results is that real GDP (measure of domestic market size) is no longer significant in equation (1.2).
[13] In experimental regressions, this result remained robust to the inclusion of interactive variables (that is, the African dummy interacted with the regressors).
[14] Note that the debt service ratio is not significant in the non-SSA sample.
[15] Government size in the SSA regression and change in real exchange rate in the non-SSA regression are significant at the 15 percent level.