

TRADE OPENNESS AND FOREIGN DIRECT INVESTMENT IN AFRICA¹

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Abstract

Africa's global share of foreign direct investment (FDI) has lagged behind other regions in the world, despite the sharp increase in FDI inflows to the region in 2001. Factors contributing to this circumstance include perception of high corruption, weak governance, poor infrastructure, among others. The motivation of this paper is to investigate the impact of openness to trade on the FDI inflow to Africa. Specifically, in addition to economy wide trade openness, we analyse the impact on FDI of openness in manufactured goods, primary commodities and services. The empirical work is conducted using cross-country data comprising of African countries observed over four periods: 1980-1985, 1985-1990, 1990-1995 and 1995-2001. We find that FDI to GDP ratio responds well to increased openness in the whole economy and in the services sector in particular.

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1. INTRODUCTION

According to the World Investment Report 2002, Africa's share of total foreign direct investment (FDI) increased from \$9 billion in 2000 to \$17 billion in 2001. This escalation in FDI flows was primarily due to a rise in FDI to South Africa and Morocco. In the global context, the share of FDI to Africa in world FDI inflows rose from 1 percent in 2000 to 2 percent in 2001 (UNCTAD, 2002). Factors contributing to this lag in FDI flows to Africa relative to the world include perception of high corruption, weak governance, poor infrastructure, among others. Nonetheless, resource rich countries, for example, Algeria, Angola, Egypt, South Africa, and Nigeria continue to attract FDI.² In addition to resource endowments, economic reform has also contributed to Mozambique, Tanzania, Botswana, Morocco and Uganda becoming attractive FDI destinations (Basu and Srinivasan, 2002). Economic theory suggests that foreign savings can be beneficial in many ways. FDI inflows stimulate capital accumulation by adding to domestic savings and raising the recipient economy's efficiency (e.g., through improving resource allocation, instilling competition, improving human capital, deepening domestic financial markets and reducing local capital costs) (Todaro, 2000, p.582). All these factors contribute to economic growth. In this regard, FDI is without a doubt a major source of investment for Africa.

The motivation of this paper is to investigate the impact of openness to trade on the flow of FDI into Africa. Specifically, in addition to economy wide trade openness, we analyse the impact on FDI of openness in manufactured goods, primary commodities and services. We adhere to the notion that markets that are more open are likely to create significant economic welfare gains through more efficient allocation of resources (static

² Even though Angola is considered politically unstable, the high returns from oil have attracted FDI flows.

gains). With efficient use of resources, dynamic gains are expected in the longer term with enhanced investment, productivity and growth. This economically conducive environment is likely to be a magnet for foreign businesses, causing FDI inflows to increase (Kumar, 2002, p.33). Could this premise hold in the case of Africa? Asiedu (2002) concludes that openness in a selected number of African countries promotes FDI. Our study differs from Asiedu in four ways: (i) our study covers more countries in Africa; our data is observed over four periods, 1980-1985, 1985-1990, 1990-1995 and 1995-2001, giving a larger coverage; (ii) in addition to economy wide openness, we control for openness in the primary, manufacturing and service sectors; and we control for the most common problems in cross country studies namely, individual country effects and endogeneity.

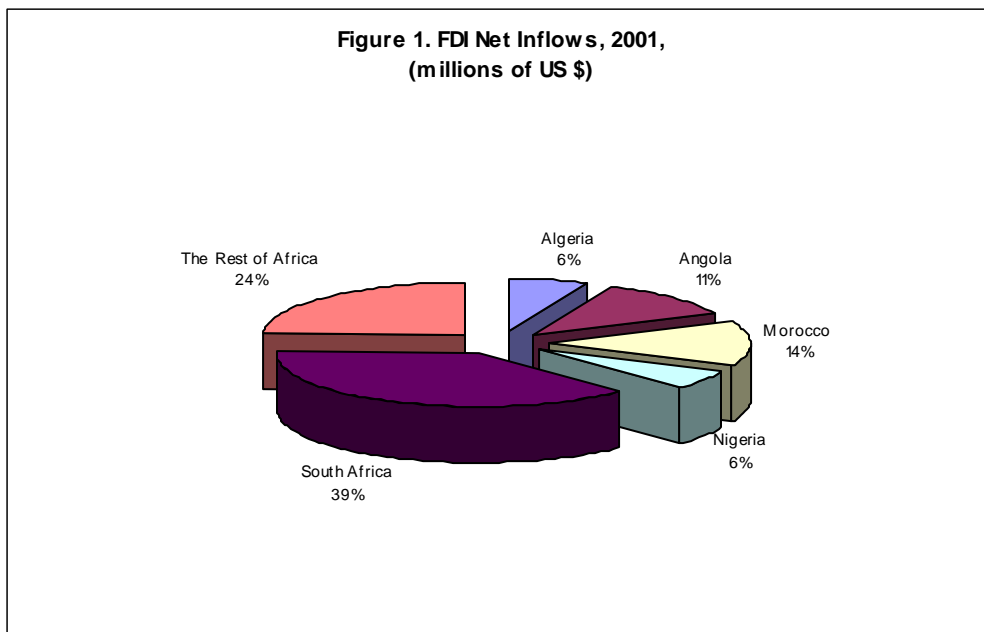
The paper is divided into 5 sections: section 2 gives a background on FDI and trade liberalization issues in Africa; sections 3 discusses some measurement issues and defines variables; section 4 presents the specification of the regression model and results; and section 5 offers suggestions on the way forward and concludes.

2. A BACKGROUND: FDI AND OPENNESS TO TRADE

There are several reasons why foreign firms choose to invest away from their home country. Dunning (1993) points to rent seeking, market seeking, efficiency seeking and strategic-asset as factors of motivation for FDI from most industrialized countries. The rent-seeking motive involves foreign firms seeking cheaper factors of production and inputs of production such as primary products. Market seeking FDI ideally involves foreign firms exporting or opening new markets in host countries in order to boost their sales. This is also another way for firms to go around trade restrictions such as high

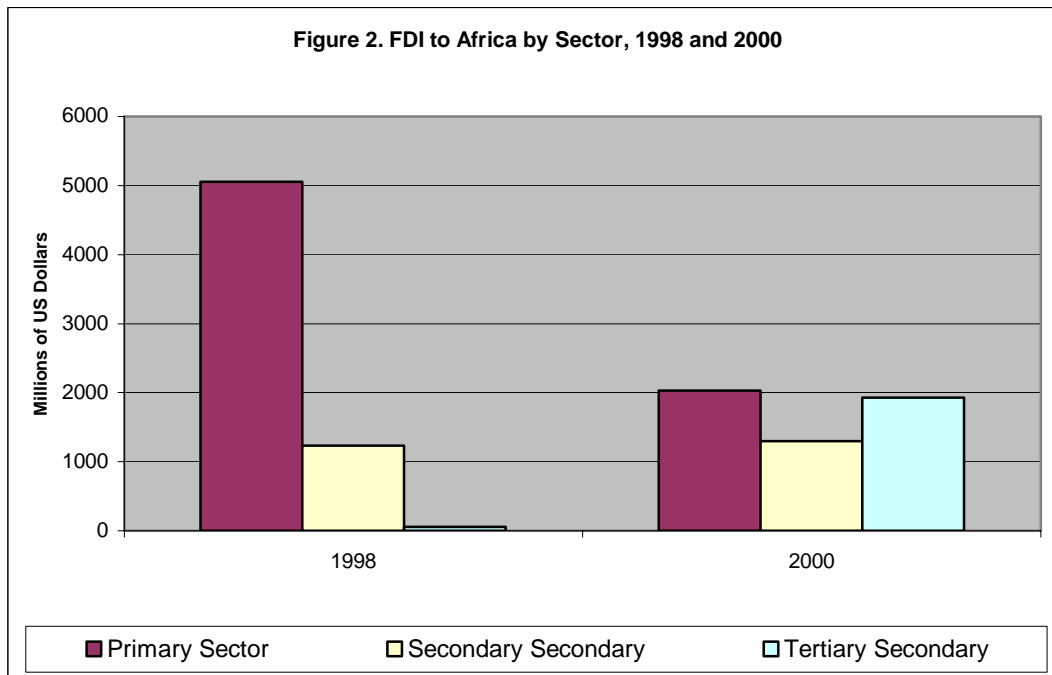
transport costs and rules of origin. Efficiency seeking firms aim at using a few countries to serve larger market. The key factors in this category of FDI motive are location, resource endowments and government regulation. The last motive, strategic-asset, is more concerned with maintaining the foreign firms' international position and competitiveness.

FDI inflows in our sample of Sub-Saharan and North African countries increased from \$9 billion in 2000 to \$18.5 billion in 2001 (Appendix Table 1). These figures are still considered marginal given that the total FDI inflow to the world amounted to \$735 billion in 2001. The net FDI inflows to Africa are concentrated in South Africa, Morocco, Angola and Nigeria with South Africa having the largest share (39 percent) of total FDI inflow in the region (Figure 1). Traditionally most of the FDI to Africa has been in the primary sector, particularly oil and minerals extraction business, but FDI inflows in this sector declined from \$5,056 million in 1998 to \$2,029 in 2000. In recent years the service sector is also becoming important in terms of attracting FDI flows.



Source: Author's calculations based on data from World Development Indicators, 2002

The new pattern is that foreign services are being transferred through FDI (Markusen, Rutherford and Tarr, 2000). FDI inflows to the service sector are mainly in telecommunications, banking and finance, transport, wholesale and retail trade, business and legal services. FDI to the tertiary sector rose from \$52 million to \$1,931 million from 1998 to 2000 (Figure 2).



Source: Authors calculations based on data from World Investment Report, 2002

The manufacturing sector is also important in terms of attracting FDI . However, FDI rose by a very small margin between 1998 and 2000 (\$1,233 to \$1,297 million).

Turning to Openness, mineral rich countries such as Equatorial Guinea, Congo Republic, Sao Tome, as well as small economies, for example, Swaziland, Seychelles, Lesotho and Mauritius are ranked as the most open economies in Africa using our measure of openness (see Table 1). The two most popular FDI destinations, South Africa and Morocco, are ranked 27 and 22 out of 38 countries, respectively. Can more openness to trade in this selection of Africa countries attract more FDI?

Since the 1980s, most African countries liberalized unilaterally through the structural adjustment programs, as well as through bilateral arrangements and multilateral systems such as the World Trade Organization (WTO). Although trade in Africa has been marginalized in the last two decades, in the last 10 years trade in services has increased substantially. Currently, trade in services makes up a quarter of all cross-border trade and a significant portion of all sales by multinational firms (Hoekman and Mattoo, 2000). However, barriers to trade in the service sector remain an obstacle in the promotion of FDI.

Table 1. Openness to Trade and Ranking in Africa, 1995-2001

Country	Openness	Rank	Country	Openness	Rank
Equatorial Guinea	173	1	Malawi	63	21
Swaziland	173	1	Kenya	63	21
Seychelles	153	2	Guinea-Bissau	63	21
Lesotho	129	3	Comoros	63	21
Mauritius	129	3	Morocco	62	22
Congo, Rep.	123	4	Madagascar	56	23
Angola	119	5	Algeria	55	24
Sao Tome and Principe	118	6	Mozambique	55	24
Gambia, The	115	7	Congo, Dem. Rep.	53	25
Eritrea	112	8	Chad	53	25
Namibia	107	9	Cameroon	51	26
Djibouti	103	10	Guinea	50	27
Gabon	100	11	South Africa	50	27
Mauritania	96	12	Benin	47	28
Tunisia	89	13	Tanzania	44	29
Ghana	89	13	Egypt, Arab Rep.	43	30
Cote d'Ivoire	84	14	Sierra Leone	42	31
Nigeria	82	15	Burkina Faso	41	32
Botswana	79	16	Ethiopia	41	32
Togo	79	16	Uganda	40	33
Cape Verde	78	17	Niger	39	34
Zambia	73	18	Central African Republic	36	35
Zimbabwe	70	19	Rwanda	31	36
Senegal	70	19	Burundi	28	37
Mali	64	20	Sudan	27	38

Source: Author's calculation based on data from World Development Indicators

Due to this high protection in the services sector, gains from further liberalization are expected to be high (Hodge, 2002, p.221). As a precondition, liberalization in the service sector should be accompanied by effective regulation to ascertain that market failures and infrastructure are addressed. In the manufacturing sector, trade barriers such as transportation costs and rules of origin could encourage more foreign firms to set up their subsidiaries in Africa, through the motivation of “protection jumping”. This motivation is likely to increase domestic sales but may adversely affect the depth of their production activities (Kumar, 2002, p.33). Lowering barriers to trade, in particular the service sector, is expected to increase FDI to Africa.

3. MEASUREMENT ISSUES AND DATA DEFINITION

Measurement issues are potentially a problem for all analytical work, but it is especially acute for openness variables. Since it still appears to be difficult to find reliable systematic data on trade policies across countries, many papers, including Dollar and Kraay (2001), have instead simply included trade volumes (exports plus imports as a share of GDP) as a measure of openness. For this particular purpose of looking at the impact of openness in different sectors on FDI, we also adhere to this imperfect measure.³ We use the economy wide international trade taxes data to check if our economy wide openness variable is robust.

Data Definition

Foreign Direct Investment (FDI): The net inflows of investment to acquire a lasting management interest (10 percent or more of voting stock). A business enterprise

³ See Kandiero and Wadhawan (2003) for a detailed discussion on openness to trade and measurement.

operating in a country other than of the investor. *Data source:* World Development Indicators, 2002.

Openness to Trade: Trade ((imports + exports)/ GDP) in the whole economy and three sectors separately (primary, manufacturing and services). *Data Source:* World Development Indicators, 2002.

Taxes on International Trade: Import duties, export duties, profits of export or import monopolies, exchange profits and exchange taxes. *Data Source:* World Development Indicators, 2002.

Investment Tax: Taxes on income, profits and capital gains (% of total taxes). World Development Indicators, 2002.

Infrastructure (Roads): Road 1000 KM/1 million inhabitants. *Data Source:* World Development Indicators, 2002.

Wages: Real wages and salaries in millions. *Data Source:* World Development indicators, 2002.

Real Effective Exchange Rate (REER): The measure of the value of currency against a weighted average of several foreign currencies divided by a price deflator or index of cost. *Data Source:* World Development Indicators, 2002.

Market Size: Market size is measured Gross Domestic Product (GDP) per capita Purchasing Power Parity (PPP) adjusted. The sum of the gross value added by all resident and non-resident producers in the economy plus any taxes and minus any subsidies not included in the value of the products. GDP is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Value added is the net output of a sector after adding up all outputs. The industrial origin of value added is determined by the International Standard Industrial Classification

(ISIC). The Gross Domestic Product is converted to international dollars using the purchasing power parity rates. GDP per capita is Gross Domestic Product divided by midyear population. Growth rates are calculated as annual averages and represented as percentages.

Corruption: This variable represents the degree of corruption in government. Corruption is defined as demands for special payments and bribes in connection with import and export licenses, exchange controls, tax assessment, or loans. Data range is from 0 to 6, with 0 being the highest corruption and 6 the lowest corruption. *Data Source:* The International Country Risk Guide (ICRG), a monthly publication by the Political Risk Services.

4. SPECIFICATION OF THE MODEL ESTIMATION AND RESULTS

The study adopts the econometric methodology followed by many cross-country studies such as Barro (1991). The empirical work is applied to a panel of 51 African countries observed over four periods: 1980-1985, 1985-1990, 1990 –1995, and 1995-2001. The use of panel data makes it possible for meaningful empirical research to be carried out even in a case of data limitation in terms of time frame and missing data. In addition, the advantage of dividing the data into sub-periods is to smooth out business cycle effects. Further, the time-dimension of the panel is fairly small in comparison to the number of countries, which helps to avoid some of the complications that may arise in time series data.

We estimate the following equations:

$$F_{it} = \beta_1 + \beta_2 \eta_{it} + \beta_3 X_{it} + e_{it} \dots \dots \dots (1)$$

$$F_{it} = \beta_1 + \beta_2 \eta_{it} + \beta_3 X_{it} + \pi_{it} + z_{it} \dots \dots \dots (2)$$

where, F_{it} = FDI in the i^{th} country and t time periods

η_{it} = measures of openness (where i is economy wide openness, openness in the manufacturing sector, openness in the services sector and openness in the primary sector).

e_{it} and z_{it} = error terms

π_{it} = country special effects

X_{it} = a vector of other determinants of FDI (Real Effective Exchange Rate, Taxes on Investment, Market Size, Corruption and Wages).

In our estimation we start with a simple pooling method that employs OLS estimation technique (equation 1). In this model, we do not take into consideration π_{it} , unobservable country special effects, which are time invariant and account for any country-specific effects not included in X (equations 2). A rejection of the poolability test (F-test) will imply preference of the Fixed Effects method. Taking into consideration that many African countries have very short time span of data and endogeneity issues, potential problems in cross-country analysis, then the Fixed Effects approach may yield unbiased results.⁴ In order to avoid the potential bias associated with this approach, we use the one-step generalised method of moments (GMM) estimator derived by Arellano and Bond (1991). The one-step GMM robust results are derived from the use of first-differences to remove the fixed effects part of the error term and instrumental variable estimation, where the instruments are the lagged explanatory variables (in differences) and the dependent variable in level lagged twice.⁵

⁴ See Caselli, Esquivel and Leffort (1996) for a detailed discussion on endogeneity.

⁵ This methodology was first suggested by Anderson and Hsiao (1981) and later developed further by Arellano and Bond (1991).

Econometric Results and Analysis

Table 2 gives the econometric results of our model through various estimation techniques. Having discussed the various econometric issues that ought to be taken into consideration, we now have a good idea on which results are consistent and unbiased. The Wald Joint test shown in Table 2, tests the significance of all the variables except the constant term. This could be the equivalence of the F-test. The Fixed Effects, GMM1 and GMM2 models are significant at five percent significance level, while GMM3, GMM4 and GMM5 are significant at one percent level. The absence of first and second order autocorrelation in the Fixed Effects and GMM model residuals imply that the estimates are consistent. From the actual results, the GMM estimation results are our preferred choice as the estimations yield superior results. In our first two models, OLS and Fixed Effects, economy wide openness coefficient is statistically significant at 1 percent level. The rejection of the poolability test in the OLS model reveals the presence of fixed effects. Controlling for fixed effect, however, does not yield better results. This could mean that other problems, for example, endogeneity could be present in this cross countries analysis. The GMM1 estimates yield better results than the previous models, with a statistically significant coefficient of magnitude 0.0520 (Table 2 and Table 3). An increase in the economy wide openness by 10 percent will increase FDI to GDP ratio by 13 percent. This supports the argument that an efficient environment that comes with more openness to trade is likely to attract foreign firms. This conclusion is also supported by Asiedu (2002), Edwards (1990), Singh and Juan (1995) and others. In this model, investment tax and wages have a negative impact on FDI, while infrastructure and market

Table 2: Regression Results, 1980- 2001
Dependent Variable FDI to GDP

	OLS	Fixed Effects	GMM1	GMM2	GMM3	GMM4	GMM5
Constant	-0.6512		7.684	4.350	29.3013	29.3860	34.1322
Openness	0.0363* (0.0088)	0.0354 * (0.0042)	0.0520* (0.0161)				
Openness (Services)				0.1161* (0.0478)			
Openness (Manufacturing)					0.0098 (0.0353)		
Openness (Primary)						-0.0586* (0.0059)	
Trade Tax							-0.1142* (0.0492)
Tax on Investment	-0.1198* (0.0343)	0.0113 (0.0310)	-0.0417* (0.0141)	-0.02593** (0.01302)	-0.0595* (0.0115)	-0.0867* (0.0159)	-0.1198* (0.034)
Log REER	-5.683*** (3.355)	-3.731 (2.915)	-2.8160 (2.111)	-2.0855*** (1.206)	-5.3271 (3.802)	-5.9469* (2.040)	-5.6826*** (3.355)
Log Road	1.3908* (0.3303)	0.1708 (0.2548)	0.3191** (0.1871)	0.2351 (0.2787)	0.8953 * (0.2953)	1.2915* (0.3732)	1.3901* (0.3303)
Wages	-0.00014 (0.0001)	-0.0003 (0.0003)	-0.000045 (0.0002)	-0.0001* (0.0003)	0.0006** (0.0002)	0.0006* (0.0002)	-0.0001 (0.0001)
Market Size	-0.0426 (0.1942)	-0.1075 (0.4439)	0.5517 * (0.1312)	0.5451* (0.09297)	-0.4654* (0.1952)	-0.1370 (0.1261)	-0.0426 (0.19422)
Corruption	-0.2158 (0.2410)	0.0341 (0.3776)	-0.1301 (0.2043)	0.08165 (0.2947)	0.4117* (0.159)	0.5142* (0.1193)	-0.2159 (-0.2410)
Number of Observations	204	204	204	204	204	204	204
Wald Joint		633.3[0000]**	4784[0.000] **	194 [0.000] **	557 [0000]*	17.37 [0.015] *	537[0.000]*
Wald dummy		348.5[0.000]**	.8627 [0.353]	0.825 [0.364]	2.479 [0.115]	8.261 [0.004] **	3.568 [0.059]
AR 1 Test		-0.6562[0.512]	-0.8493[0.396]	-1.407 [0.159]	1.026 [0.305]		-1.269 [0.204]
AR 2 Test		0.8388[4.02]	0.6085[0.543]	1.398 [0.162]	-0.2454 [0.806]		1.378 [0.168]

Note :Notes to Table 2:

1. * 1% significance level, **5% significance level, *** 10% significance level
2. The four periods of estimation are 1980-85, 1985-90, 1990-95, 1995-2001.
3. Pooling Test: F(6,44)=3.843[0.004]
4. in OLS DW =1.96

size have a significantly positive impact on FDI. Generally, only in the case of export oriented FDI, cheap labour in terms of lower wages works as an incentive (Wheeler and Mody, 1992). The GMM2 model replaces the economy wide openness with openness in the service sector variable. The positive coefficient, 0.1161, is also significant at 1 percent level. From Table 3, an increase in openness in the service sector by 10 will increase FDI to GDP ratio by 7 percent. From our discussion in the previous sections, the figures indicate that there has been an increase in FDI to the service sector. FDI for supplying services is regarded as commercial presence or Mode 3 (Hodge, 2002). Although this has been the case, the sector has more barriers to trade compared with other sectors such as primary and manufacturing. Therefore, more liberalization in the service sector is likely to yield significant gains in terms of attracting FDI. In this model, exchange rate appreciation and investment tax, have a significantly negative impact on FDI, while market size has maintained a positive coefficient. In GMM3, more openness in the manufacturing sector does not seem to have any significant impact on the FDI to GDP ratio. One of the explanations for this result could be that most of barriers to trade affecting FDI in the manufacturing sector seem to have been phased out (Newfarmer, 2003).

Table 3. Openness Elasticities

Openness Variables	Mean	GMM1	GMM1 Elasticity	GMM2	GMM2 Elasticity	GMM4	GMM4 Elasticity	GMM5	GMM5 Elasticity
Openness	77.308	0.0520	1.30652						
Openness Services	19.773			0.1161	0.7461				
Openness Primary	3.7692					-0.0586	-0.07178		
Trade Tax	24.692							-0.1142	-0.9165

In this regard, more openness in this sector may not have a major impact. In this model variables such as corruption, wages, infrastructure, investment tax are also important. A study by Wei (2000) supports this argument that less corruption may attract FDI. In the GMM4 model, primary sector openness is statistically significant at 1 percent level but has a negative coefficient, -0.0586 . An increase in openness in the primary sector by 10 percent will reduce FDI by 0.7 percent. The pattern of data in the previous sections shows that while FDI to the service sector has increased, there has been a decrease in FDI to the primary sector. It is possible that efficiency gains and increased investments from increased openness in sectors such as services may enable a country to support some of the activities in the primary sectors, reducing some of the investments by foreign firms. In this model investment tax and real effective exchange rate are statistically significant at 1 percent level and negatively associated with FDI to GDP, while an increase in wages is also statistically significant, but has a positive association. An improvement in the corruption index by 1 will increase FDI to GDP by 60 percent.

In GMM5 model we use the international trade tax variable to check the robustness of our economy wide openness variable. This is because these taxes are also considered as an indicator of openness. The results in Tables 2 and 3 indicate that a reduction in trade taxes by 10 percent will increase FDI to GDP ratio by 9 percent. Loree and Guisinger (1995) also find a negative relationship between trade taxed and FDI. The elasticity of the economy wide variable is 13 percent, indicating that the two variables are consistent. Based on the regression results therefore, increased openness to trade will increase FDI to GDP ratio in African countries.

5. CONCLUSION AND THE WAY FORWARD

FDI to Africa is affected by many factors including investment taxes, corruption, wages, etc. The principal goal of this study was to investigate the impact of openness to trade in the whole economy as well as different sectors. FDI to GDP ratio responded well to increased openness in the whole economy and services sector, in particular. Further reduction in tariff and non-tariff barriers such as licensing or cumbersome procedures will increase FDI.

Increased market access in the area of services is high on Africa's agenda. Due to high protection in the services sector, gains from further liberalization are expected to be high. In the financial sector, countries such as Egypt, Lesotho, South Africa, Nigeria, among others are considered more open compared to countries such as Angola, Tunisia, and Benin (Mattoo, Rathindran and Subramanian, 2001). A sound financial system will attract more foreign banks, leading to more foreign direct investment. Further, liberalization in sectors such as telecommunications has been gradual but promising. The same study by Mattoo, Rathindran and Subramanian, shows that Ghana is one of the few countries in Africa with relatively high liberal telecommunication policies. However, the region has already incurred most of the adjustment costs in this sector, meaning that in the future the liberalization process in the telecommunications sectors is likely to be at a much faster pace. However, liberalization in services sector should be accompanied by effective regulation to ascertain that issues related to market failure and infrastructure are addressed. In Southern Africa, to date, only South Africa, Tanzania, Zambia and Zimbabwe have competition policies and institutions to support further liberalization in the services sector (Hartzenberg, 2002). In financial services, appropriate sequencing,

timing, and supervision of financial institutions is necessary to avoid any financial crisis from occurring. Appropriate disclosure, better corporate governance mechanisms and harmonized international codes and standards will maintain a sound financial system (Adlung *et al*, 2002, p.272).

In addition to regulation, the issue of temporary movement of natural persons (Mode 4) in the services industry should also be taken into great consideration. Currently, movement of labour in sectors such as construction, where most Africa countries have a comparative advantage, is blocked by cumbersome visa processes and precarious contracts. Movement of labour should also be encouraged to attract more skilled workers. The removal of these barriers is likely to increase competitiveness in the services sector.

For Africa to catch up with the rest of the developing countries in attracting FDI, more openness is one avenue. Even though the service sector seems to increase FDI to GDP ratio more than the primary and manufacturing sector, the economy wide openness measures give us the best results. In addition to openness other factors such as investment tax, wages, infrastructure, institutional framework and regulation should also be taken into consideration, in order for the Africa region to attract more FDI.

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APPENDIX A

Table 1. Foreign Direct Investment to Africa, 1990-2001
(US\$ millions)

Foreign direct investment, Net inflows (BoP, current US\$) (mill)	1990	1995	2000	2001	2000 % of Total	2001 % of Total
Algeria	0	0	438	1,196	5	6
Angola	-335	472	879	2,146	10	12
Benin	62	7	64	131	1	1
Botswana	96	70	57	57	1	0
Burkina Faso	0	10	23	26	0	0
Burundi	1	2	12	0	0	0
Cameroon	-113	7	31	75	0	0
Cape Verde	0	26	21	1	0	0
Central African Republic	1	3	5	8	0	0
Chad	9	13	15	80	0	0
Comoros	0	1	1	2	0	0
Congo, Dem. Rep.	-15	-22	23	32	0	0
Congo, Rep.	7	-60	-75	59	-1	0
Cote d'Ivoire	48	212	235	246	3	1
Djibouti	0	3	3	3	0	0
Egypt, Arab Rep.	734	598	1,235	510	14	3
Equatorial Guinea	11	127	120	88	1	0
Eritrea	..	0	35	34	0	0
Ethiopia	12	14	135	20	2	0
Gabon	74	-315	252	200	3	1
Gambia, The	0	8	44	36	1	0
Ghana	15	107	110	89	1	0
Guinea	18	1	10	2	0	0
Guinea-Bissau	2	0	23	30	0	0
Kenya	57	33	111	5	1	0
Lesotho	17	275	118	117	1	1
Liberia	0	0	12	13	0	0
Libya	..	..	..	..	..	..
Madagascar	22	10	83	11	1	0
Malawi	23	25	45	58	1	0
Mali	6	111	106	103	1	1
Mauritania	7	7	9	30	0	0
Mauritius	41	19	266	-48	3	0
Morocco	165	438	201	2,658	2	14
Mozambique	9	45	139	480	2	3
Namibia	..	..	..	..	..	..
Niger	41	7	19	13	0	0
Nigeria	588	1,079	930	1,104	11	6
Rwanda	8	2	8	5	0	0
Sao Tome and Principe	0	0	2	6	0	0
Senegal	57	32	88	126	1	1
Seychelles	20	46	25	59	0	0

Sierra Leone	32	-2	5	4	0	0
Somalia	6	1	0	0	0	0
South Africa	..	1,248	969	7,162	11	39
Sudan	0	0	392	574	5	3
Swaziland	30	52	35	21	0	0
Tanzania	0	120	194	224	2	1
Togo	18	26	42	67	0	0
Tunisia	76	264	752	457	9	2
Uganda	0	121	161	145	2	1
Zambia	203	97	122	72	1	0
Zimbabwe	-12	118	23	5	0	0
Total	2041	5458	8553	18542	100	100

Source: World Development Indicators, 2002.

Table 2. Correlation Matrix

	FDIGDP	OPENMAN	OPENSEV	OPENPRI	OPENECON	OPENTAX	WAGES	TAXINV	CORR	LREER	LMSIZE2	LROAD
FDIGDP	1.0000	-0.059970	0.66714	-0.068220	0.64864	-0.31427	0.018528	-0.2497	0.1887	-0.1195	-0.16862	0.15428
OPENMAN	-0.059970	1.0000	-0.26605	0.73530	-0.00557	0.041289	-0.24926	-0.106	0.7279	0.36542	0.20482	0.35187
OPENSEV	0.66714	-0.26605	1.0000	-0.42758	0.91335	-0.11751	-0.24906	0.47181	-0.0509	0.07078	-0.54638	0.0843
OPENPRI	-0.068220	0.73530	-0.42758	1.0000	-0.27487	-0.21884	-0.12914	0.13444	0.6085	0.26184	0.08828	0.30555
OPENECON	0.64864	-0.00557	0.91335	-0.27487	1.0000	-0.14187	-0.33747	-0.3252	0.1689	0.08872	-0.40641	0.40424
OPENTAX	-0.31427	0.041289	-0.11751	-0.21884	-0.14187	1.0000	-0.04794	-0.4520	0.0094	0.10611	-0.27983	0.0243
WAGES	0.018528	-0.24926	-0.24906	-0.12914	-0.33747	-0.047944	1.0000	0.40559	-0.4057	-0.38793	0.45988	-0.0335
TAXINV	-0.24971	-0.10639	-0.47181	0.13444	-0.32522	-0.45207	0.40559	1.0000	-0.0720	-0.39153	0.67180	0.26451
CORR	0.18876	0.72796	-0.05099	0.60854	0.16896	0.0094794	-0.40572	-0.0720	1.0000	0.06213	0.19911	0.31361
LREER	-0.11952	0.36542	0.070780	0.26184	0.088729	0.10611	-0.38793	-0.3915	0.0621	1.0000	-0.39779	0.19105
LMSIZE2	-0.16862	0.20482	-0.54638	0.088283	-0.40641	-0.27983	0.45988	0.67180	0.1991	-0.39779	1.0000	-0.0502
LROAD	0.15428	0.35187	0.084356	0.30555	0.40424	0.024368	-0.0335	0.26451	0.3136	0.19105	-0.05021	1.0000