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Abstract

Using investment-level data, we study the location choice of 8,283 greenfield investments in 44 African countries over the 2003-2017 period, focusing on the role of International Investment Agreements. We document a positive relation between the existence of these agreements and the location of FDI into African countries. This overall effect appears to be driven by investments in Services and in Construction and Electricity, while no effect appears to exist for Extraction investments.

Keywords: Foreign Direct Investment; Location Choice; Africa; Conditional Logit

Word count: 2158

1 Introduction

Foreign Direct Investments (FDI) in Africa have increased by 15 times from 1990 to 2017. Their growth is parallel to the one of International Investment Agreements (IIAs) aiming to encourage flows of FDI into low-income countries: according to the UNCTAD Investment Policy Hub dataset, 520 Bilateral Investment Treaties (BIT) and 47 Treaties with Investment Provisions (TIP), are in force in Africa, accounting for approximately 25% of the IIAs worldwide. Considering that location determinants into Africa may be "different" (Asiedu, 2002) and that FDI in Africa still account for less than 3% of global flows, it is important to study whether and to what extent these agreements contribute to the inflow of FDI into Africa.

Most IIAs are BIT, legally binding agreements between two sovereign states regarding the promotion and protection of FDI. In developing countries, where scarcely effective institutions cause credibility problems, BIT can signal a country's trustworthiness and protect investors against expropriation and unfair treatment (Kerner, 2009).

Evidence on the impact of these agreements on FDI flows is ambiguous. Most studies find a positive relationship between BIT and FDI (e.g. Neumayer and Spess, 2005; Kerner, 2009; Falvey and Foster-McGregor, 2018), while others do not (Hallward-Driemeier, 2003; Tobin and Rose-Ackerman, 2005; Sauvant and Sachs, 2009). As to Africa, Sichei and Kinyondo (2012) and Lejour and Salfi (2015) find no robust effect of BIT on FDI stocks from OECD countries while Bankole and Adewuyi (2013) show that BIT have a strongly positive impact on both FDI flows and stocks in the ECOWAS region. Colen et al. (2016) adopt a sectoral perspective to show that BIT are most effective in attracting FDI in sectors with a greater risk of expropriation, i.e. with high sunk costs and/or more politically sensitive to foreign ownership. Such a disaggregated analysis is, at present, missing for Africa.

The aim of this paper is to fill this gap. To study the heterogeneity in the effectiveness of IIAs in attracting FDI, we use detailed greenfield investment-level data from the fDI Markets database which include information on the kind of activity (e.g. manufacturing, services, extraction, R&D) the MNE performs in the host country. We will hereinafter refer to these activities as "functions". Investment data are merged with UNCTAD data on BIT and TIP drawn from the UNCTAD Investment Policy Hub dataset (`investmentpolicyhub.unctad.org`), and with standard investment location determinants retrieved from the World Bank Development and Governance Indicators databases and from the CEPII CHELEM database.

2 Empirical Application

We study location choice via conditional logit models (Train, 2009). Investment n from country o locates in African country i at time t if the observed component of the (linear) utility yielded by locating in i exceeds that of locating in all other African countries $j \neq i$. The resulting choice probability is:

$$P_{nit} = P(Choice_{nit} = 1|x, y) = \frac{e^{\alpha' x_{it} + \beta' y_{oit}}}{\sum_j e^{\alpha' x_{jt} + \beta' y_{ojt}}}$$

where x_{jt} and y_{ojt} are vectors of variables varying by time, destination and origin-destination; the model controls for investor fixed effects. α and β are parameter vectors to be estimated.

We consider 8,283 greenfield FDI locating into 44 African countries from 116 origin countries worldwide over the 2003-2017 period. Of these, 3,599 investments are in Services activities (i.e., business services, such as primarily financial services, and sales offices), 1,833 in Manufacturing, 596 in Construction and Electricity, 418 in Extraction and the rest in other activities. Our binary dependent variable *Choice* equals 1 if investment n locates in country i and zero otherwise. Our variables of interest are two dummies, *BIT* and *TIP*. *BIT* (*TIP*) is equal to 1 if, in year t, a bilateral investment agreement (treaty with investment provision) is not only signed but also in force (as recommended in UNCTAD, 2014) between country i and the source country o of the investment, and zero otherwise. We also control for standard factors affecting the utility of potential locations (see Table 1): natural resources availability (proxied by ores and fuel exports as a share of total exports at the beginning of the sample period 2002), labour availability and qualification (urban population share and primary school enrolment), market size and its growth (log population and GDP growth), openness to FDI (trade openness), agglomeration economies (FDI stocks in 2002). We also add a set of bilateral determinants: institutional distance (measured as dyadic difference between the rule of law indices of home and destination country), the log of geographic distance, common language and colonial tie. Finally, we add a dummy for South Africa, given its peculiar economic and institutional setting and the fact that it attracts about 22% of the investments in our sample. We allow for non-linear effects of ores and fuel exports, urban population share and FDI stocks. All time-variant regressors are lagged one year to mitigate simultaneity problems. The use of a wide array of location-specific and dyadic regressors reduces the risk of omitted variable bias.

African countries vary considerably in their participation in BIT and TIP. North-

ern African countries are involved in the largest number of BIT. Sub-Saharan African countries rely more on TIP. In bilateral terms, a 23% of the potential choices in our sample are tied by a BIT and 64% by at least one TIP; only 17% of them are involved in both. In turn, overlap between the pairs involved in BIT and in TIP is limited, thereby suggesting that the two may serve similar purposes.

3 Results

Results (see Table 1) are in line with expectations. Column (1) reports the "control-only" specification estimates. The coefficients have the expected signs, an exception being the negative coefficient of fuel exports, attributable to the presence of a few very large exporters.

Next, we augment the basic specification with our variables of interest, *BIT* and *TIP* (Columns 2 and 3). Their coefficients result positive and significant, implying that the choice of a destination country is 1.10 times more likely if the partners are involved in a BIT and 1.66 times more likely by a TIP. When included jointly (Column 4), the two coefficients and their significance remain unaffected. These results support the argument that BIT and TIP promote the choice of participating countries as destination for investments. Results are not only robust to removing South Africa from the choice set (Column (5)) but also show that removing the country with the most credible institutions in the continent sharply increases the effectivess of BIT in promoting FDI.

In Columns (6-9), we study the location choices for the numerically most relevant specific FDI functions: Manufacturing, Extraction, Services, and Construction and Electricity. For Services and Construction and Electricity investments, both BIT and TIP result to positively and significantly affect location choice. In line with Colen et al. (2016), we can interpret the former result on the ground of the political sensitivity of the financial sector and the latter with the high sunk costs in the construction and electricity sectors. As for Manufacturing, we find partial evidence of a positive effect of IIAs, as only the coefficient of TIP is positive and significant. Finally, neither of the two coefficients is significant for Extraction investments. Although this result is similar to Colen et al. (2016), it appears inconsistent with the arguments about sunk costs and/or political sensitivity, arguably very high for this kind of FDI.

4 Conclusions

Using investment-level data, we document a positive role for BIT and TIP in promoting the location of FDI into African countries. Interestingly from a policy perspective, the effect appears heterogeneous across investment functions. It is consistently positive and strongest for investments in Services and in Construction and Electricity, whereas only partial evidence of a positive effect is found for Manufacturing FDI and no effect appears to exist for Extraction investments. The latter result is particularly surprising considering that, on the one hand, the high sunk costs and the political sensitivity of these investments should raise the risk of expropriation and, on the other hand, many African countries are largely endowed with natural resources. In turn, further research is needed to shed light on why investors in the extraction sector appear not to be sensitive to the protection mechanisms provided by IIAs.

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Declaration of interest statement

No potential conflict of interest is reported by the authors.

Data availability statement

Part of the data that support the findings of this study are available upon purchase from the FDI markets database, a service from The Financial Times Ltd.. Restrictions apply to the availability of these data, which were used under licence for this study. Data are available at `https://www.fdimarkets.com` with the permission of The Financial Times Ltd.. The remaining data are publicly available.

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Table 1: Estimation results - Conditional Logit

	(1)	(2)	(3)	(4)	(5) No ZAF	(6) Manuf.	(7) Extraction	(8) Services	(9) Constr. & Electricity
Dep. var.: Choice									
Ores exports$_{j,2002}$	0.013***	0.012***	0.012***	0.011***	0.008**	0.005	0.024*	0.007	0.061***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.007)	(0.013)	(0.005)	(0.013)
Ores exports$^2_{j,2002}$	-0.0002***	-0.0002***	-0.0002***	-0.0002***	-0.0002***	0.000	-0.000	-0.0002**	-0.0010***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0001)	(0.0001)	(0.0001)	(0.0002)
Fuel exports$_{j,2002}$	-0.012***	-0.012***	-0.012***	-0.013***	-0.016***	-0.013***	0.022**	-0.019***	-0.005
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.004)	(0.009)	(0.003)	(0.007)
Fuel exports$^2_{j,2002}$	0.0001***	0.0001***	0.0001***	0.0001***	0.0001***	0.0001*	-0.0002*	0.0002***	0.0001*
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0001)	(0.0001)
Urban Pop.(%)$_{j,t-1}$	0.061***	0.061***	0.062***	0.062***	0.071***	0.041***	0.021	0.074***	0.084***
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.012)	(0.020)	(0.009)	(0.025)
Urban Pop.(%)$^2_{j,t-1}$	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.000*	-0.000	-0.001***	-0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Prim. Enrol.$_{j,t-1}$	0.004***	0.004***	0.005***	0.005***	0.006***	0.009***	-0.000	0.005***	0.005
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.004)	(0.001)	(0.004)
Log Pop.$_{j,t-1}$	0.756***	0.755***	0.755***	0.754***	0.752***	1.079***	0.569***	0.746***	0.308***
	(0.027)	(0.027)	(0.027)	(0.027)	(0.027)	(0.070)	(0.094)	(0.040)	(0.092)
GDP gwth.(%)$_{j,t-1}$	0.047***	0.047***	0.048***	0.048***	0.055***	0.060***	0.024	0.045***	0.047**
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.011)	(0.018)	(0.008)	(0.020)
Trade open.$_{j,t-1}$	0.008***	0.008***	0.008***	0.008***	0.008***	0.015***	0.013***	0.007***	0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.003)	(0.002)	(0.004)
FDI stock$_{j,2002}$	0.111***	0.105***	0.109***	0.101***	0.086***	0.066**	-0.046	0.098***	0.233***
	(0.012)	(0.013)	(0.012)	(0.013)	(0.013)	(0.028)	(0.046)	(0.019)	(0.048)
FDI stock$^2_{j,2002}$	-0.004***	-0.004***	-0.004***	-0.004***	-0.003***	-0.002**	0.002	-0.004***	-0.008***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.002)	(0.001)	(0.002)
Inst. Dist.$_{j,o}$	-0.705***	-0.700***	-0.721***	-0.714***	-0.669***	-0.545***	-0.740***	-0.745***	-0.607***
	(0.041)	(0.041)	(0.042)	(0.042)	(0.042)	(0.095)	(0.145)	(0.063)	(0.146)
Log Distance$_{j,o}$	-0.780***	-0.772***	-0.770***	-0.761***	-0.826***	-0.908***	-0.502***	-0.733***	-0.583***
	(0.023)	(0.023)	(0.023)	(0.023)	(0.024)	(0.055)	(0.130)	(0.034)	(0.085)
Common Lang.$_{j,o}$	0.730***	0.720***	0.651***	0.639***	0.667***	0.343***	0.341**	0.698***	0.569***
	(0.034)	(0.034)	(0.034)	(0.035)	(0.037)	(0.075)	(0.155)	(0.052)	(0.126)
Colony$_{j,o}$	0.837***	0.836***	0.883***	0.884***	0.773***	1.141***	0.169	0.944***	0.552**
	(0.057)	(0.057)	(0.056)	(0.056)	(0.066)	(0.123)	(0.236)	(0.084)	(0.223)
South Africa$_j$	2.820***	2.801***	2.924***	2.896***		1.441**	-0.097	3.766***	4.059***
	(0.273)	(0.273)	(0.273)	(0.274)		(0.596)	(0.952)	(0.419)	(1.049)
BIT$_{j,o,t-1}$		0.098***		0.114***	0.384***	0.041	-0.031	0.197***	0.388***
		(0.033)		(0.033)	(0.039)	(0.069)	(0.159)	(0.050)	(0.123)
TIP$_{j,o,t-1}$			0.512***	0.521***	0.345***	0.349***	-0.290	0.518***	0.776***
			(0.052)	(0.052)	(0.056)	(0.109)	(0.232)	(0.080)	(0.191)
N	307,058	307,058	307,058	307,058	232,889	68,392	16,432	132,626	22,145

Standard errors in parentheses; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.