

## **EFFECTS OF FOREIGN AID ON FOREIGN DIRECT INVESTMENT INFLOWS TO AFRICA**

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### **Abstract**

*This study analyzes the effects of foreign aid on Foreign Direct Investment (FDI) inflows to Africa. The sample includes 1996-2017 data from 52 countries. The econometric model uses the FGLS (Feasible Generalized Least Squares) panel estimation methodology and finds that foreign aid significantly boosts FDI inflows to Africa. However, when total aid is disaggregated into multilateral aid and bilateral aid, it is found that multilateral aid is a positive determinant of FDI, but bilateral aid is not. These results validate the hypothesis that multilateral aid (which is likely to be guided by the non-political developmental mission of the multilateral donor organizations) is channeled into funding legitimate development projects that raise the*

*productivity of capital and help attract more FDI, but bilateral aid (which is likely to be aligned with the geo-political self-interests of the donor countries) can be funneled into non-productive ventures. The estimated results also suggest that incremental lagged changes in FDI, better quality of governance, higher rate of return, and higher adult literacy rate are also significant determinants of FDI. These results advance our knowledge of the aid-FDI dynamics in Africa.*

*Keywords: Foreign aid, bilateral aid, multilateral aid, foreign direct investment, Africa*

## **INTRODUCTION**

Foreign aid and foreign direct investment(FDI) can play important roles in the growth dynamics of developing countries. The traditional pro-aid view holds that foreign aid complements the recipient economy's domestic resources, eases foreign exchange constraints, and transfers modern know-how and managerial skills. The pro-FDI view is that FDI helps generate domestic investment in matching funds, increases local market competition, creates modern job opportunities, and increases global market access for locally produced export commodities.

Since the early 1950s, many donor countries and organizations have disbursed huge amounts of foreign aid funds to developing countries around the world to help alleviate their economic difficulties. The Organization for Economic Cooperation and Development (OECD) reported that the total amount of net foreign aid from their Development Assistance Committee (DAC) countries to developing countries in 2016 alone reached \$145 billion (up from \$132 bn in 2015), which shows a solid growth from the 2005-06 average amount (\$107 bn) and a huge jump from the 2000-01 average amount (\$54 bn). African countries received almost \$50 billion from the OECD DAC countries in 2016 (down from \$57 bn in 2013). A huge chunk (nearly 70%) of aid funds given to all developing countries is distributed as bilateral aid, which comprises aid distributed directly by donor countries to recipient countries or to multilateral organizations with donor-imposed conditionalities. The remaining 30% of aid funds is distributed by the multilateral donor organizations, such as the World Bank, IMF, etc. (OECD 2017).

According to the latest FDI data from the *World Investment Report 2018* (UNCTAD 2018), the global FDI flows in 2017 reached \$1.43 trillion (down from \$1.87 tn in 2016), out of which developing countries received \$671 billion (up from \$670 bn in 2016). Among the developing regions, Africa's share was \$42 bn (down from \$53 bn), Latin America and the Caribbean received \$151 bn (up from \$140 bn) and Asia received \$476 bn (up from \$475 bn). Four of the top 5 FDI-recipient countries in Africa experienced huge declines in FDI inflows in 2017 from 2016: Egypt received \$7.4 bn (-8.8% change from 2016), Ethiopia \$3.6 bn (-10.1%),

Nigeria \$3.5 bn (-21.3%), Ghana \$3.3 bn (-6.6%), and Morocco \$2.7 bn (+22.9%). This decline is driven primarily by weak commodity prices (particularly oil prices). The top 5 investor countries in Africa by FDI stock in 2016 include: US (\$57 bn), UK (\$55 bn), France (\$49 bn), China (\$40 bn) and interestingly a country from the same continent - South Africa (\$24 bn). South Africa's annual FDI outflow reached \$7.4 bn in 2017, which reflects the economic might of the strongest economy of Africa.

The relationship between foreign aid and FDI has been the focus of an important body of research that has emerged in the last two decades. The aid-FDI literature comprises two opposing views. One view holds that foreign aid can help attract FDI by funding projects that raise human capital and upgrade infrastructure, which can then raise the productivity of capital in the aid-recipient countries. On the other hand, the competing view holds that by financing many investment projects in developing countries where the number of investment opportunities is usually low, foreign aid can crowd out FDI.

Many aid studies have studied the efficacy of bilateral aid vis-à-vis multilateral aid in achieving their development objectives in the aid-recipient countries. It is generally agreed that bilateral aid can be less effective than multilateral aid due to several factors. First, bilateral aid policies are often dictated by the donor countries' strategic self-interests and their historical relationships with former colonies, but multilateral aid is likely to be guided by the non-political developmental mission of the multilateral donors. Second, bilateral aid is often tied to stipulations that the recipient countries spend that aid money on goods and services (including technical expertise) purchased from the donor countries, which may not be the most efficient use of that money. Third, multilateral donors are often able to leverage their positions to demand that the recipient countries effectively utilize aid money in legitimate development projects and appropriate institutional reforms. Finally, multilateral donors typically have many more years of experience than the bilateral donors in supporting and managing development projects all over the world, which allows them greater economies of scale in operation (Alesina and Dollar 2000, Burnside and Dollar 2000, Addison et al. 2015, and Chung et al. 2015).

The primary objective of this study is to analyze the relationship between foreign aid and FDI in Africa. The econometric model uses the FGLS (Feasible Generalized Least Squares) panel estimation methodology on 1996-2017 panel data from 52 countries (listed in the Appendix). The estimated results suggest that foreign aid significantly boosts FDI inflows to Africa; however, when total aid is disaggregated into its two components, it is found that multilateral aid is a significantly positive determinant of FDI, but bilateral aid is not. The estimated results also suggest that incremental lagged changes in FDI, better quality of

governance, higher rate of return, and higher adult literacy rate are also significant determinants of FDI.

The rest of the paper is organized as follows. Section 2 presents a review of the literature, section 3 describes the methodology, data and estimation, section 4 discusses the results and policy implications, and section 5 provides concluding remarks.

## LITERATURE REVIEW

A sizeable volume of aid-FDI literature has evolved since the 2000s. Among the early studies, Karakaplan et al. (2005) found robust empirical evidence that aid can attract FDI, but only in the presence of a solid investment environment. Using 1988-1999 panel data from 92 low-income and middle-income countries, Harms and Lutz (2006) found that the marginal effect of foreign aid on private foreign investment is almost zero, but positive in countries with weak regulatory institutions. Kimura and Todo (2010) analyzed the “vanguard effect” – the effect of foreign aid from a particular donor country on FDI from the same donor country, and found that the effect of aid on FDI is generally insignificant. Using 1970-2001 panel data from 99 countries, Selaya and Sunesen (2012) found that the overall effect of foreign aid on FDI is positive. Using 1970-2012 panel data from 63 countries, Donaubauer (2014) found that foreign aid has slightly reduced FDI in the sample countries, although almost half of the individual countries showed a positive relationship between foreign aid and FDI. Quazi et al. (2014) used 1995-2012 panel data from 14 East and South Asian countries and found that foreign aid significantly boosts FDI. Quazi et al. (2018) used 1996-2017 panel data from 19 countries in Latin America and found that the impact of foreign aid on FDI is statistically insignificant; however, multilateral aid is found to significantly boost FDI, but bilateral aid is not.

In an early aid-FDI study on Africa, Chauvet and Mesple-Somps (2006) used 1974-2001 panel data from 46 African countries to analyze the interactions between foreign aid and FDI. The results offered two sets of conclusions. First, African countries with relatively high levels of development tend to receive more FDI, and countries on the lower development scale (especially as it relates to external financing) tend to receive more foreign aid. Moreover, the results suggested that foreign aid tends to boost FDI in the sample countries, which leads to the deduction that FDI and foreign aid are complimentary in nature. The second conclusion suggests that the emerging middle to upper class in Africa favors FDI, which rises with national income. Moreover, the results suggest that the relationship between foreign aid and FDI, although complementary, is insufficient, which is especially true as it relates to the distributive impact. FDI has a higher positive distributive impact in the more developed African countries than it does in the least developed countries.

Amusa et al. (2016) used 1995-2012 panel data from 31 countries to study how foreign aid influences the FDI inflows in Sub-Saharan Africa. The study focused on establishing a clear interrelation between different types of infrastructure aid and increasing FDI flows. The findings show that productive and energy infrastructure aid (agriculture and forestry, industry, mining, and construction and tourism) enhances the inflow of FDI to SSA countries, but socio-economic and transportation infrastructure aid (education and health, energy, transport, and communication) does not. This study also found that the drivers of FDI to SSA countries include trade openness, population, governance, telephone infrastructure, and inflation. These results are beneficial to the policymakers in the SSA countries, as they allow identifying and developing economic sectors that attract foreign investment most effectively.

Arazmuradov (2015) analyzed the impact of aid on FDI in five Central Asian economies (namely, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan) during the period of 1993-2008. The study concluded that development aid has a positive influence in facilitating foreign direct investment, which is based primarily on four findings. First, aggregate aid has a statistically significant positive impact on FDI stocks; second, domestic capital outlays crowd out FDI stocks; third, development aid has positive marginal effect that offsets the crowding-out effect of domestic capital on FDI; and finally, overall the positive marginal effect of aid on FDI dominates the overall negative effect of domestic capital on FDI. The study also concludes that FDI can be boosted without a tangible drop in domestic expenditure by directing aid into enhancing social and economic infrastructure rather than physical capital.

Gulrajani (2016) studied the multilateral vs. bilateral aid channels from the strategic perspective of the international donor community. Aid donors face growing demands to justify their allocation choice between multilateral and bilateral aid channels. Bilateral channels are a better option when the donor country has a direct interest in how the funds will be used in the recipient country, which can in fact reduce economic growth in the recipient country because aid may not fund the most immediate needs in the country. Multilateral channels are generally more acceptable because they are politically less influenced and can be used to help the receiving country's more immediate needs. A number of trends in the aid landscape are pushing donors to think carefully about the possibility of substitution across these two channels. With over 210 major organizations and funds, as well as numerous smaller trust funds in the multilateral system, and 28 bilateral donor members within the OECD's Development Assistance Committee and a growing group of non-DAC donors, the space of official aid organizations is becoming crowded.

Biscaye et al. (2017) utilized literature review methodology and analyzed the results of 45 relevant studies that investigated the interrelation between bilateral and multilateral aid and

development outcomes with the use of empirical evidence. The primary focus of this study was to determine whether providing aid to developing countries through bilateral or multilateral channels produces a significant influence on such development outcomes as governance and human development indicators, GDP growth, and non-aid investment inflows. The analysis shows that 13 of the 45 studies found multilateral aid to be more effective than bilateral aid; 9 studies found that bilateral aid is more effective than multilateral aid; 13 studies found that there is no statistical difference between the two, and the remaining 10 studies provided mixed conclusions. The findings of this study suggest that the effectiveness of aid is based on such variables as aid donors, recipients, objectives, and time periods. These results are of value not only to the scholarly community that can utilize them to perform further research on the topic, but also to the potential investors interested in maximizing the effectiveness of their investments in developing economies.

## RESEARCH METHODOLOGY

### Model Specification

The OLI paradigm developed by Dunning (1988) provides that theoretical grounding for most empirical FDI models. This paradigm is based on three factors – i. Ownership (O) factor accounts for the availability of firm-specific resources and capabilities; ii. Location (L) factor is based on the search for new markets, efficiency, and strategic assets; and iii. Internalization (I) factor considers transaction and coordination costs. Based on the OLI framework and the empirical models generally found in the current literature, this study formulates the following regression equation:

$$FDI_{i,t} = \alpha + \beta_1 \text{Foreign Aid}_{i,t} + \beta_2 \Delta FDI_{i,t-1} + \beta_3 \text{Corruption Control}_{i,t} + \beta_4 \text{Quality of Governance}_{i,t} + \beta_5 \text{Rate of Return}_{i,t} + \beta_6 \text{Infrastructure}_{i,t} + \beta_7 \text{Human Capital}_{i,t} + \beta_8 \text{Market Size}_{i,t} + \beta_9 \text{Labor Skills}_{i,t} + \beta_{10} \text{Region} + \varepsilon_{i,t} \quad (1)$$

In equation 1 subscript  $i$  refers to countries and  $t$  refers to time, as the equation estimates a panel model. A second equation is estimated where foreign aid is disaggregated into multilateral aid and bilateral aid. The explanatory variables are explained next.

### Model Rationale

*Foreign Aid:* As the many studies cited in the Literature Review section point out, foreign aid can promote FDI by funding human capital and physical infrastructure projects that enhance the marginal productivity of capital in the recipient countries. On the other hand, the number of investment opportunities in the recipient countries is usually limited, and since both foreign aid and FDI can compete for the same pool of limited investment opportunities, it is possible that

foreign aid can “crowd out” FDI. This study uses the net foreign aid inflows to GDP ratio (AID/GDP) as a measure of *foreign aid*. The *a priori* expected sign of  $\beta_1$  is uncertain, as either sign is a plausible outcome depending on which effect of foreign aid on FDI (between the facilitating effect and the crowding out effect) turns out stronger.

*Lagged Changes in FDI ( $\Delta FDI_{t-1}$ ):* Risk averse foreign investors tend to steer clear of unfamiliar territory. Therefore, it is important for the FDI-aspiring countries to first establish a solid track record of receiving FDI, which can then help convince the other foreign investors sitting on the fence to invest in those countries. Furthermore, foreign investors sometimes stagger their investment to test a new market, which reaches the optimal amount of investment with some time lag. The lagged changes in FDI capture both of these aspects of FDI, which should positively affect the current level of FDI (Noorbakhsh et al. 2001 and Quazi et al. 2014, 2018). The *a priori* expected sign of  $\beta_2$  is positive.

*Corruption Control:* In theory corruption can either facilitate or hinder foreign investment (Al-Sadig 2009, Ketkar et al. 2005 and Quazi et al. 2014, 2018). Per the *grabbing hand* hypothesis, corruption can hinder FDI by raising uncertainty and transaction costs of doing business in the host country, but per the *helping hand* hypothesis, corruption can facilitate FDI by “greasing” the wheels of commerce in the presence of a weak regulatory framework. As a proxy measure of corruption control, this study uses the *Control of Corruption* indicator published by the *Worldwide Governance Indicators* (WGI), which “captures perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as ‘capture’ of the state by elites and private interests” (WGI 2018). Countries are ranked on this indicator from -2.5 (highly corrupt) to +2.5 (very clean), so a higher score reflects more corruption control in the country. The *a priori* expected sign of  $\beta_3$  is uncertain, as either sign is a plausible outcome depending on which effect of corruption on FDI (between the “grabbing hand” effect and the “helping hand” effect) turns out stronger.

*Quality of Governance:* The quality of governance in a host country should affect its locational appeal to foreign investors, who typically have high confidence in investing in countries where good governance contributes to an overall favorable climate (Quazi and Alam 2015, and Quazi 2018). This study uses six governance indicators from the *Worldwide Governance Indicators* (WGI) to create an overall indicator of governance. The six WGI governance indicators include political stability and absence of violence, voice and accountability, government effectiveness,

regulatory quality, rule of law, and control of corruption. Countries are ranked on each governance indicator from -2.5 (weak) to +2.5 (strong). This study uses the average of these six scores as the indicator of a country's overall *quality of governance*. The *a priori* expected sign of  $\beta_4$  is positive.

*Rate of Return on Investment:* One of the most important motivating factors for investment is high rate of return (ROR) on investment. Therefore, foreign investors should be drawn to host countries that can offer high returns on FDI. However, it may not be easy to determine the ROR on investment in developing countries, as capital markets are typically not very well developed there. To address this issue, a few studies (e.g. Edwards 1990 and Jaspersen et al. 2000) have used the inverse of per capita income as a proxy variable. The reasoning is that the ROR on investment in a country should be positively correlated with its marginal productivity of capital, which should be high in capital-scarce poor countries where per capita income is low (or the inverse of per capita income is high). This study uses the natural log of the inverse of per capita real GDP (adjusted for purchasing power parity, PPP) as a proxy measure for ROR on investment. The *a priori* expected sign of  $\beta_5$  is positive.

*Infrastructure:* Availability of high-quality physical infrastructure (e.g. electricity, telephone, communication networks, highways, railways, airports, seaports, etc.) can greatly enhance the host countries' locational appeal to foreign investors (Loree and Guisinger 1995 and Quazi et al. 2014, 2018). This study uses the natural log of per capita electricity use in kilowatt hours as a proxy for the availability of infrastructure (note - a second proxy variable for infrastructure - natural log of mobile cellular subscriptions per 100 people, was also included in alternative model specifications, but the results turned out with inferior statistical properties). The *a priori* expected sign of  $\beta_6$  is positive.

*Human Capital:* Higher level of human capital (i.e. workers' longevity, access to healthcare, etc.) is a good indicator of the availability of healthy workers, which can significantly boost the locational appeal of a host country to foreign investors (Hanson 1996, Noorbakhsh et al. 2001 and Quazi et al. 2014, 2018). This study uses two proxy variables for human capital in alternative model specifications (natural log of life expectancy and natural log of per capita healthcare expenditures). The *a priori* expected sign of  $\beta_7$  is positive.

*Market Size:* The primary focus of “market-seeking” type of FDI is to serve the local consumers in the host country market. The market demand of foreign investors’ product in the host country should be determined by the purchasing power of the local consumers, which is positively correlated with their per capita income (Jaspersen et al. 2000, Wei 2000 and Quazi et al. 2014, 2018). This study uses the natural log of per capita real GDP as a proxy for the market size. The *a priori* expected sign of  $\beta_8$  is positive.

*Labor Skills:* The adult literacy rate is indicative of the level of education and skills of the workforce in a country, which should boost the location appeal of a host country and attract FDI (Cleeve et al. 2015 and Li et al. 2013). The *a priori* expected sign of  $\beta_9$  is positive.

*Region:* Many countries in Sub-Saharan Africa are land-locked, which can create a locational hurdle for cross-border business and international trade. It is possible that due to this geographical characteristic, countries in Sub-Saharan Africa suffer from a locational disadvantage as destinations of FDI vis-à-vis the other African countries. A dummy variable (1 for Sub-Saharan Africa and 0 otherwise) is used to test the hypothesis of regional difference. The *a priori* expected sign of  $\beta_{10}$  is negative.

## Data Sources

The regression model is estimated with 1996-2017 panel data from 52 countries in Africa. Data on annual FDI inflow, different types of foreign aid (total aid, multilateral aid and bilateral aid), per capita real GDP, infrastructure, adult literacy rate, life expectancy, and health expenditure are collected from the *World Development Indicators* (World Bank 2018), and *Control of Corruption* index and *Quality of Governance* index are collected from the *Worldwide Governance Indicators* (WGI 2018). The time period (1996-2017) was dictated by the availability of data, as the WGI data are not available prior to 1996. The next section discusses the estimated results.

## ANALYSIS AND RESULTS

The Feasible Generalized Least Squares (FGLS) panel methodology is utilized to estimate the regression equation (1) in eight different specifications. Table 1 presents four model specifications (Models 1.1-1.4) that show the effects of foreign aid on FDI with four slightly different versions of equation (1), and Table 2 presents the remaining four models (Models 2.1-2.4) that re-estimate these models by disaggregating foreign aid into multilateral aid and bilateral aid.

Models 1.1-1.4 show that the coefficients of foreign aid came out statistically significant and positive in each version, however when foreign aid is disaggregated into multilateral aid and bilateral aid in Models 2.1-2.4, the coefficients of bilateral aid consistently came out statistically insignificant, but the coefficients of multilateral aid came out statistically significant and positive in each version. These results validate the hypothesis that multilateral aid is utilized more efficiently vis-à-vis bilateral aid that helps attract FDI.

Table 1. FGLS regressions (impact of foreign aid on foreign direct investment)

Variable	Model 1.1		Model 1.2		Model 1.3		Model 1.4	
	Coeff	Z Stat	Coeff	Z Stat	Coeff	Z Stat	Coeff	Z Stat
Constant	-5.27	-0.95	0.69	0.08	0.76	0.18	-2.93	-1.83
$\Delta FDI_{t-1}$	0.18	4.09**	0.21	5.04**	0.23	5.62**	0.25	6.02**
<b>Foreign Aid</b>	0.07	4.21**	0.07	3.07**	0.05	2.78**	0.07	4.48**
Corruption Control	-1.27	-3.50**	-1.09	-2.40**	-0.47	-0.86	-0.53	-1.56
Quality of Governance	1.48	2.96**	1.83	2.42**	1.32	1.81*	1.00	1.99**
Infrastructure	0.23	1.03	0.18	0.74	-0.01	-0.01	0.02	0.07
Rate of Return	0.40	9.80**	0.34	5.91**	0.39	5.95**	0.40	10.8**
Sub-Saharan Africa	-0.09	-0.17	-0.41	-0.54	-0.25	-0.46	-0.34	-0.89
Adult Literacy Rate	0.04	3.47**	0.05	4.09**	0.06	4.53**	0.06	4.58**
Life Expectancy	0.68	0.52	0.14	0.08				
Market Size			-0.44	-0.95	-0.58	-1.22		
Health Expenditures					0.41	1.12	0.11	0.57
Diagnostic Statistics								
Sample size	82		82		79		79	
Wald $\chi^2$	448.84		733.04		1257.93		305.38	
P-value	0.00		0.00		0.00		0.00	
Log Likelihood	-101.8		-105.15		-101.51		-94.39	

\*\*Coefficient statistically significant at 5%

\*Coefficient statistically significant at 10%.

Table 2. FGLS regressions (impact of multilateral aid and bilateral aid on FDI)

Variable	Model 2.1		Model 2.2		Model 2.3		Model 2.4	
	Coeff	Z Stat	Coeff	Z Stat	Coeff	Z Stat	Coeff	Z Stat
Constant	-6.26	-1.29	0.30	0.04	0.70	0.17	-2.93	-1.83
$\Delta FDI_{t-1}$	0.14	3.11**	0.18	4.12**	0.20	4.45**	0.22	4.34**
<b>Bilateral Aid</b>	-0.02	-0.46	-0.01	-0.06	-0.02	-0.38	0.001	0.01
<b>Multilateral Aid</b>	0.22	2.26**	0.20	2.04**	0.19	1.72*	0.21	1.79*
Corruption Control	-1.62	-4.61**	-1.07	-2.87**	-0.73	-1.29	-0.71	-1.75*
Quality of Governance	1.65	3.56**	1.55	2.25**	1.45	1.94*	1.02	1.88*
Infrastructure	0.46	1.99**	0.43	1.59	0.17	0.53	0.19	0.61
Rate of Return	0.43	9.79**	0.36	6.42**	0.39	5.62**	0.41	9.06**
Sub-Saharan Africa	0.01	0.03	-0.26	-0.36	-0.21	-0.35	-0.34	-0.82
Adult Literacy Rate	0.03	3.17**	0.05	3.64**	0.06	3.94**	0.05	4.11**
Life Expectancy	0.66	0.58	0.002	0.00				
Market Size			-0.46	-1.08	-0.6	-1.26		
Health Expenditures					0.33	0.88	0.01	0.03
Diagnostic Statistics								
Sample size	82		82		79		79	
Wald $\chi^2$	379.51		638.89		413.48		220.22	
P-value	0.00		0.00		0.00		0.00	
Log Likelihood	-97.63		-98.59		-102.04		-94.64	

\*\*Coefficient statistically significant at 5%; \*Coefficient statistically significant at 10%.

Among the other independent variables, the coefficients of lagged changes in FDI, quality of governance, rate of return, and adult literacy rate turned out statistically significant with the correct *a priori* signs, but the coefficients of infrastructure, life expectancy, and regional difference for Sub-Saharan Africa turned out insignificant. In Models 1.2-1.4, two other explanatory variables (market size and health expenditures) are added separately to Model 1.1. Although these variables came out statistically insignificant, but the results found in model 1.1. are found to hold up across the new model specifications. When foreign aid is disaggregated into bilateral aid and multilateral aid in Models 2.1-2.4 (Table 2), the same results generally hold up as well. The estimated results show robust coefficients of the explanatory variables and

particularly for different types of aid. The overall diagnostic statistics (measured by Wald  $\chi^2$  statistics and log likelihood) came out satisfactory for all eight models.

The estimated results offer several policy implications. First, this study finds that foreign aid is a significantly positive determinant of FDI in Africa, but more importantly only multilateral foreign aid is found to be a significantly positive determinant of FDI, but bilateral aid is not. These results validate the hypothesis that multilateral aid funded projects raise the marginal productivity of capital in the recipient countries, which helps attract more FDI; however, bilateral aid is mostly funneled into non-productive ventures.

Incremental lagged changes in FDI, better quality of governance, higher rate of return, and higher adult literacy rate are also found to significantly boost FDI in Africa. Therefore, in order to enhance their locational appeal to foreign investors, these countries should formulate appropriate long-term strategies (i.e. urge the donor countries/agencies to consider more multilateral aid in lieu of bilateral aid, develop high-quality governance, invest more heavily in education, etc.). There is some evidence that corruption control reduces FDI inflows in Africa, which is consistent with the *helping hand* hypothesis that corruption facilitates FDI by “greasing” the wheels of commerce. Finally, it is found that there is no statistically significant regional difference between Sub-Saharan Africa and the rest of Africa in terms of locational advantage for attracting FDI.

## CONCLUSION

The development economics literature generally holds that foreign aid and FDI are both important drivers of economic growth in developing countries. The aid-FDI literature holds two opposing views about the impact of foreign aid on FDI – one view holds that foreign aid can facilitate FDI by funding human capital, infrastructure and other types of projects that enhance the productivity of capital in the recipient countries, but the opposing view holds that foreign aid can reduce FDI by crowding out the limited investment opportunities that exist in the recipient countries. Many aid studies also hold that multilateral aid is more efficacious than bilateral aid, as the former is likely to be guided by the non-political developmental mission of the multilateral donors, while the latter is likely to be influenced by the geo-political self-interests of the donor countries.

This study analyzes the impact of foreign aid on FDI inflows in Africa. The FGLS (Feasible Generalized Least Squares) panel estimation methodology is applied to 1996-2017 data from 52 countries to estimate several regression equations. The estimated results suggest that foreign aid significantly boosts FDI flows in the sample countries. When total aid is disaggregated into multilateral aid and bilateral aid, it is found that multilateral aid also

significantly boosts FDI, but bilateral aid does not. This study also finds that the other significant determinants of FDI in Africa include incremental lagged changes in FDI, better quality of governance, higher rate of return, and higher adult literacy.

The estimated results suggest that the international donor community can strengthen the aid-FDI relationship in Africa by distributing more multilateral aid than bilateral aid. Furthermore, the aid-recipient African countries can improve their locational appeal to foreign investors by formulating appropriate long-term strategies, which should include promoting higher quality of governance, ensuring higher rate of return on investment, investing more heavily in education, etc. These results enhance our knowledge of the aid-FDI dynamics in Africa, which is important for the other developing regions as well. Future research should focus on other developing regions (e.g. Latin America) to test whether the results found in this study also hold up across other developing countries.

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## APPENDIX

### List of 52 sample countries

Algeria, Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Cape Verde, Central African Republic, Chad, Comoros, Côte d'Ivoire, Democratic Republic of Congo, Djibouti, Egypt, Equatorial Guinea, Eritrea, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Libya, Madagascar, Malawi, Mali, Mauritania, Mauritius, Morocco, Mozambique, Namibia, Niger, Nigeria, Republic of Congo, Rwanda, São Tomé and Príncipe, Senegal, Seychelles, Sierra Leone, South Africa, Sudan, Swaziland, Tanzania, Togo, Tunisia, Uganda, Zambia, and Zimbabwe.