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ABSTRACT

Africa is widely recognized as the birthplace of humankind. It's the second-largest and second-most-populous continent. The continent holds a large proportion of the world's natural resources. Historically external forces have pursued access to Africa's market and resources. China is experiencing rapid economic growth through trade and investment in countries in Africa. What are the implications of trade and investment for Africa, specifically in West Africa as defined by the United Nations? This paper will examine how China's Foreign Direct Investments (FDI) and Foreign Aid (FAD) have impacted the standard of living in West Africa. It will do this by analyzing data on West African countries' Human Development Index (HDI) and GDP per capita. The relationship will be evaluated through econometric analysis. The discussion of the findings will include implications of FDI for West African countries and whether FDIs are effective in reducing poverty in this region.

INTRODUCTION

Africa is a continent rich in culture, history, and resources. The continent holds a large proportion of the world's, both renewables and non-renewables, natural resources. Africa is home to 30% of the World's mineral reserves. With 54 countries, Africa is the second-largest and second-most-populous continent (U.N. Environment Programme, 2017). As a whole, the continent has a lot to gain through harnessing its natural resources. Yet it remains the poorest continent in the world. Today, one in three Africans—422 million people—live below the global poverty line. These individuals represent more than 70 percent of the world's poorest people (Hofer et al., 2019). Poverty is highly concentrated in Africa. Economists have now reached a broad consensus: If we want to end global poverty, there needs to be a focus on Africa (Hamel et al., 2018). When discussing Africa, it would be a disservice not to highlight the history of exploration and colonization by external actors. Historically, external forces have pursued access to Africa's market and resources. China's recent pursuit of connections with Africa is reminiscent of past relationships. Do these relations reduce poverty in Africa? More importantly, do they improve the standard of living for the people in Africa?

The motivation for this research, and contributions to existing research, are twofold. This study contributes to the literature by analyzing the effect of Foreign Direct Investment (FDI) and aid on standard of living in Sub-Saharan Africa (SSA) countries. This study is unique in that it focuses on the region of West Africa as opposed to Africa as a whole. Secondly, this study veers away from economic growth and focuses more broadly on human development. In the remainder of this paper, the literature review of this study will be presented first. That is followed by a description of the model components, data, and methodology used for this study. The results of the econometric analysis are then presented. The paper concludes with a discussion of the results and suggestions for further research.

A BRIEF HISTORY

Notably, in the 16th century, the Spaniards began using slave labor in their West Indies colonies. It continued into the 17th century when slaves were procured through raids and sometimes war. Human beings were traded for European commodities, like guns and gunpowder. Many Europeans took part including the British, French, Dutch, and Danes as well as the Spaniards and Portuguese. It has been estimated that the total number of African slaves who reached America and the West Indies in the course of the trade was about 9 to 10 million (Jameson, 2008). This figure does not capture lives lost on the voyage or in Africa in slave raids or wars. Probably between a half and two-thirds of the total came from West Africa, most of the others from Angola, the Congo, and Mozambique. The slave trade was detrimental to Africa in many ways. It hindered social and economic progress, especially in the West. While European economies flourished through diversified means of production, the death toll further curtailed production in Africa.

The "Scramble for Africa" stemmed partly from the sentiment around Europe that it was the duty of the white man to civilize, educate and convert the Africans (Chamberlain & Muriel, 2014). It mainly stemmed from the growing knowledge of valuable trade opportunities and raw materials in Africa. From about 1885 to 1920, European countries competed with one another for colonies in Africa. Through invasion, conquest, and/or negotiations with African rulers, colonies were acquired. Ethiopia and Liberia were the only African states to survive as independent.

Most African states became independent between the 1950s and 1960s (Jameson, 2008). Colonialism left Africa with many problems. The arbitrary boundaries, resulting from the "Scramble for Africa," led to many disputes and wars over the years (Chamberlain & Muriel, 2014). Which in turn led to the economic instability that lingers. Politically, Africa still struggles today. The countries have very little experience with democracy, therefore there has been a trend of autocratic rule and frequent dictatorships and military coups (Jameson, 2008).

These examples do not begin to brush the surface of Africa's history. The past scramble is reminiscent of China's more current pursuit and relations with Africa. Although, it is manifesting more in the form of diplomacy. The rationales are very similar as China aims to save Africa through development assistance that could potentially lead to economic development. This has led to questions about the nature of China's involvement in Africa and its effectiveness in improving life in Africa.

The world has achieved remarkable progress in poverty reduction from 1990 to 2015. In 1990, 36 percent of the world's people lived in poverty—defined as an income of less than $1.90 a day in 2011 purchase power parity—and by 2015, only 10 percent of the world's people lived in poverty. In raw numbers, that is a decline of over 1 billion people living in poverty (Patel, 2018). When we zoom in, progress is not as promising in some places. Take Sub Saharan Africa: According to the report, people living in poverty in the region grew from 278 million in 1990 to 413 million in 2015. As of 2015, most of the global poor live in sub-Saharan Africa (Patel, 2018). If current trends persist, 88 percent of the world's poorest are expected to live in Africa (some 414 million people) by 2030. Additionally, by 2030 the top 10 poorest countries in the world will all be African—both in terms of absolute numbers and share of extreme poverty as a percentage of the total population (Hamel et al., 2018). In this study we investigate whether FDI has been effective in improving the standard of living in Africa.

For this study, we will focus on West Africa. West Africa is a region in Africa made up of the countries of Benin, Burkina Faso, Cameroon, Cabo Verde, Chad, Côte d'Ivoire, Equatorial Guinea, The Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone and Togo. West Africa as a political and economic designation is conventionally understood as all the areas except Cameroon, Chad, and Equatorial Guinea (Fage & McCaskie, 2010).

LITERATURE REVIEW

Earlier Research on International Capital Flows

A considerable amount of literature has been published on international capital flows. International Capital Flows mainly refer to the paid transfer of the right of the use of monetary capital between countries, for example FDI, domestic investment (DI), etc. Earlier research often focused on its impact on economic growth. Several studies have revealed mixed results on the growth effects of capital flows.

Samuel Adams analyzed the impact of FDI and DI in SSA, using ordinary least squares (OLS) and fixed effects estimation, from 1990 to 2003. His results found that DI is positive and significantly correlated with economic growth (Adams, 2009). He also found FDI positive and significant only an OLS estimation. Alfaro et al. (2004) examined links between FDI, foreign markets, and economic growth using cross country data between 1975 and 1995. They found that well developed financial markets gain significantly from FDI. Similarly, Burnside et al. (2000) looked at foreign aid data to examine the relationship among foreign aid economic policies and GDP per capita growth. They found that it has a positive impact on growth in developing countries with good trade, monetary, and fiscal policies. Tang et al. (2008) looked at the causal link between FDI and economic growth in China from 1988 to 2003 using a multivariate VAR System with error correction model and innovation accounting techniques. The results show that while there is a by-directional causality between domestic investment and economic growth there's only a single directional causality from FDI to domestic investment and economic growth found that FDI is complementary with domestic investment. Akinlo's (2004) paper investigated the impact of FDI on economic growth in Nigeria for the period 1970 to 2001. The results showed that FDI has a small and not a statistically significant effect on economic growth. Boone (1996) tested predictions for aid effectiveness based on an analytical framework that relates effectiveness to political regimes and found that foreign aid does not benefit the poor as measured by HDI.

Gohou and Soumaré (2012) examined the relationship between foreign direct investment (FDI) inflows and poverty reduction in Africa. They used FDI net inflows per capita and HDI as the principal variables. Their analyses confirmed a positive and strongly significant relationship between FDI net inflows and poverty reduction in Africa, however found significant differences among African regions (Gohou & Soumaré, 2012).

Human Development Index

For this study, we will use the Human Development Index (HDI) as a proxy for standard of living. HDI is an index that measures key dimensions of human development. HDI aims to measure a country's development beyond economic growth and emphasizes the people and their capabilities when assessing development. HDI, using the standard HDI methodology of the United Nations Development Programme (UNDP), is made up of a summary measure of achievements in three key dimensions of human development, Health, Education, and GNI Per Capita. The dimensions are broken down into indices in Figure 1. Health is measured by life expectancy (Roser, 2014). Education is measured by expected years of schooling of children at school-entry age and mean years of schooling of the adult population (Roser, 2014). GNI per capita: a decent standard of living – measured by Gross National Income per capita adjusted for the price level of the country. This metric is adjusted for price changes over time, and price differences between countries (Roser, 2014). Originally, arithmetic mean was used to compute HDI, and in 2010, the geometric mean was introduced. The purpose of the introduction was to reduce the level of substitutability between dimensions and at the same time ensure that a 1 percent decline in the index of, say, life expectancy has the same impact on the HDI as a 1 percent decline in the education or income index. The new method does not significantly change the general picture the data tells (Rodriguez, n.d.).

Kpolovie (2017) conducted a study to examine the three HDI indicators, obtained from the different countries in the world, and compared the HDI of the seven continents worldwide. Results showed that Africa has HDI mean of 0.536 which is significantly lower than that for each of the other continents in the world (Asia 0.714, Europe 0.845, North America 0.733, South America 0.738, and Oceania 0.693), and the global average of 0.697 (Kpolovie, 2017).

It is important to note that HDI only captures part of what human development encompasses. The UNDP highlights that it does not reflect on inequalities, poverty, human security, empowerment, etc. (Human Development Index, n.d.).

Figure 1
Source: United Nations Development Programme

Dimensions	Health	Education	Standard of Living
Indicators	Life expectancy at birth	Expected and mean years of schooling	GNI per capita (PPP $)
Dimension Index	Life expectancy index	Education index	GNI index

FDI in West Africa

The international monetary fund defines foreign direct investment (FDI) as a "cross-border investment" in which an investor that is "resident in one economy [has] control or a significant degree of influence on the management of an enterprise that is resident in another economy." (Legal Information Institution, n.d.) The number of FDI receiving countries has grown in Africa along with the diversification of investments. Between 2003-2014, flows of Chinese FDI into Africa increased significantly. China's FDI stock increased from $491 million to a total of $32.4 billion (Gandhi, 2018).

Empirical studies, as well as economic theory, suggest that FDI has a positive effect on host countries (Razin & Loungani, 2001). Empirical evidence has shown a few benefits to FDI. Compared to other forms of private capital flow FDI has shown resilience in the face of a financial crisis. Additionally, a study found that FDI brought a one-for-one increase in domestic investment (Razin & Loungani, 2001). Theoretically speaking, FDI is expected to bring economic growth through opening new markets, job creation, and technological innovations.

Foreign Aid in West Africa

According to Chinese scholars, China has provided aid projects to African countries since 1956. Scholars have differing opinions on which category the aid falls into. The aid threads between two categories development finance and aid. The Organization for Economic Cooperation and Development (OECD) defines official development assistance as concessional funding given to developing countries into multilateral institutions primarily to promote welfare and economic development within the recipient country (OECD, n.d.). China does not conform to the definition as it's not a member of the OECD and does not follow its practice on development aid. A significant portion of Chinese financing in Africa falls under the category of development finance. The Chinese government further blurs the distinction between categories by encouraging its agencies and commercial entities to "closely mix and combine foreign aid, direct investment, service contracts, labor cooperation, foreign trade, and export" (Piao, 2006). The ambiguity allows for flexibility of Chinese projects in recipient countries; however, it also makes it difficult to categorize the financing.

Chinese investment in Africa grew from USD 210 million in 2000 to 3.17 billion in 2011 By the end of 2009 Africa had received 45.7% of the RMB 256.29 billion cumulative foreign aid from China (Sun, 2001). China's aid to Africa covers many fields: agriculture, education, transportation, etc. (Sun, 2001). The billions of dollars that China commits to Africa are repayable, long-term loans.

There are many questions about the goal of China's financing. Even inside China, there is debate around the goal and management of Chinese aid to Africa. Bureaucrats at the Ministry of Foreign Affairs value and prioritize political considerations in aid decision-making. They view aid as a political instrument for China to strengthen bilateral ties and facilitate the development of African countries. In contrast, the Ministry of Commerce views aid as a means to support China's overall national priority, which is economic growth (Sun, 2001).

EMPIRICAL MODEL

The study investigates the relationship between foreign direct investment, foreign aid, gross domestic product per capita, and human development index. In this model, the human development index is a proxy for standard of living. As previously stated HDI captures three dimensions centralized around the people in the countries being measured. The empirical mode is as follows: HDI = f (FDI, FAD, GDPPC). Where variables of interest are: FDI = Foreign direct investment, FAD = Foreign aid, GDP Per Capita = Gross domestic product per capita. Our explanatory variable is HDI = Human development index. For this study, the empirical model is transformed into the following econometric function HDI it = β 0 +β 1 FDI+β 2 FAD+β 3 GDPPC+u.

DATA AND METHODOLOGY

The study used data from 16 countries in West Africa covering the period of 2003 to 2019 (i.e., 272 observations). Figure 2 depicts the detail of the sources of data employed and how each of the data is measured. The study applied the Ordinary Least Squares (OLS) to analyze the data. The rationale for applying the OLS technique of estimation is that it aims to minimize the sum of squared residuals. Note that FDI and FAD are lagged in this OLS regression.

Figure 2

Variables	Description	Measurement	Source	Hypothesis
FDI	Foreign direct investment	It is measured as the percentage ratio of FDI net inflows (i.e. new investment inflows less disinvestment) in the reporting economy to GDP.	China Africa Research Initiative (CARI, 2021)	Positive, Significant
FAD	Foreign aid	Net official development assistance and official aid received. Measured as the percentage ratio of GDP in the reporting economy.	World Development Indicators (WDI, 2019)	Positive, Significant
HDI	Human development index	It is the geometric mean of life expectancy index, education index and income index	UNDP, Human Development Report,	–
GDPPC	Gross domestic product per capita	the average income earned per person in a given area in a specified year. (current US$)	World Development Indicators (WDI, 2019)	Positive, Significant

EMPIRICAL RESULTS

Descriptive Statistics

Figure 3 displays descriptive statistics from the variables in our model. The statistics demonstrate that the average human development index in West Africa is 0.46. HDI is divided into four tiers: very high human development (0.8-1.0), high human development (0.7-0.79), medium human development (0.55-. 70), and low human development (below 0.55). On average West African countries have low human development.

The average contribution of foreign direct investment to GDP is 27.36%. The average contribution of foreign aid to GDP is 28.18%. The average GDP per capita is $1097.38 (current US dollars).

Figure 3. Descriptive Statistics

Variable	Mean	Std. Dev.	Min	Max
FDI	27.36	67.25	-195.94	490.61
FAD	28.18	48.96	1.22	338.59
GDPPC	1097.38	782.84	243.09	3740.37
HDI	0.46	0.09	0.276	0.665

Note: FDI, foreign direct investment (% GDP); FAD, foreign aid (% GDP); GDP-PC, gross domestic product per capita; HDI, human development index.

Figure 4. Regression Output

	Estimate	Std. Error	t value	Pr(>|t|)
Intercept	3.819E-01	4.725E-03	80.960	<2e-16***
FDI(LAG1)	5.596E-06	4.938E-05	0.113	0.752
FDI(LAG2)	3.663E-05	5.244e-05	0.698	0.4855
FAD(LAG1)	-1.476E-04	6.376E-05	-1.604	0.1100
FAD(LAG2)	-1.942E-04	8.655E-05	-2.243	0.0257
GDPPC	8.279E-05	3.775E-06	22.117	<2e-16***

Note: FDI, foreign direct investment (% GDP); FAD, foreign aid (% GDP); GDP-PC, gross domestic product per capita; HDI, human development index.

**** Indicates 1% level of significance*

$HDI = 0.3825 + 0.000005596FDIt\text{-}1 + 0.00003663FDIt\text{-}2 - 0.0001476FADt\text{-}1 - 0.000596FADt\text{-}2 + 0.00008349GDPPC^*$

Regression Results

Figure 4 displays the regression results of the impact of foreign direct investment and foreign aid on human development index using the ordinary least squares (OLS) methods of estimation. Note that FDI and FAD are lagged. For a given predictor variable, the coefficient can be interpreted as the average effect on y given a one unit increase in predictor, holding all other predictors fixed (ceteris paribus).

The results show that the coefficient of foreign direct investment is positive (0.000005596) and it is not statistically significant. This suggests that the inflows of investment have not improved standard of living in West Africa. These findings are contrary to economic theory, however, supports the arguments in previous empirical studies, such as Akinlo (2004) and Gohou and Soumare (2012), that highlighted that FDI had no or negative effect on standard of living. An economic reason for this finding could be that FDI flow levels are not enough to improve standard of living. There is also the possibility that conditions in host countries are not ideal for optimal FDI impacts.

The results show that the coefficient of foreign aid is negative (-0.0001476), and it is not statistically significant. This suggests that the billions of dollars of aid granted by China to West African countries has not improved the standard of living in the region. This finding supports the arguments in previous empirical studies that highlighted that FDI had no or negative effect on standard of living. It is plausible that the ineffectiveness of aid lies in the failure to channel it to appropriate purposes. It is possible that political leaders gain from aid while the masses suffer. Another possibility is the projects the aid goes toward do not directly infrastructure projects that do not directly benefit the people in West Africa.

The results show that the coefficient of GDP per capita is positive (0.00008349) and it is statistically significant at 1%. This suggests that increases in GDP per capita have contributed positively to the standard of living in West Africa. Economic theory suggests an increase in GDP per capita is an indication of economic growth thus an increase in standard of living. In summary, from the results of our empirical analysis, we only found support for Hypothesis 3.

CONCLUSION

This study investigated the impact of foreign direct investment and foreign aid on standard of living in 16 West African countries from 2003 to 2019. The study utilized the ordinary least squares (OLS) technique to carry out an empirical analysis. The study found that changes in foreign direct investment and foreign aid did not improve the standard of living whereas GDP Per Capita did.

There are a few plausible reasons for these results. One, total FDI flow levels are not substantial enough for significant change. Two, that political leaders gain from the aid while the masses suffer (i.e., corruption). Three, projects the aid goes toward do not directly infrastructure projects that do not directly benefit the people.

Although these findings are surprising and provoke questions for further investigation. Economic theory says FDI should significantly impact HDI. Why do the results say otherwise? Perhaps future studies could investigate why foreign aid and foreign direct investment were not effective tools to improve the human development index in West African countries. They could do so by exploring the quality of institutes compared to their ability to translate foreign aid and investment to HDI increase. Although we narrowed our study to the region of West Africa, the region is large and encompasses significant diversity, it may be worthwhile to look closely at each country individually.

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