Empirical Assessment of China's outward foreign direct Investment to Africa

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Abstract— China's economy's progress and relations with other developing countries have received much attention, particularly how Sino-African relations have evolved since 2000. However, China's foreign direct investment (FDI) on economic development in Africa requires empirical assessment. This study investigates the causal effect relationship between GDP and China's outward FDI in Africa from 2003-2018 using panel data analysis. Contrary to the limited existing literature in Africa, an advanced econometric approach such as dynamic panel data estimation isused to ascertain the effect of China's exports to Africa, China's imports from Africa,Gross Annual Revenues of Chinese Companies' Construction Projects in Africa, and China's outward FDI to Africa. Our results suggest that China's outward FDI to Africa exerts a positive and significant impact on GDP.

Moreover, there is a positive relationship between China's exports to Africa, China's imports from Africa,Gross Annual Revenues of Chinese Companies' Construction Projects in Africa, and GDP. The causal effect finds a short-term relationship between GDP and China's outward FDIto Africa.The results show a strong implication in 39 Africa countries. More precisely, China's outward foreign direct investment in Africa and the Gross Annual Revenues of Chinese Companies' Construction Projects in Africa will surely have positive effects on the GDP (current US$) and the country's economic growth.Thus, the study recommends implementing measures and policies to manage China's outward FDIto ensure robust economic development.

Keywords— China's outward FDI, GDP, China's exports to Africa, China's imports from Africa.

I. INTRODUCTION

As a rising economic powerhouse, China's economic ties with other countries have received worldwide attention. Of interest is the growing social, economic, and political relationship between China and African countries. In unity, China has established several trade policies and mutually beneficial foreign investment policies to propel economic development. It also comes as part of a rise open Chinese economy, which has become a much proactive player in the international arena in the early 2000s. China's outward foreign direct investment (OFDI) has advanced technological and managerial knowledge in Africa. It has introduced industrial projects and improved trade and commerce in recipient African nations. Over the past decade, outward foreign direct investment to other nations, especially African countries, has progressed due to the forum's relationship on China-Africa Cooperation (FOCAC). According to China-Africa Trade and Economic Cooperation, between 2009 and 2012, China's foreign direct investment in Africa spread at an annual rate of 20.5%. Flows peaked in 2008 at US$5.5 billion (partly attributable to the purchase of 20% shares of

Standard Bank-South Africa). However, recent economic data indicates that Chinese FDI annual flows to Africa reports have fluctuated throughout the past decade.

Africa remains a major import source for the Chinese economy, the second-largest overseas construction project market, and the fourth largest investment destination of China (Claassen et al., 2012). Butcher et al. (2019) indicate rapid growth in China's OFDI to SSA in the past few years. As shown in figure one, bilateral trade between China and Africa increased from 1.75 billion USD to 204 billion USD from 1992–2018. China's imports from Africa have exceeded its exports in recent years due to economic development and increasing demand for natural resources for the domestic market. In this context, more attention is being paid to FDI and Trade between China and Africa. FDI and trade have become the inevitable choice for sustained economic development. Therefore, assessing China's OFDI, its role, and its influence on trade and economic development in Africa is the central aim of this study. Meyersson et al. (2008) found that exporting natural resources from Africa to China compared to the rest of the world has huge positive effects on Africa's economic growth and investment. Sharing a similar view with Drummond and Liu (2013), who say rising trade links with China, is beneficial to Africa since it enables African countries to diversify their export across countries.
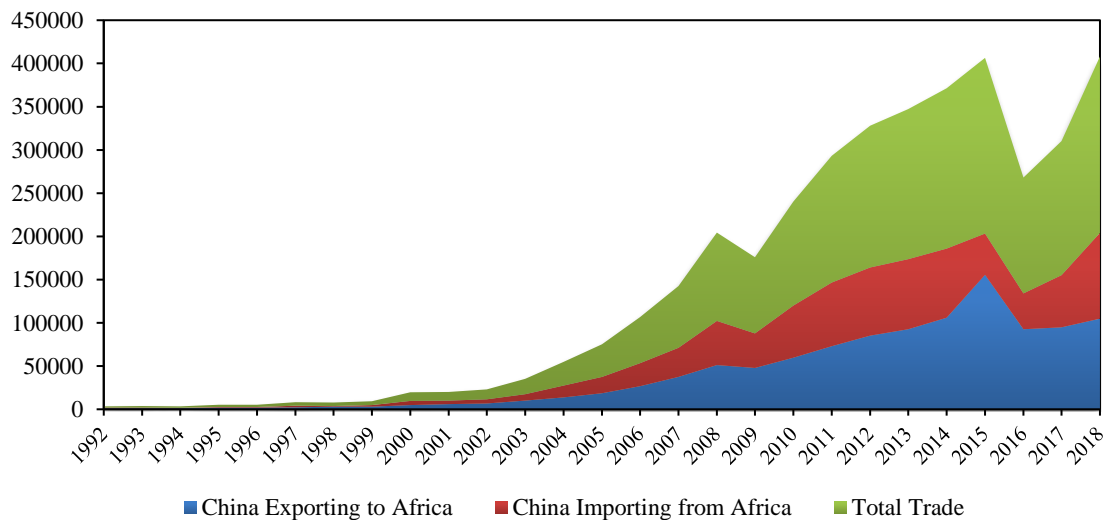
Fig.1: China-Africa bilateral trade. Notes: Figure plots the total trade, imports, and exports between China and Africa for each year from 1992 to 2018. Source: China Africa Research Initiative.

In promoting trade cooperation, the Chinese government, through its "Going Global" policies, encourages and supports Chinese enterprises in increasing their investment portfolios, especially in Africa (Dong∗ and Fan, 2017). As shown in Fig. 2, as at the end of 2015, China's cumulative FDI in Africa exceeded USD 43.30 billion. Most of these investments channeled into energy, mining, construction, and manufacturing. China has become a development model for African countries and an alternative source of trade and finance to Africa's traditional development partners.
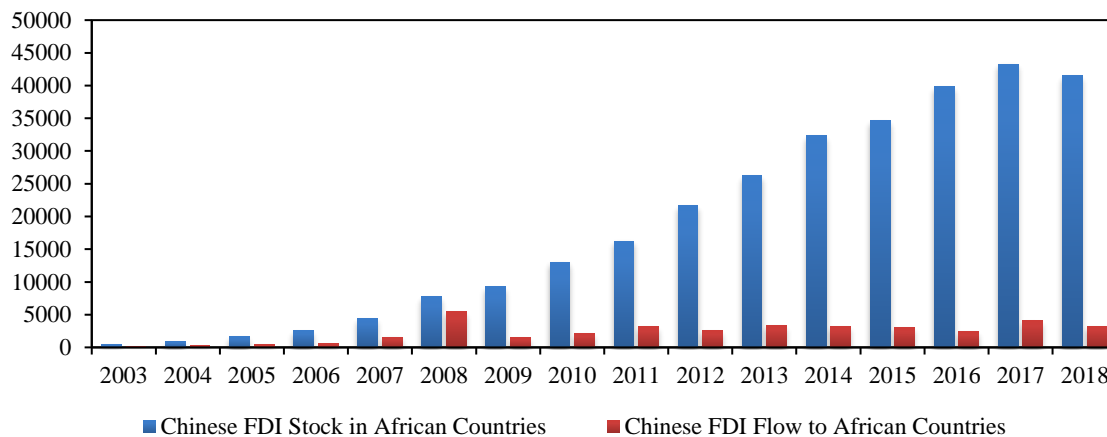
Fig.2: China's overseas investment in Africa (2003–2018). Notes: This figure plots China's OFDI in Africa for each year from 2003 to 2018. Source: China Africa Research Initiative.

Over the years, China has emerged as an FDI provider as there has been a substantial increase in investment in other economies. These have motivated various studies from various researchers. Cheng and Zihui (2009) analyzed the destination of China's OFDI, concluding that the real GDP of host economies and the distance among host countries. They concluded thatChina's OFDI flows and OFDI stocks had a significant impact on the host countries. They also examined the differences in the investment behavior of China across developed and developing countries. They suggested that China's OFDI tends to be induced by market-seeking and resource-seeking motiveswith developing countries. Dong et al. (2011) found that infrastructure and natural resources are principal factors attracting Chinese OFDI in Africa. Chinese investors choose to invest in countries that are geographically near to them (shorter distances away) and are less concerned with the strength of the host countries' institutional factors.

Our study contributes to the literature by assessing the widespread notion that FDI has a positive impact on host countries, especially in the African context. First, we quantitatively assess Chinese OFDI impact on trade and import to Africa. Second, we investigate the main drivers of OFDI transfer from China to Africa. Third, we assess the current situation of Chinese OFDI and evaluate how African countries can effectively use such investments to improve economy and efficiency.

The paper is structured as; Section two (2) provides an overview of the literature concerning the relationship between FDI and economic growth and trade and the determinants of FDI to Africa. Section three (3) discusses Chinese FDI flows to Africa between 2003 and 2018, while section four (4) gives an empirical analysis of the determinants of Chinese FDI flows to Africa. Section five (5) concludes the study with suggested recommendations.

II. RELATED LITERATURE

The substantial increase in recent years and the anticipated long-term outlook is the driving force of attention from various scholars and researchers to China's Outward foreign direct investment (FDI). Numerous studies have examined a series of issues regarding China's FDI outflow, with some studies investigating the trend and driving forces using diversified approaches, attaining different outcomes. The connection between FDI and economic growth has been evaluated in the literature. The World Trade Organization (WTO) acknowledges the impact of FDI in developing countries, including Sub-SaharanAfrican (SSA) economies, aids in economic growth acceleration and effective resource utilization. Not only does FDI inject capital into the domestic market, but it also plays a critical role in technological spillover and the advancement of managerial skills. Research believes that technology and knowledge can be transfer to the host country (Grossman & Helpman, 1997; Frankel & Romer, 1999). FDI is seen to be embedded with new technologies and know-how not available in the host country and could accelerate the speed of adopting technology and improving production efficiency in the host countries, thus promoting economic development. Outward FDI to host

countries is considered a major factor contributing to economic growth (Yao & Wei, 2007). Abdouli and Hammami (2017) used the GMM model to investigate seventeen (17) countries in the Middle East from 1990-2012 and empirically established a bidirectional causality relationship between economic growth and FDI. Another study by Hsiao et al. (2006) found FDI has a unidirectional effect on GDP growth using time-series and panel data spanning from 1986 to 2004 for China, Korea, Hong Kong, Singapore, Malaysia, Philippines, Taiwan, and Thailand using Granger causality relationship. Falki (2009) and Agarwal (2000) described the link between foreign direct investment and economic growth to be negative. Adams et al. (2015) concluded that FDI does not have a significant independent effect on economic growth in 22 sub-Saharan African countries. Agbloyor et al. (2016), in similar research, indicated no significance of FDI promoting economic growth in Sub-Saharan Africa. It was confirmed in related research by Asamoah, Mensah, & Bondzie (2019). Belloumi (2014) attributes the phenomena to inadequate investment in human capital, quality infrastructure, and economic freedom, evident among SSAs.

Abeliansky and Martínez-Zarzoso (2019) used simultaneous gravity equations to study Chinese imports, exports, and foreign direct investment (FDI) of 167 countries from 2003 to 2012. They concluded that outward Chinese FDI is related to higher exports and imports and that China trades more with countries hosting Chinese FDI. Furthermore, Broadman (2007) used firm-level data of the World Bank Africa Asia Trade Investment (WBAATI) survey and the World Bank's newly developed business case studies in Africa and found a positive link between foreign direct investment and Trade among Chinese firms involved in Africa. Yeboah and Agyeiwaah (2019) revealed that China's contribution to the total number of FDI registered projects in Ghana is very significant though the total sum tends to be lower. Chinese OFDI in Ghana had a significant positive impact on Ghana's employment (Boakye-Gyasi and Li, 2015), construction (Kwasi and Li, 2016), and Agriculture (Kojo, 2013). Claassen et al. (2011) state that China's outward FDI is concentrated in diversified, medium growth economic performers in Africa, with Southern Africa being the most popular region for China's outward FDI. Their research reveals China's OFDI to Africa hovers around agricultural land, market size, construction, and oil. The causality tests conclude that the relationship between African GDP and Chinese FDI is bi-directional. The top 5

destinations of Chinese FDI in Africa in 2014 were Algeria, Zambia, Kenya, Republic of Congo, and Nigeria. Algeria accounted for more than 20% of all Chinese FDI flows to Africa in 2014 (China Africa Research Initiative). Doku, Akuma, and Owusu-Afriyie (2017) established that a percentage increase in China's FDI stock in Africa, all things being equal, would significantly cause an increase in Africa's gross domestic product (GDP) by 0.607%, using the fixed effect estimation method. However, Zhang, Alon, and Chen (2014) found a contrary conclusion. They proved that Chinese FDI net inflows to SSA have no significant effect on the sub-region's economic growth. Adisu et al. (2010) found that Chinese investment has motivated people to access critical resources (oil, bauxite, etc.) in Africa.

2.1 Chinese FDI inflows to Africa, 2003-2018

According to the latest CEIC, China's Outward Investmentin Africa stood at USD 5.389 billion(data reported in Dec 2018). It is an increase from the previous USD 4.105 billion for Dec 2017. The data reached an all-time high of 5.491 USD billion in 2008 and a record low of 74.810USD million in 2003(CEIC). Although a significant share of China's OFDI has been concentrated in the African market, investments have become more geographically diversified since 2003. It indicates that the bulk of Chinese FDI to Africa has been concentrated in the classifications assigned by Roxburgh et al. (2010) to be the major driver of African economic growth and lends preliminary credit to China's investment in Africa obtain greater market access. To have a clearer picture of China's interest in securing market access, the various recipient countries' GDP rates were used to sort host countries into three groups, according to average economic growth acquired between 1995 and 2005. This period was chosen on the presumption that countries that achieved good historic economic growth rates would capture larger volumes of FDI inflows. High growth economies include economies that grew more than five percent on average between 1995 & 2005. The medium growth economies obtained average economic growth rates of between three and five percent, while low growth economies obtained less than three percent growth rates. The bulk of Chinese OFDI between 2003 & 2008 went to countries that historically were medium growth achievers, such as South Africa, Tunisia, Egypt, Nigeria, Namibia, Kenya, and Mauritius, which also represents the larger economies on the continent (Claassen et at, 2012). It again seems to affirm the idea provided by Verachia (Gordon Institute of Business Science conference (IBSC), 2010) that China is interested in

investing in Africa to gain access to larger markets for its products since around 97 percent of all Chinese FDI flows went to countries that could sustainably grow at more than 3 percent on average per annum. However, the clear interest in oil-exporting countries, coupled with diversified and stable growth achievers, follows a more traditional pattern of Foreign Direct investment. Since data concerning the exact sectoral composition of Chinese Foreign direct investment in Africa are fragmented and anecdotal, it is difficult to verify the nature of Chinese investment in Africa exhaustively. However, it is possible to examine the African countries that receive Chinese FDI and make some preliminary conclusions. An overview of deals end between Chinese and African firms confirms China's involvement in construction, mining, and oil in particular (Claassen et at, 2012).
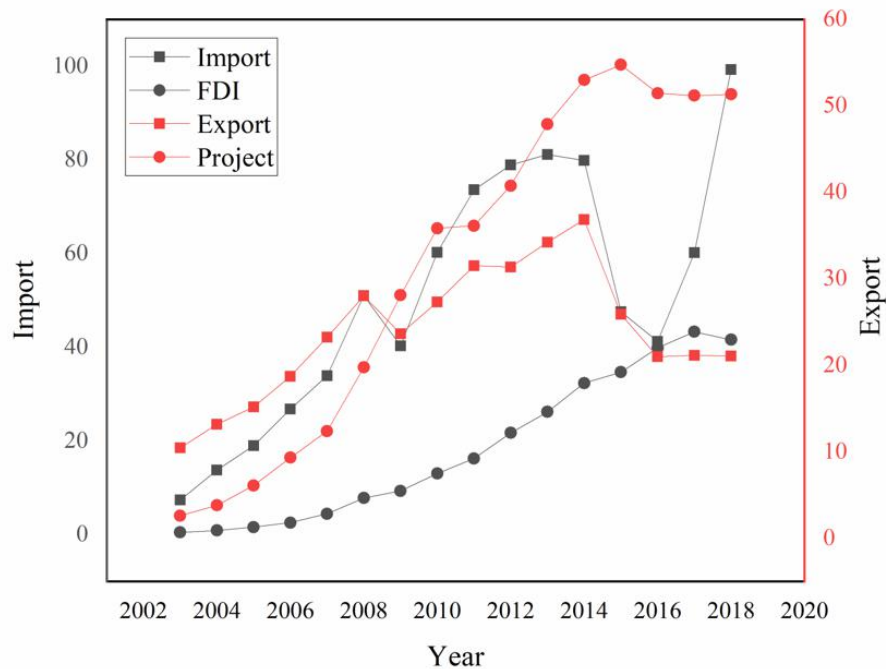

Fig.3: The trend of China's exports to Africa, China's imports from Africa, China's outward Foreign Direct Investment to Africa, and Gross Annual Revenues of Chinese Companies' Construction Projects in Africa.

Figure 3 indicates China's exports to Africa, China's imports from Africa, China's outward Foreign Direct Investment to Africa, and Gross Annual Revenues of Chinese Companies' Construction Projects in Africa. China's exports to Africa have a downward and upward movement, which rose from 2003 to 2008 and slope downward in 2009. China's exports to Africa started increasing from the year 2009 to 2014 and fell sharply in 2016. It remained stable at the level but with little downward differences till 2018.

On China's imports from Africa, the trends follow that of export. The figures rose from 2003 to 2008 and dropped in 2009. It started rising again from the year 2009 to 2011 and started decreasing steadily from 2012 to 2014. In 2014, it fell sharply in 2015 and continued to decrease to 2016 and returned to rising rate through to 2018.

The trend rate of China's outward Foreign Direct Investment to Africa rose from 2003 to 2018; in 2008, it rose a record high of USD 5490.56 million and decreased in the year 2009. In the year 2009, it started increasing again till 2018. The trend of construction projects kept rising from the year 2003 to 2015 and declined slowly till 2018.

III.   DATA DESCRIPTION

Our study uses panel data for the 39 African countries out of the 56 countries from 2008-2018, applying a dynamic panel data analysis. The selection of the 39 countries used for the study was solely based on the data's availability for the topic under study. Also, the choice of the starting period is constrained by the availability of data. World Development Indicators (WDI, 2019) was combed to collect the data for

GDP measured as GDP (current US$). The variables are; CEXPOT measured as China's exports to Africa, IMPORT measured as China's imports from Africa,PROJECT asGross Annual Revenues of Chinese Companies' Construction Projects in Africa, and COFDI dignified as China's outward Foreign Direct Investment to Africa data were extracted from China–Africa Research Initiative.

3.1 Methodology

Following the work of Kahouli (2017) and Moradbeigi et al. (2017), we employ the dependent variable in this model, GDP measured as GDP (current US$). The independent variables are CEXPOT measured as China's exports to Africa, CIMPORT as a proxy of China's imports from Africa,PROJECT asGross Annual Revenues of Chinese Companies' Construction Projects in Africa and COFDI dignified as China's outward Foreign Direct Investment to Africa data was extracted from China–Africa Research Initiative. The functional form of the model is expressed as:

$$GPD_{it} = D_{it}CEXPORT_{it}^{a1}, CIMPORT_{it}^{a2}, COFDI_{it}^{a3}, CPROJECT_{it}^{a4}, Y_{it-1}^{a5} \quad Eq(1)$$

Data for the equation's variables wereconverted into logarithmic terms to control for heteroskedasticity and provideconsistent results. Logarithmic transformation facilitates the explanation of the estimated coefficients as elasticities. Logarithmic transformation makes it feasible to solve or reduce the differences between the variables linked to the differences in their measure units.

The logarithmic transformation of equation (1) is given by:

$$lnGDP_{it} = \beta_o + \beta_1 lnCEXPORT_{it} + \beta_2 lnCIMPORT_{it} + \beta_3 lnCOFDI_{it} + \beta_4 lnCPROJECT_{it} + \beta_5 lnY_{it-1}\varepsilon_{it} \quad Eq(2)$$

The subscript i signify the country (i =1,…,39) and t indicates the time (t = 2003,…,2018). $lnCOFDI_{it}$ refers to the natural log of china outward foreign direct investment to Africa. $lnGDP_{it}$ reveals the natural log of GDP (current US$) in Africa as a proxy of economic growth. $lnCEXPORT_{it}$ shows China's natural log exporting to Africa, the natural log of China importing from Africa is represented by($lnCIMPORT_{it}$), while $\varepsilon_{it}$is the error term. $\alpha1$, $\alpha2$, $\alpha3$, $\alpha4$, and a5 are the output elasticities, respectively concerning COFDI, GDP growth, inflation, Export, and Import.

GMM Estimation Equation

$$LNGDP = C(1) + C(2) * LNCEXPORT + C(3) * LNCIMPORT + C(5) * LNCOFDI + C(6) * LNCPROJECT + \varepsilon_{it}$$

Where;

COFDI= Log of Chinas outward foreign direct investment,

GDP= Log of Gross Domestic Product (CURRENT US$),

CPROJECT=Log of Gross Annual Revenues of Chinese Companies' Construction Projects in Africa,

CEXPORT= Log of China's exports to Africa,

CIMPORT= Log of China's imports from Africa,

$\varepsilon_{it}$is the within-entity error.

The subscripts i and t represent countries and periods, respectively.

In this study, a dynamic Panel data study is used to test the three-way relationship. The first step of our analysis ensured the stationarity of the series or the order of each variable's integration. Therefore, the research of the stationarity of each series is based on two types of tests. First-generation tests Kahouli and Maktouf (2014a), Madalla & Wu (1999), and second-generation tests Pesaran, (2003). Both tests are based on two hypotheses: the null hypothesis of a unit root (non-stationary) against the alternative hypothesis of no unit root (stationary). The test results are presentedin Table 2 for a sample of 429, consisting of 39 countries in Africa.

After the order of integration signified expected of the different series, the Perdoni cointegration test was applied, allowing us to study the existence of a long-term relationship between all the variables involved. Then, we proceeded to the model estimation using the Fully Modified Ordinary Least Square (FMOLS) to complete the cointegration test.

IV. OUTCOMES OF ECONOMETRIC MODELING

The outcomes of the estimate made for Africa. The first step is to provide the unit root test to determine the stationarity of the variables. The second step implements the Perdoni cointegration test to check for cointegration between variables. Once the relationships are determined, a Vector error correction model can, therefore, be estimated.

4.1 Outcomes of Unit Root Tests

The table below gives the outcome of the unit root tests, according to Levin-lin-Chu (2002), Im-Pesaran-Shin (2003), and Maddala & Wu (1999), respectively.

Since Levin's test, Moradbeigi et al. (2017), suggests the dependence between individuals below the alternative hypothesis, the Im-Pesaran-Shin test intervenes to lift this

hypothesis and suggests independence between individuals under the alternative hypothesis. The test McKinnon (1973) and especially the PP-Fisher test, is requisite. Typically, the outcomes in Table 2 indicate that most of the variables used are integrated from I (1). On the other hand, the PP-Fisher test does not reject the unit root's presence's null hypothesis. The variable export is not stationary in level. On the other side, the null hypothesis of providing a unit root is declined, with one accord for all series in the first difference.

Table 2. Unit Root Tests Results

Variable	LLC		IPS		MW			
					ADF -Fisher		PP - Fisher	
	Level	First. Deference	Level	First. Deference	Level	First. Deference	Level	First. Deference
COFDI	0.93568	-12.6727	0.52246	-13.7407	88.7988	339.934	181.521	824.442
	(0.8253)	(0.0000)***	(0.6993)	(0.0000)***	(0.3125)	(0.0000)***	(0.0000)***	(0.0000)***
GDP	-4.53120	-7.46429	0.45949	-2.79519	90.7015	115.900	90.7015	196.503
	(0.0000)***	(0.0000)***	(0.6771)	(0.0026)***	(0.1541)	(0.0035)***	(0.9978)	(0.0000)***
CPROJECT	-1.98280	-10.9078	1.72654	-9.25495	58.2810	240.921	56.3113	438.944
	(0.0237)**	(0.0000)***	(0.9579)	(0.0000)***	(0.9854)	(0.0000)***	(0.9813)	(0.0000)***
CEPORT	-1.87435	-13.7949	2.19777	-10.5182	54.1927	266.305	55.6008	412.435
	(0.0304)**	(0.0000)***	(0.9860)	(0.0000)***	(0.9953)	(0.0000)***	(0.9928)	(0.0000)***
CIMPORT	2.35420	-4.61700	3.24760	-6.63321	66.6319	193.094	69.0363	386.045
	(0.9907)	(0.0000)***	(0.9994)	(0.0000)***	(0.9182)	(0.0000)***	(0.0406)**	(0.0000)***

***; ** and * show stationarity at 1%, 5% and 10% level respectively.

4.2 Outcomes of Cointegration Tests of Perdoni (1999)

The Pedroni (2011) test was employed to examine the presence of cointegration among variables. The outcome showed in Table 3 reveals that the probability of the majority of tests is greater than 1%, which allows us not to reject the null hypothesis of the presence of cointegration and to not accept the alternative hypothesis of the absent ofcointegration in the variables. The hypothesis of a long-term connection between these variables was confirmedno cointegration.

Table 3. Perdoni cointegration test result (1999)

	Statistic	Probability
Panel v-Statistic	-2.7495	0.9970
Panel rho-Statistic	5.6779	1.0000
Panel PP-Statistic	3.2342	0.9994
Panel ADF-Statistic	8.2119	1.0000
Group rho-Statistic	7.8709	1.0000
Group PP-Statistic	-6.9756	0.0000***
Group ADF-Statistic	0.8040	0.7893

Ho: No cointegration, Ha: All panels are cointegrated

***; ** and *, variables are cointegrated to 1%; 5%; 10%.

4.3 VECM Model

VECM Granger causality method makes it possible to examine the meaning and intensity of short-term relationships and indicate the rate of long-term adjustment.

We start with the long-term causality study between all the variables when c (1) has a negative coefficient and a significant p-value, which is less than 0.05, which is our case. Indeed, the outcome of our estimation of the VECM model of the long-term relationship presents a negative coefficient (-0.01) and an insignificant p-value (prob = 0.0000>0.05). It allows us to conclude that the variables that both GDP and china outward foreign direct investment in Africa, which are explanatory in this specification, cause GPD, by the way. Hence, the process converges in the long run.

Table 4. Long run cointegration test results

	Coefficient	St. Error	t-Statistic	Prob
C (1)	-0.0096	0.0020	-4.7363	0.0000***

***; ** and * show significance at 0.01, 0.05 and 0.1 level respectively.

For the short-term causality test, the method is based on Wald's test and subsequently explains the probability connected with the chi-square test. When the probability of chi-square testing is less than 0.05, we notice a short-term causality between the explanatory variable end question and the dependent variable.

Table 5. Wald test outcome on the short-term causality between GDP and china outward foreign direct investment

Test Statistic	Value	Df	Probability
F-statistic	18.5152	(2,274)	0.0000***
Chi-square	37.0303	2	0.0000***
Null Hypothesis: c (3) = c (4) =0			
Null Hypothesis Summary:			
Normalized Restriction (= 0)	Value	Std. Err	
c (3)	0.0079	0.0055	
C (4)	0.0425	0.0076	
Restrictions are linear in coefficients.			

The Wald's test outcomes showed a probability of chi-square (0.0000) less than 0.05, which allows us not to accept the alternative hypothesis that stimulates theexistence of a short-term relationship between GDP and China outward foreign direct investment in Africa. It allows us to conclude a short-term relationship between GDP and China outward foreign direct investment in Africa.

Substituted Coefficients:

$LNGDP = 80.3637 - 0.0014 * LNCEXPORT - 0.0078 * LNCOFDI + 0.0021 * LNCIMPORT - 0.0034 * LNCPROJECT + \varepsilon_{it}$

Table 6 GMM Test Results

Variable	Coefficient	St. Error	t-Statistic	Probability
LNCEXPORT	0.1728	0.0223	7.7329	0.0000***
LNCIMPORT	0.0731	0.0093	7.8855	0.0000***

LNCOFDI	0.0205	0.0071	2.9062	0.0039***
LNCPROJECT	0.0374	0.0152	2.4535	0.0147***
C	21.8692	0.1160	188.5258	0.0000

<div align="center">Effects Specification</div>

Cross-section fixed (dummy variables)

R-squared	0.9893	Mean dependent var	23.7362
Adjusted R-squared	0.9880	S.D. dependent var	1.3290
S.E. of regression	0.1457	Sum squared resid	6.9844
Durbin-Watson stat	0.7698	J-statistic	329.0000
		Prob(J-statistic)	0.0000***
Instrument rank		44	

***; ** and * show significance at 0.01, 0.05 and 0.1 level respectively.

The results in Table 6 show a robust Adjusted R-square of about 0.9880, indicating that about 98.8% change independent variable (GDP) is jointly explained by the explanatory variables (CEXPORT, CIMPORT, COFDI, and PROJECT), while only 0.05% present change in the dependent variable, that is, GDP (current US$) fluctuation can be said to be explained by factors outside the model. The result also indicatesthat all the variables are statistically significant in explaining GDP evolution in Africa with the t-statistic value of all the variablesat a 1% level.

Furthermore, our estimates show that both the COFDI and CPROJECT are a major contributing factor to China OFDI and Africa. To be more specific, the COFDI and CPROJECT variables have a positive and significant coefficient (0.0205) and (0.0374), which implies that a 1% increase in both COFDI and CPROJECT leads to 0.39% and 1.47 increase in GDP (current US$) in the long run.

However, our results show that the CEXPORT variable's impact also presents a positive coefficient (0.1728) but significant (0.0000) at a 1% level, which indicates that China exportingto Africa has a strongsignificant impact on GDP in Africa. China was importing from Africa (CIMPORT) as a variable with a positive coefficient (0.0731) and significant (0.0000) at a 1% level.China importing from Africa have a strong significant impression on GDP in Africa.

In this case, the China outward foreign direct investment in Africa as an independent variable and GDP as a dependent variable in the GMM regressionmodel indicates that China outward foreign direct investment to Africa leads to GDP (current US$), which humbly means that when there is an increase in COFDI implies that a 1% level increase leads to 0.39% increase in GPD (current US$). China's outward FDI in Africa has a strong impact on GPD (current US$).

V. RESULTS AND DISCUSSIONS

The outcomes in Table 2 indicate that most of the variables used are integrated from I (1). On the other hand, the PP-Fisher test does not allow us to reject the null hypothesis of a unit root's presence. The variable export is not stationary in level. On the other side, the null hypothesis of the presence of a unit root is decline, with one accord for all series in the first difference.

The results showed in Table 3 reveal that the probability of the majority of tests is greater than 1%, which allows us not to reject the null hypothesis of the presence of cointegration and not to accept the alternative hypothesis of the absence of cointegration in the variables. The hypothesis of a long-term connection between these variables was confirmed with no cointegration.

Indeed, the outcome of our estimation of the VECM model of the long-term relationship presents a negative coefficient (-0.01) and an insignificant p-value (prob = 0.0000>0.05). It allows us to conclude that the variables that both GDP and china outward foreign direct investment in Africa, which are explanatory in this specification, cause GPD, by the way. Hence, the process converges in the long run.

The Wald's test outcome showed a probability of chi-square (0.0000) less than 0.05, which allows us not to accept the alternative hypothesis that stimulates the existence of a

short-term relationship between GDP and China outward foreign direct investment in Africa. It permits us to conclude the existence of a short-term relationship between GDP and China outward foreign direct investment in Africa.

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VI.   CONCLUSION AND POLICY IMPLICATION

There is a significant increase in the FDI level from China, as revealed by several studies and data. The positive effect or otherwise of this huge financial flow has generated debates in different quarters. This study examinedChina's outward foreign direct investment in Africa, China exporting to Africa, China imports from Africa, and Gross Annual Revenues of Chinese Companies' Construction Projects. To

achieve this goal, we used annual data from 2008-2018 with a sample of 39 countries in Africa using econometric models based onthe Vector Error Correction Model (VECM) and Generalized Method of Moments (GMM).

The empirical evidence revealed that China outward foreign direct investment in Africa, China exporting to Africa, China imports from Africa, and Gross Annual Revenues of Chinese Companies' Construction Projects in Africa increases GDP. However, China exporting to Africa and China importing from Africa are the major contributors to GDP in the short and long run. The empirical outcomes show a strong implication in 39Africa countries. Precisely, China's outward foreign direct investment in Africa and the Gross Annual Revenues of Chinese Companies' Construction Projects in Africawill surely have positive effects on the GDP (current US$) and the country's economic growth.

Based on these findings, governments in Africa need to take advantage of the market or resource, asking Chinese FDI to benefit the region's manufacturing sector. It can be done by ensuring China's FDI is focused on positive backward and forward linkages with the manufacturing sector. Also, increasingdomestic content-based sourcing for production inputs where possible and contracting out of necessary intermediate good production activities in the production process to domestic entrepreneurs.The study also suggests that governments, in a bid to entertain Chinese FDIs in Africa, should export and import more from and to China as a lot of Chinese construction projects in Africa that have a strong impact on GDP (current US$) in Africa. Equally, measures that could encourage the exporting of locally made commodities should remain promoted.

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