Nexus Between Foreign Direct Investment, Exchange Rate, Capital Expenditure and Economic Growth in Egypt

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Abstract

This study explored the interrelationships among foreign direct investments (FDI), exchange rate, capital expenditure, and economic growth in Egypt, between 1990 and 2020 using fully modified OLS and Dynamic OLS. It employed real gross domestic product (RGDP), gross domestic product per capita (GDPpc) and gross domestic product growth rate (GDPgrt) as the measures of economic growth. The study also used FDI, real exchange rate (REXR) and capital expenditure (CAPEXP) as indicators to measure foreign direct investment, exchange rate and capital expenditure while controlling for interest rate (INTRS) and inflation rate (INFR). The result of Johansen cointegration test shows that there is cointegration among foreign direct investments, exchange rate, capital expenditure and economic growth in Egypt in the long run. Evidence from the FMOLS and DOLS results shows that foreign direct investments, exchange rate, capital expenditure and economic growth in Egypt have a long-run relationship. Thus, the paper recommends pro-growth policies such as economic diversification and strengthening of institutional quality.

Keywords: Foreign Direct Investment, Exchange Rate, Capital Expenditure, Economic Growth

1. Introduction

The pattern and nature of linkages of macroeconomic variables have a great way of effecting economic growth of national economies. Over the years, scholars, and academia have conducted various studies in the quest of examining the linkages among foreign direct investment, exchange rate, capital expenditure and economic growth in various ways (see Anetor, 2019; Akiri, et. al. 2016; Celik et al. 2017; Ofoegbu et al., 2016; Levina 2016; Bingxin 2016; and Szarouska 2016). In the last twenty years, almost all the developing economies have craved FDI in order to augment inadequate domestic investments. The developing economies have also sought FDI as a means of achieving efficiency gains through the transfer of relevant technology, management expertise, amongst other intellectual resources, to quicken their development (IMF, 1999). For the Egyptian

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economy, foreign capital inflows have helped to boost infrastructure, increased productivity, and created employment, having acted as a medium for advanced technology acquisition, and for the mobilization of foreign exchange.

Just like Egypt, FDI has proved to be a vital source of non-public, non-domestic finance for many emerging economies; it has also become a critical fulcrum for the growth and development of the economies. For Egypt specifically, FDI has stimulated substantial growth of the economy and served as a key source of external capital; this has invariably led to revenue increase for the country. FDI differs from other typologies of non-domestic private capital, because it stems from the profit motives of the investors as the put their funds in easily controllable production activities (IMF, 1999). Usually, the controllable production activities come as factories in the recipient country, which aid the utilization of certain local equipment, raw materials, labour hours or skills. Scholars such as Ocampo et al. (2009), Rodrik (2007; 2013), and Stiglitz and Greenwald (2014) have observed that exchange rate that simultaneously is stable and competitive is a major factor of economic growth. Consequently, the World Economic Forum (2021) averred that dynamic economic growth would result from the scaling of economic activities with appropriate exchange rate policies and higher technological advancement. Result of the economic outlook of Egypt, which was conducted by the African Development Bank (ADB) show that Egypt's economy has grown strongly and resiliently since the country initiated economic reforms in 2016.

With economic growth of 3.6% in 2020, Egypt joined the league of few African countries that defied the debilitating impact of the Covid-19 pandemic to make an economic progress in 2020. Though the 5.6% growth was slower growth witnessed previously, the economy stayed buoyant enough to escape recession as high domestic consumption came to its rescue. And if we exclude the cost of cost of government borrowing, the fiscal balance is expected to continue on a positive note at about 0.5% of GDP. Fiscal consolidation reforms strengthened the economic buffer, helped to keep the deficit largely unmoved at 8% of GDP in 2020; the deficit was 7.9% in 2019. There was a change in the trajectory of public debt as it increased to 90.6% of GDP in 2020 compared to 86.6% 86.6% in 2019. It had consistently declined in the previous three years. On the international trade side, the first half of 2020 saw a decrease of 6% in imports. Imports dropped by 21%, and thus helped to shrink the current account deficit to 3.1% of the GDP; the deficit was 3.6% in 2019.

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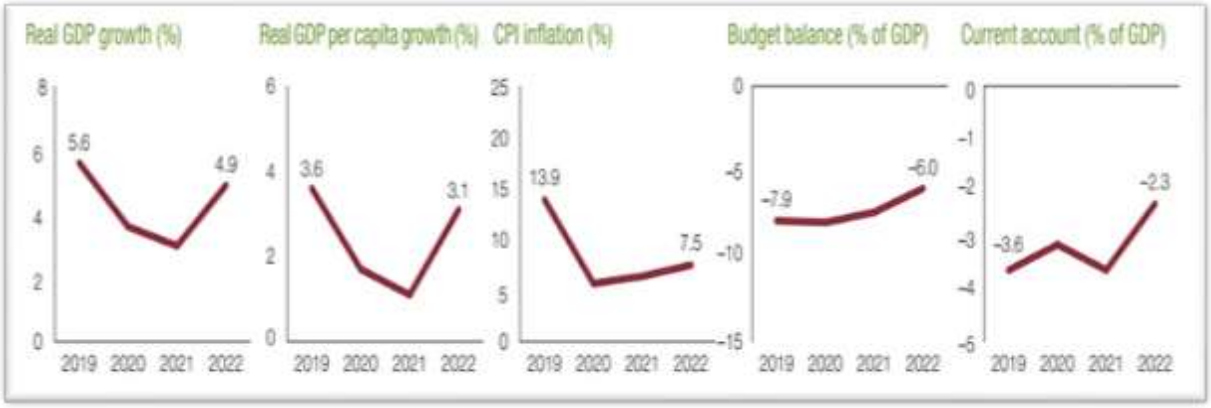
Foreign remittances mirrored the reduced current deficit to strengthen to 8% of GDP in 2020. Following the introduction of flexible exchange rate regime was adopted in 2016, Egypt witnessed a double-digit inflation phase. However, inflation has been on a downward trajectory since the summer of 2017. Prices were stable in 2020. Food, the most important item in the calculation of inflation, sold at almost the same prices, and headline inflation declined to 5.7%, from 13.9% in 2019. Fig 1. Below shows the performance of Egyptian real GDP, real per capita GDP, budget balance, as well as current account.

Fig.1: Egypt Economic Outlooks 2021



Source: African Development Bank's Economic Outlook 2021.

Lessons drawn from fig. 1 suggested that economic growth declined drastically from 5.6% in 2019 to 3.6% 2020; per capita income also decline greatly; inflation rate reduced which was very favourable for economic growth; budget balance increased and current account decreased. Thus, the pervasive behavior of the macroeconomic variables however, affected foreign direct investment, foreign remittances, purchasing power parity and economic growth. It would be expected that government and Egyptian policy makers should endeavour to use appropriate combinations suitable monetary policies and fiscal policies to salvage the economy. Based on the above synopses, and having explored the various contributions of researchers and policymakers, you will realize that there is no single study that has comprehensively explored the linkages among FDI, exchange rate, capital expenditure and economic growth in Egypt. There is therefore a need for a study that will fill this gap in literature, and this study addresses this need by evaluating how foreign direct investment, exchange rate, capital expenditure and economic growth are interlinked, using data from 1990 to 2020. This study employed real GDP (RGDP), GDP per capita (GDPpc),

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and GDP growth rate (GDPgrt) as the measures of economic growth. It used FDI, real exchange rate (REXR) and capital expenditure (CAPEXP) as indicators to measure FDI, exchange rate and capital expenditure while controlling for interest rate (INTRS) and inflation rate (INFR). The subsequent sections of the paper is organized thus: review of relevant literature was done in section 2, while methodology and model specification was done in section 3. In section 4, the empirical results were presented and interpreted; section 5 house the summary, recommendation and conclusion.

2. Review of Related Literature

For years now, many researchers', theorists', scholars, and academia have made some tremendous opinions in explaining how foreign direct investment, exchange rate, capital expenditure and economic growth co-relate, as well as how foreign direct investment, exchange rate, and capital expenditure affect the growth of the economy. This section will examine a number of theories and empirical literature as they concern how foreign direct investment, exchange rate, capital expenditure and economic growth are interrelated. For Harrod-Domar theory of growth, an economy needs to save and invest portion of its output (i.e. GDP) for it to grow. This means that the size of growth of a country's economy is determined by the twin factors of capital-output ratio and savings available to that country. So excluding government intervention, the rate of growth of the national income has a direct relationship with savings and investment; thus growth increases with higher savings rate. On the other hand, economic growth bear negative relationship with the capital-output ratio; thus a higher capital-output ration will lead to a low GDP growth rate. So for the Harrod-Domar Model of growth, low capital formation leads to low savings and therefore low investment.

The Harrod-Domar model of has a key limitation of failing to properly account for growth developing countries. For instance, the absence of sound financial system in many domestic countries means that when households save, the savings may not be available for the investment needs of firms. Additionally, many argue that efficiency gains may not be easy to achieve in developing countries due to weak human capital. As a result, it may not sufficiently drive down the capital-output ratio to catalyse economic growth. The German economist Adolph Wagner examined the connection between the activity of the state and economic growth. In his book, he

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postulated the law of expanding state activity, and averred that in the long run, governments' activities tend to rise as the levels of economic developments increase. According to Wagner's law, which can be seen to apply mostly to developing economies, social progress fuels increased public capital expenditure. In arriving at this generalisation, Wagner considered two factors. The first is that the income elasticity of demand for services provided by the government is greater than one. The second is that as an economy develops, the public sector impacts the private sector substantially. In his argument, Wagner pointed out that the level of criminality increases with higher levels of economic growth owing to the concomitant increase in the worries of life. As a result of the increased criminality, public expenditures need to rise to curb, or, at least, minimise it.

Additionally, Wagner posited that higher levels of economic development make trade and legal relations more complex, requiring the constant arbitration from the state. At the international level, military forces assume preventive postures in place of their conventional aggressive dispositions. This requires larger standing armies and therefore larger government spending. Wagner stated that increased per capita national product will lead to larger expenditures on education and public health. Also, as households seek to meet their basic housing, nourishment, and clothing needs, the consumption of cultural services will grow faster than the GDP. The review of previous literature relating to foreign direct investment, exchange rate and capital expenditure nexus with economic growth are voluminous but there is no specific literature, as of now, which addresses how FDI, exchange rate and capital expenditure affect economic growth. Economic growth has numerous determinants and the aforesaid macroeconomic variables have great ways of affecting it; this study seeks to unveil such determinants. For instance, foreign direct investment promotes economic growth by creating a synergistic link between countries and promotion of cross-border trades. The rate of exchange of a country's currency on its own also greatly determines the level of economic growth and capital expenditure in an economy, and this often determines how macroeconomic policies would be handled in order to achieve economic growth. Some notable scholars have conducted various research relating to this topic in various degrees. But there is a dearth of specific theory or empirical evidences that explain the linkages that exists between foreign direct investment, exchange rate, capital expenditure and economic growth in Egypt. So, in this section, we review a number of empirical literatures that address aspects of this.

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Anetor (2019) found that when compared to other types of capital flow, FDI is responsible for substantial changes in Nigeria's economic growth. Anetor (2019) used quarterly data from 1961 to 2016 and the Structural Vector Autoregression Model (SVAR). With these, he examined how shocks of the inflow of private capital influences Nigerian economic growth. From the result, it can be deduced FDI positively impacts on the growth of the Nigerian economy, and in a significant way. Ditto with the inflows of portfolio investments. Using secondary data from 1981 to 2014 and vector error correction model (VECM), Akiri, et al. (2016) also arrived at a conclusion similar to that of Anetor (2016). Likewise, another study was conducted yearly time series data, which spanned 11 years - 2006 to 2016(see Sokang, 2018). Multiple regression and correlation matrix were used to analyse the data, with a view to measuring how FDI impacts the Cambodian economy. The result of the analysis revealed that FDI and Cambodia's economic growth have a direct relationship. In their own study, Trang et. Al. (2019) used the VECM and fully modified OLS to test the impact of FDI on the economic growth of developing countries in the short-run, and also in the long-run. They used data from the lower-middle income group of developing countries for the period 2000-2014 was used.

Several literatures exist, which examine how exchange rate affects economic growth of a nation. For instance, one used panel data analysis to examine the causal relationship between exchange rate and economic growth. The study analysed cross-sectional data derived from 1995 to 2014 in 12 Eastern Europe and Middle Asia economies evolving from centrally-planned to competitive market economy – the so-called transition economies (see Celik et. al., 2017). The results showed increase in exchange rate impacts the economy negatively. Never the less, the result also revealed that movements in real exchange rate impacts economic growth significantly (Celik et. al., 2017).

Another literature looked at the core components of the economies of developing countries (see Ribeiro et. Al., 2019). This study examined the connection real exchange rate has with economic growth, sampling data from 1990 to 2010 in 54 developing countries. The result showed that for developing countries, currency devaluation has negative impact on economic growth. But from a study carried out by Habib et al. (2017), which examined how exchange rate adjusted for inflation affects economic growth, presented a different outcome. The scholars looked at five-year average

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panel data from more than 150 countries in periods after the Bretton Woods agreement, and found that ex-inflation depreciation of the currency caused GDP growth inn real terms. One can safely infer that the studies carried out thus far show that rising exchange rate has a mixed causal effect on the economy. This presents a sort of dilemma with respect to currency devaluation as a means of fostering economic growth. As such, structuralist economists contend that for non-industrialised economies, increasing exchange rate (i.e. currency devaluation) negatively impacts economic growth. Bird and Raja (2004), for instance, argue that a policy of devaluation could potentially shrink the growth of developing economies. To a large extent, developing economies depend on imported inputs to drive production of goods and services. As a result, exchange rate increases will limit the ability of producing units of the economy to bring in much needed inputs such as raw materials, intermediate and investments goods, by making them expensive. From Hallwood and Macdonald (2003), it is then easy to see why a devaluation policy have positive consequences for some developed countries, but has negative implications for the economic growth of developing countries.

Also, various empirical studies have been carried out over the years to evaluate the effects, if any, of capital expenditure on economic growth. While some of these studies are country-specific, others are cross-country. Ofoegbu, et al. (2016), for instance, studied the practical impact of tax revenues on Nigeria's economic development. They used data (yearly time series) from 2005 to 2014, and discovered that tax revenue significantly impacts economic growth. They found that there is a significant relationship between tax revenue and economic development. What is more, the study showed that when measured based on the impact on economic growth, tax revenue will have lower relationship compared to when it is measured based on the relationship with GDP. So it can potentially present a false depiction of the effect tax revenue has on Nigeria's economic development. The relationship between personal income tax and economic growth in Germany was explored by yet another study (see Levina, 2016). Using a generalized method of moment (GMM), the study established that both FDI and liberalisation activities in the economy foster economic growth. But when the components of liberalized economy are decomposed, it was found that only business and monetary liberalization indices have impacted growth in the economy.

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Yet, another study examined how taxation affects capital expenditure and economic growth in China (see Bingxin, et. al., 2016). Unlike the model used by Levina (2016), the dynamic GMM was used in their study. They evaluated a panel data set drawn from the years 1990 to 2014 for 44 developing countries. Their analysis revealed an interesting fact – growth of the economy is impacted differing dimensions, depending on the nature of government expenditure. Thus, when various African governments spent to develop human capital, the growth of the economy was enabled. In Asia however, it is the formation of capital that was shown to directly impact the growth of the economy. Other factors that we found to have similar impacts were agriculture and education. The result is intriguing for Latin America. Studies showed that of all government items of spending by government, none had significant impact on economic growth. For Szarouska (2016), the enquiry was on the link between revenue generated through the administration of taxes by national government in the Czech Republic and the country's economic growth.

Data from 2000 to 2013 were analysed using cointegration and error correction modelling (ECM), to ascertain how ten aspects of governments spending affect economic expansion. From the results obtained, cointegration subsists between GDP and aggregate government expenditure. Spending on public order and safety also affects economic growth in a similar way, just as spending on economic affairs. But according to the study, no such co-integration was found to subsist between GDP and the remaining constituents of government spending that also comprised the model. Accordingly, Szarouska (2016) surmised that in the long run, increased spending by the government on general public services raises the GDP. The conclusion was also that GDP is affected in the same manner by spending on public order and safety, as well as spending on economic affairs. Nevertheless, the observation was different with government spending on defense, amongst eight other items (see Szarouska, 2016). For Jiranyakul and Brahmasrene (2017), the critical question while examining empirical evidence from the Organisation for Economic Cooperation and Development (OECD) countries, was whether tax structure has any impact on the growth of the economy. They forecast the nature of response of the level of per capita income to changes in tax revenue configuration in the long-run. They used panel data covering 1980 to 2010 from 17 OECD countries. Compared to prior researches, the enquiry did not find evidence of a strong effect of the different types of tax regimes on growth. The important conclusion from the study then includes that in the long-run, higher levels of per capita income is associated with

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shifts in tax revenue towards property taxes. The variables for the study included physical capital, human capital, and population growth, amongst six other variables. The study found evidence that the total tax revenue tilts towards property, per capital income may be positively impacted.

3. Research Methodology

In other to study the nexus between FDI, exchange rate, capital expenditure and economic growth in Egypt, a set of annual time series data obtained from World Development Indicator (WDI) of the World Bank, which spanned 1990 to 2020, was utilized. Thus, the availability of data as at the time of the research informed the choices of variables and scope of the study. Furthermore, this study employed real GDP (RGDP), gross domestic product per capita (GDPpc) and gross domestic product growth rate (GDPgrt) as the measures of economic growth; foreign direct investment (FDI), real exchange rate (REXR) and capital expenditure (CAPEXP) as indicators to measure foreign direct investment, exchange rate and capital expenditure while controlling for interest rate (INTRS) and inflation rate (INFR). For clarity's sake, the aforesaid variables will be defined below.

Real Gross Domestic Product (RGDP) is defined here to mean the value of all goods and services produced by an economy (expressed in base year prices) in a given year, after removing the impact of inflation. **Foreign Direct Investment (FDI):** Foreign direct investment (FDI) is the deployment of financial capital by a person (corporate or individual) directly into a business situated in a country outside that of the investing person, with the investor having whole or controlling ownership an investment in the form of a controlling ownership of the investee business. The key feature of FDI here is gives the investor actual control of the foreign business entity in which the funds have been invested, or at least substantial influence over the Board of the investee company. **Exchange Rate (EXR):** This is defined as the cost of a foreign currency in terms of a national currency. In other words, it means how much of a country's currency it can exchange for the currency of another country. To control for FDI, EXR, CAPEXP and economic growth nexus, we used such variables as interest and inflation rates. The reason was based on the fact that FDI, EXR, CAPEXP and economic growth are greatly affected by rates of interest and inflation rate both locally and internationally. The measure of interest rate used in this study is the **Real interest rate (RINT),** which is the rate of return expected from an investment minus the inflation effect.

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Inflation rate is construed here to mean the persistent rise in the prices of commodities in an economy.

Furthermore, this study utilized fully modified OLS, and dynamic ordinary least square OLS. As proposed by Philips and Moon (1999) and Kao and Chiang (2000), these have notable advantages over other cointegration equations such as OLS estimators. One of these advantages is that they take care of small sample bias problems; they also address issues arising from challenges of endogeneity by using the leads and lags of first-differenced regressors. The weaknesses of applying panel ordinary least-square in examining long-run relationship yields biased estimators in most cases except if the objects of study are rigorously scrutinized. Even though it is a non-parametric model, the fully modified OLS takes care of autocorrelation problem by default, but it is non-parametric model. In the same vein, the dynamic OLS, which is also a parametric model, is deficient from the point of view that degree of freedom issue arises from leads and lags (Maeso Fernandez, Osbat and Schnatz, 2006). The functional form of fully modified OLS and dynamic OLS is stated below:

$$R_{i,t} = \aleph_i + j_{it}\varphi + U_{it}, i = 1,.....,100, t = 2000-2019 \text{----------} (1)$$

Where φ is the symbol of slope (a, 1) dimension, U_{it} is the term arising from stationary disturbance; $\aleph$ represents individual fixed-effects which is presented as $j_{it}(a,1)$ vector as integrated of order $\mathrm{I}(1)$ for all the I, and $j_{it} = j_{it-1} + U_{it}$ Equation 1 is the cointegration equation which implies that Y_{it} is co-integrated with j_{it}. An asymptotically normal behaviour of FMOLS and DOLS estimators are reported. The equation of FMOLS rectifies the issues of serial correlation and endogeneity of OLS regression when it is in the form expressed below.

$$\xi FMOLS = \left[\sum_{i-1}^{N}\sum_{t=1}^{T}(N_{it}-\mu_i)\right]1\left[\sum_{i=1}^{N}\left\{\sum_{i=1}^{T}(N_{it}-\mu_i)Y_{it} + T\Delta_{eU}\right\}\right] \text{----------} (2)$$

Where Y_{it} in equation 6 is the transformed form of Y_{it} in equation 1 which have rectified the endogeneity issue and Δ_{eU} indicates serial correlation term. Likewise, DOLS estimator cares for autocorrelation and endogeneity problems in panel data regression as follows:

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$$Y_{it} = \gamma_i + \varphi 1 r_{it} + \sum_h^d f_{ih}\Delta r_{it+k} + V_{it,} t = 1,....., T_i = 1,....., N \text{ ----------(3)}$$

Here, V_{it} shows the deviations, φ indicates banks-related effects and f_{ih} denotes values of lag or leads of the first differenced independent variables. Thus, DOLS estimator is written as follows.

$$\xi DOLS = \sum_{t=1}^{N} \{S_{it} S`_{it}\} 1 \sum_{T}^{t=1} \{S_{it} Z_{it}\} \text{ ----------(4)}$$

Where $S_{it} = \{l_{it} - l_i \Delta l_{i,t+v}\}$ is $2\{V+1\}X1$ regressor is vector.

4. Empirical Results and Interpretations

Results of the empirical findings will be discussed in this section, in order to investigate the interconnectedness among FDI, exchange rate, capital expenditure and economic growth in Egypt. In this study, we employed various econometric tests, including descriptive statistics. In the course of the study, we also used unit root tests and normality test. In addition, other tests such as serial correlation test, ramsey reset test and heteroskedasticity tests were also deployed to ensure that the basic assumptions of ordinary least squares (OLS) is satisfied. Hence below in table 1 is the summary of the descriptive statistics. Descriptive statistics are often used by researchers to show the general characteristics of variables of the model.

Table 1: Summary of Descriptive Statistics

	RGDP	FDI	REXR	CAPEXP	INTRS	INFR
Mean	16.19657	0.804217	-0.618251	0.083959	0.480296	0.137398
Median	2.479375	0.512223	-0.894518	0.018253	0.508882	0.111043
Maximum	9.039238	9.685511	0.565302	0.562788	1.781635	0.310996
Minimum	0.267800	0.022375	-1.651565	0.001850	-0.132973	0.018333
Std. Dev.	25.32490	1.671042	0.797763	0.155521	0.466775	0.087443
Skewness	1.568067	5.066823	0.415784	2.166382	0.595386	0.291137
Kurtosis	4.257631	27.49124	1.607897	6.433119	3.064831	1.826704
Jarque-Bera	14.74692	907.4107	3.396384	39.47225	9.836934	22.21670
Probability	0.000628	0.000000	0.003014	0.000000	0.000130	0.000007
Observations	31	31	31	31	31	31

Source: Computed by Author

Findings from the result entails that the overall variations in the series ranges from -1.651565 to 9.685511 which is the minimum and maximum values in the series. The probability values of the

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Jarque-Bera statistics were observed to be less than 0.05 for all the variables; and the Skewness and Kurtosis are not far from each other which suggests that the series are normally distributed and there is no evidence of autocorrelation in the series. Haven observed the nature and characteristics of the variables, we further move to envisage if the series has unit root or not. To do this, we employed augmented Dickey-Fuller (ADF) test which was complemented with Philips-Perron (PP) unit root test following extensive study carried out by Manasseh et al. (2017) and the results are presented in table 2 below.

Table 2: Summary of Unit Root Test

Variable	*ADF*	*Order of Integration*		*PP*	*Order of Integration*	
		Level	First Difference		Level	First Difference
RGDP	-4.496706	_	I(1)	-4.669014	_	I(1)
	(0.0013)			(0.0008)		
FDI	-5.984661	I(0)	_	-5.983815	I(0)	_
	(0.0000)			(0.0000)		
REXR	-3.544181	I(0)	_	-3.610094	I(0)	_
	(0.0135)			(0.0116)		
CAPEXP	-5.557062	_	I(1)	-5.727006	_	I(1)
	(0.0001)			(0.0000)		
INTRS	-8.257265	_	I(1)	-8.574375	_	I(1)
	(0.0000)			(0.0000)		
INFR	-7.620947	_	I(1)	-8.589518	_	I(1)
	(0.0000)			(0.0000)		

Source: Computed. Note: ***, ** and * represents 1%, 5% and 10% levels of significant; (.) denotes probability value

The null hypothesis for this test is "has no unit root", while the alternative hypothesis is "has unit root". The decision rule is to reject the null hypothesis if the probability value is less than 0.05, otherwise accept the alternative. Evidence from both ADF and PP unit tests entails that there is no evidence unit root for all the variables of the model since the probability values are less than 0.05. Furthermore, the variables were discovered to be integrated at level and first difference and not at integration order above I(1) like I(2). Thus, this makes the variables very suitable for the estimation.

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Nexus between Foreign Direct Investment, Exchange Rate, Capital Expenditure and Economic Growth in Egypt

The study of the nexus between foreign direct investments, exchange rate, capital expenditure and economic growth in Egypt become so sacrosanct following the 2016 economic reform by Egyptian government. This study employed various macroeconomic variables among which include real gross domestic product – RGDP (a measure of economic growth); foreign direct investment (FDI); real exchange rate – REXR (a measure of exchange rate); and capital expenditure (CAPEXP). While controlling for interest rate (INTRS) and inflation rate (INFR). To fulfill the assumption of OLS, this study employed Normality test, Breusch-Godfrey Serial Correlation test, Heteroscedasticity test and Ramsey Reset test and results entails that the error terms of the models are normally distributed, serially uncorrelated and homoscedastic and the result of the Ramsey Reset test shows that the models are correctly specified (see table 4).

Table 4: FMOLS and DOLS Estimated Results

	Dependent Var.: RGDP	
Variable	FMOLS	DOLS
lnFDI	-0.858951***	4.363336**
	[0.803013]	[1.724559]
lnREXR	-1.009883***	4.225773***
	[1.733248]	[1.967109]
lnCAPEXP	125.4625***	141.0172***
	[12.41793]	[23.48035]
lnINTRS	4.322530***	13.71945**
	[3.579489]	[5.293011]
lnINFR	-58.65275***	-82.51647***
	[19.23600]	[21.71458]
No. of Obs.	30	28
R-Squared	0.825568	0.964418
Constant	10.91641	4.862437
Normality	95637.57	734.5838
	(0.0000)	(0.0000)
Serial Correlation	1.475631	6.738202
	(0.4521)	(0.3382)
Ramsey Reset Test	2.284734	-3.573002
	(0.0000)	(0.0000)
Heteroscedasticity	16.57384	9.577453
	(0.1098)	(0.3422)

Source: Computed. Note: [.] represents standard error; {.} represents T-statistic; (.) represents probability values; ***, **, and * represents 1%, 5% and 10% levels of significant

The FMOLS and DOLS estimation techniques was used due to their ability to address small sample bias and endogeniety problems. Evidence from the main findings entails that long-run relationships exists between foreign direct investments, exchange rate, capital expenditure and economic growth in Egypt. In the FMOLS results, negative and significant relationships exists between FDI, REXR

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and economic growth, positive long-run relationship exists between capital expenditure and economic growth. It was further observed that positive and significant relationships exists between FDI, REXR, CAPEXP and economic growth. Foreign direct investment is of crucial importance to the economic growth. It creates a fertile ground for massive job creation and employment of factors of production since investors would build new companies and businesses and use local factors of production sourced from the country who hosts the foreign investors. This leads to increase in level of income and stable purchasing power parity to the local nation, which will lead to economic growth. Foreign direct investments is of crucial importance for developing and emerging economies like Egypt where companies need funding and expertise to expand their international and local sales. The exchange rate is also held in high esteem because it determines the price of the imported goods relative to the domestic goods. It is very important to state it clear however, that when exchange rates are well managed by the government of the nation, it spur the economy with numerous benefits, such as attracting international investors, aiding international trade, improvements of the countries purchasing power parity and healing of the macroeconomic soundness. Rom the long-term financial perspective, capital expenditure helps the government and policymakers to understand whether the economy offers an attractive rate of return. In that way, government can balance, and maintain the economy and having enough capital to invest for economic growth. Egyptian economy just like other African economies are known for ineffectiveness in governance and institutional quality. Fraud, corruption, and poor monetary and fiscal policy measures has become the order of the day. According to vanguard (2011), most African leaders are corrupt and would focus more on their personal aims rather than on the interest of the general public. Thus this taints the economic growth in most African nations. However, the negative relationships of foreign direct investments, exchange rate and capital expenditure with economic growth in Egypt can attest to this, hence government are advised to be consistent in fulfilling their macroeconomic objectives by employing better monetary and fiscal policies. These findings are in line with other findings made by scholars such as Ocampo et al. (2009), Rodrick (2007; 2013), Stiglitz and Greenwald (2014), and Akiri, et al. (2016).

5. Summary Recommendation and Conclusion

This study focusses on evaluating the nexus between foreign direct investment, exchange rate and capital expenditure in Egypt using annual data ranging from 1990 to 2020. In order to measure this

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nexus, this study employed various macroeconomic variables among which include real gross domestic product – RGDP (a measure of economic growth); foreign direct investment (FDI); real exchange rate – REXR (a measure of exchange rate); and capital expenditure (CAPEXP). While controlling for interest rate (INTRS) and inflation rate (INFR). In order to investigate if the variables have unit root or not and the order of integration, we employed augmented dickey-fuller and Philips-perron unit root tests. The results shows that there is no unit root in the series and the variables are integrated of order I(0) and I(1). Furthermore, evidence from the results of pre and post OLS estimation tests shows that the error terms of the estimated models are normally distributed, serially uncorrelated and homoscedastic and all the variables are correctly specified (see table 4). To check for cointegration, we employed Johansen cointegration test and the result shows that there is cointegration between foreign direct investments, exchange rate, capital expenditure and economic growth in Egypt since the Trace Maximum Eigenvalue are greater than 0.5 critical values. Evidence from the main findings of the results of FMOLS and DOLS suggested the existence of long-run relationship between economic growth, foreign direct investments, exchange rate, and capital expenditure in Egypt. The results of R-squared which measures the goodness of fit entails that the overall variations in the economic growth are explained by 83% and 96% of variations in the FDI, exchange rate, and capital expenditure. Based on the above findings, this study concludes that foreign direct investments, exchange rate and capital expenditure have long-run relationships with economic growth in Egypt, thus we recommend that favourable preconditions that would make international trade thrive in Egypt such as investor-friendly environment, good governance and regulatory quality and security of lives and properties should be implemented by the Egyptian government so as to boost the economic growth.

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