The Determinants of FDI in Kenya

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Abstract:- Foreign Direct Investment's patterns on the Kenyan economy has been minimally investigated by researchers, notwithstanding its hypothetical dynamics it experiences from other covariates in the Kenyan economy. This study was aimed at examining the effect of Gross Domestic Product (GDP) and capital formation on the Kenyan economy. The study used annual FDI, GDP and capital accumulation datasets from the World Bank Sources. The analysis entailed multiple regression modelling, with the assumptions of ordinary least square models such as linearity, heteroskedasticity factored. The results informed that GDP and capital formation had a negative effect on FDI in Kenya. Furthermore, GDP proved statistically insignificant in predicting annual FDI, whereas capital formation and the intercept registered significant effects. The findings also informed that FDI would still be positive in the absence of covariates. The study vouched for the need for the Kenyan Government to encourage more investments to enhance capital formation and better the investment landscape in the country. Moreover, the Government through treasury should undertake cost benefit analysis to assess the significance of the FDI injected into the economy.

Keywords:- Economy, FDI, GDP, Capital, investments.

I. INTRODUCTION

Topcu & Aslan (2020), Etokakpan et.al (2020) and Abass et.al (2020) revealed that capital formation ahd a positive effect on economic growth, especially in developing economies. In return, the investors reap better return on investments, from their FDI injections, hence attracting more investors into such economies. Irungu (2020) revealed that GDP had a positive significant effect on FDI within the Kenyan economy. This explained that in developing economies, the growth in FDI may be associated with the GDP trends. Nonetheless, Rana & Ali (2022) reported that GDP had a negative effect on FDI. This was attributed to technology gaps in countries with varied injections of FDI. However, Joshua & Sarkodie (2020) informed that aggregate GDP had a positive effect on FDI across different income grouped sectors of the economy. The determinants of FDI patterns were noted to rely on other covariates, for instance, GDP could rely on technology, nature of the economy and infrastructural development among others. In this context, it was clear that there was the need to examine the effect of both GDP and capital formation on FDI in the Kenyan context.

- Research Questions
  - RQ1: What is the effect of GDP on Foreign Direct Investment?
  - RQ2: What is the effect of Capital Formation on Foreign Direct Investment?

II. METHODS

Our study analyzed the whether GDP and Capital formation had an effect on Foreign Direct Investment (FDI) in Kenya. The project data was collected from World Bank Database from 1960 to 2021. Foreign Direct Investment (FDI), GDP and Capital Formation were the variables obtained from the data. The data was log-transformed, prior to statistical analysis. The data was analyzed using STATA 15 software. Summary statistics, trend graphs, scatterplots and multiple linear regression. Heteroskedastic tests were used to test whether the developed linear model had constant regression.

III. RESULTS

Variable	Obs	Mean	Std. Dev.	Min	Max
FDI	41	-17.189	5.366	-21.103	14.405
GDP	41	27.338	1.659	24.565	29.959
Capital Formation	41	26.922	.698	26.06	28.129

Table 1: Summary statistics

**All the numbers are log-transformed

The macroeconomic data revealed that the average FDI from the Kenyan context was -17.189 with a corresponding standard deviation of 5.366 in US Dollars. The highest possible FDI for the period was 14.405 with a minimum of -21.103 from the 41 years. Gross Domestic Product had an average of 27.338 for the 41 years. The maximum GDP for the country was 29.959 in USD dollars. The average capital formation for the economy was 26.92 with a standard deviation of 0.69. The least levels of capital formation for the 41 was 26.06, with a maximum observed at 28.13 in US Dollars.
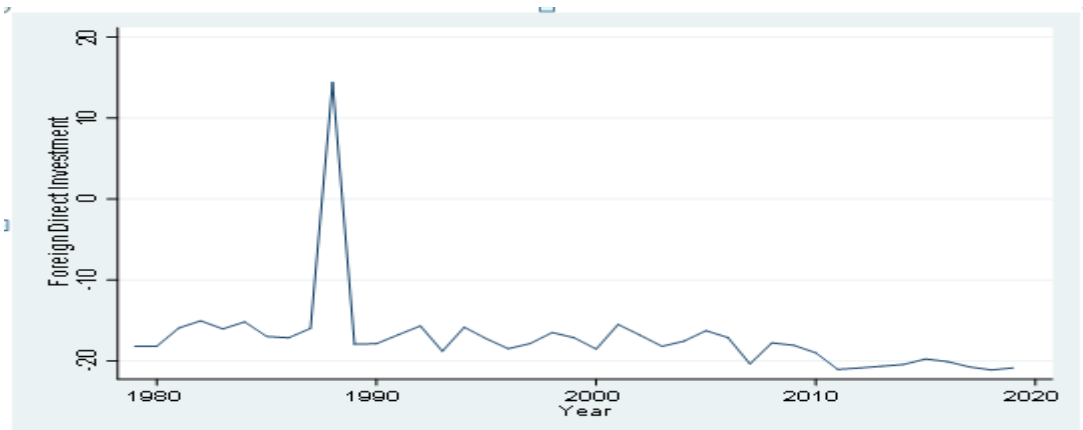
Fig. 1: Trend graph for the foreign direct investments (FDI) in Kenya
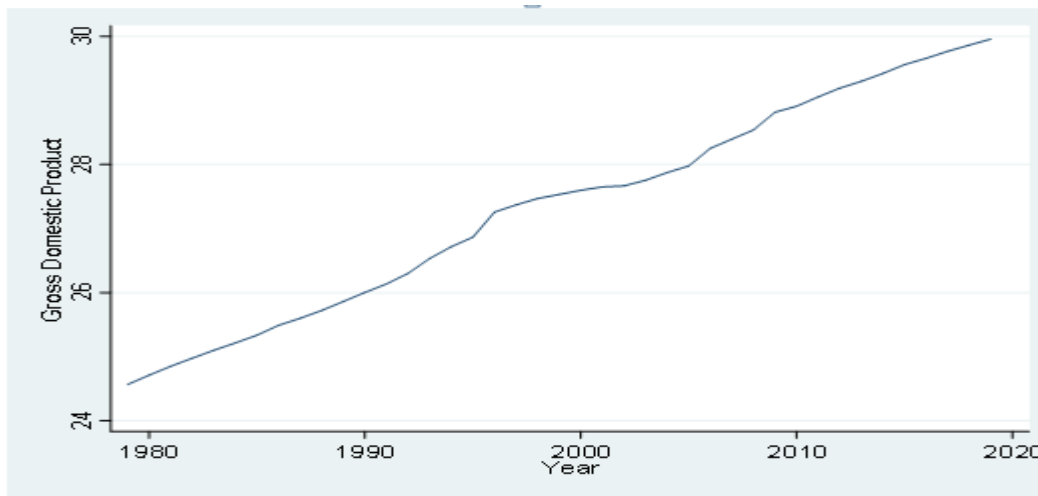

Fig. 2: Trend graph for Gross Domestic Product(GDP)in Kenya

The Kenyan economy has witnessed a dwindling level of foreign direct investment (FDI) over the years. Nonetheless, the years preceding 1990 revealed relatively higher FDI values recorded from international investors. Into 2010 towards 2021, the economy has presented a significant drop in FDI (Figure 1). The country's Gross Domestic Product has depicted a significant rise over the years. The pattern demonstrates a possible improvement in the levels of production within the economy, as explained from the national income statistics (Figure 2).
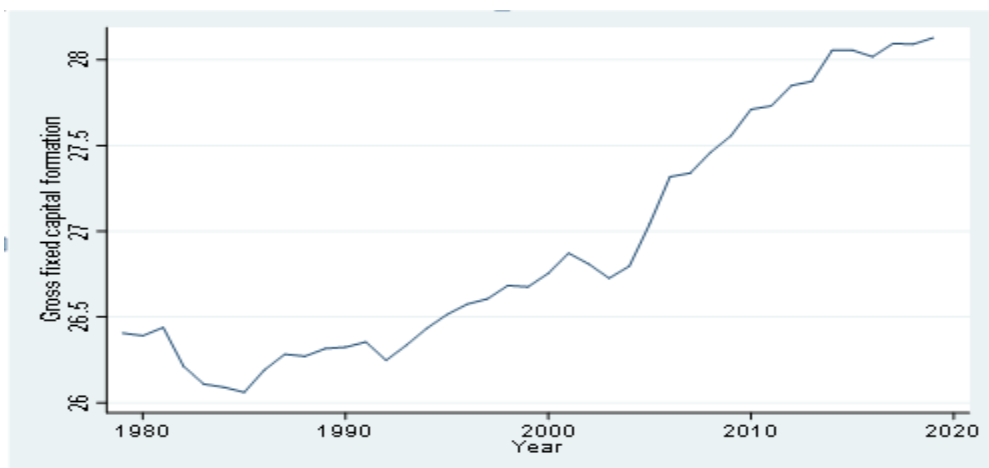

Fig. 3: Trends for Gross fixed capital formation in Kenya

The figure implicates that the levels of capital formation in Kenya have always been on the rise from 1980. Nonetheless, 1985 demonstrated a dwindling level, as explained from figure 3. The pattern, however, indicates continuous rise in the levels of gross fixed capital formation envisaged from the macroeconomic situation in the country.
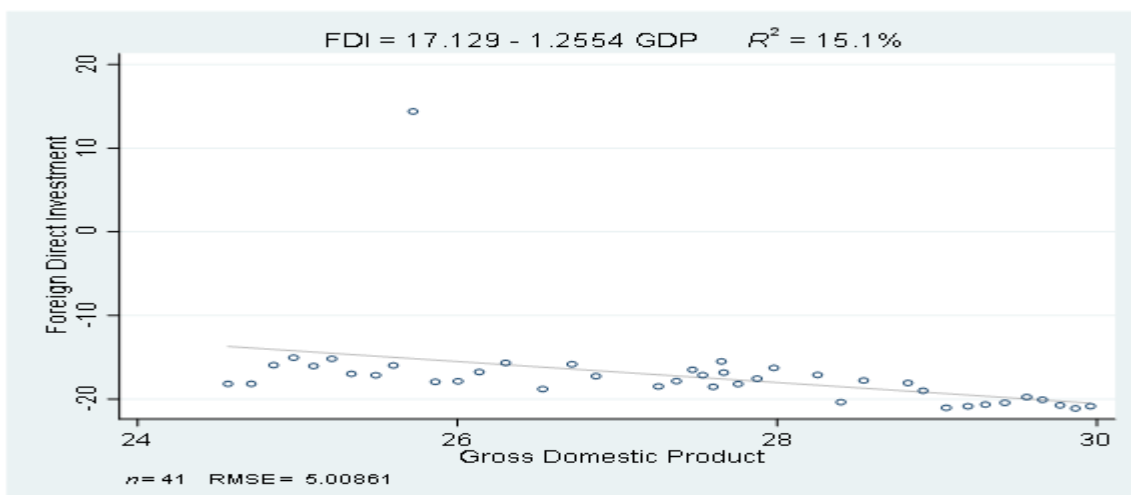
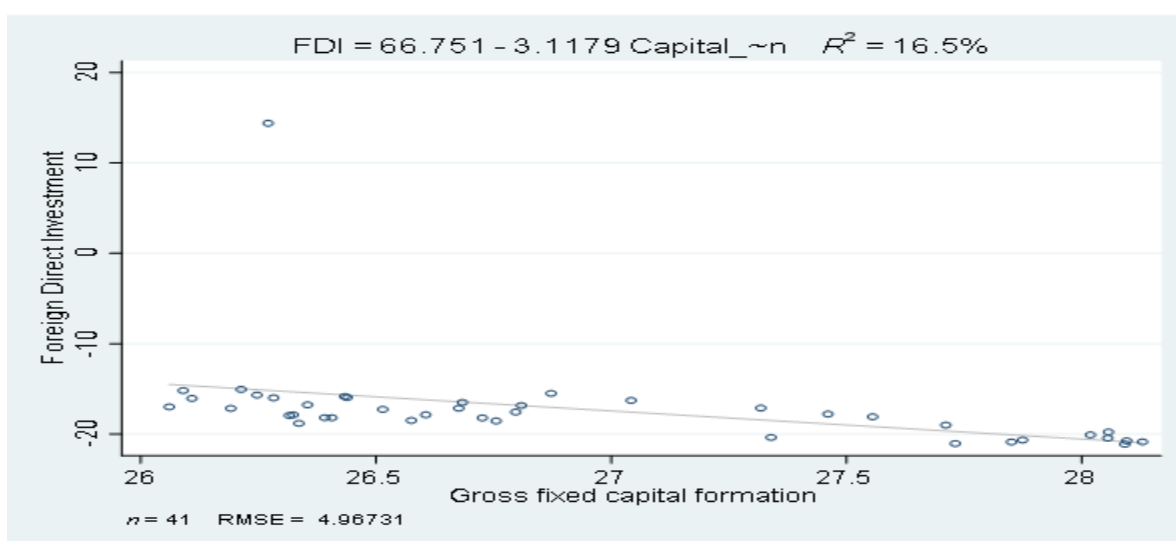Fig. 4: Scatterplot of the effect of Gross Domestic Product on FDI

Fig. 5: Scatterplot of the effect of Gross Capital Formation on FDI

The economic statistics revealed that there existed a negative relationship between Gross Domestic Product on FDI. The simple linear model developed indicates that a rise in FDI was associated with a drop in the FDI within the Kenyan economy, as explained in figure 4. The same pattern was also explained in figure 5, in which there was a negative relationship between the Gross capital formation and FDI over the years. Both figures showed weaker explanation powers of 15.1% and 16.5% respectively from their simple linear models.

- **Linear regression**

FDI	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
GDP	-.218	1.364	-0.16	.874	-2.979	2.544	
Capital Formation	-2.634	0.691	-3.81	.021	-9.196	3.928	**
Constant	59.671	14.518	4.11	.006	-49.594	168.937	**
Mean dependent var		-17.189	SD dependent var			5.366	
R-squared		0.165	Number of obs			41	
F-test		3.756	Prob > F			0.032	
Akaike crit. (AIC)		251.711	Bayesian crit. (BIC)			256.852	

Table 2: Multiple linear model

*** p<.01, ** p<.05, * p<.1

The resultant model equation from the analysis was defined as;
$$FDI = 59.671 - 0.218 * GDP - 0.263 * Capital\ Formation \dots\dots.(i)$$

According to the model, there was evidence of statistical adequacy as explained from the F-test statistic (F=3.756, p<.05). This implied that the developed model was suitable for modelling changes in FDI in Kenya over the years. Nonetheless, the model was linked to a weak explanation power (R-square=0.165), indicating only a 16.5% power for developing the desired forecasts.

The developed model justified that gross domestic product (GDP) had a negative effect on the FDI (β=-0.218) for the specified periods. The findings revealed that a rise in the FDI was linked to a drop in the GDP levels.

Ho: $\beta_1 = 0$ vs H1: $\beta_1 \neq 0$

On the results, there was sufficient evidence to reject the null hypothesis at 5% level of significance (t=-3.81, p<.05). This informed that GDP was a key influencer of the levels of FDI from the Kenyan economy over the years.

Ho: $\beta_2 = 0$ vs H1: $\beta_2 \neq 0$

The findings demonstrated that the fixed capital formation had a negative effect on the FDI over the period (β=-2.634). There was evidence to reject the null hypothesis as noted from the parametric tests (t=4.11, p<0.06) since the p-value was less than 0.05 at 5% level of significance.

Table 3: Breusch-Pagan Test for heteroskedasticity
Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
Ho: Constant variance
Variables: fitted values of FDI
chi2(1)   =   1.41
Prob > chi2 =   0.1345

Ho: The regression residuals are homoscedastic

H1: The regression residuals are heteroscedastic

The diagnostic test had no evidence to reject the null hypothesis at 5% level of significance (chi2(1)=1.41, p>.05). The assumption of constant residuals were met from the model, justifying that the approach was appropriate for predicting changes in FDI over the past years in Kenya (Đalić, I., & Terzić, 2021).

IV. DISCUSSION

The findings informed that capital formation and GDP had a negative effect on FDI in Kenya. The outcomes reported that a rise in both the covariates reduced the levels of reported FDI into the future. However, the results differed from Irungu (2020) and Bosire (2020) that reported that GDP had a positive effect on FDI. This was built on the different covariates used beyond GDP in modelling. Furthermore, the findings were supported by Bosire (2020) in which capital formation had a negative effect on FDI and economic growth. However, Mohsin et.al (2021) informed that capital formation had a positive effect on economic growth.

V. CONCLUSION

The study revealed that in the absence of GDP and capital formation, Kenya still had some positive FDI registered. Nonetheless, both GDP and capital formation had a negative effect on FDI in Kenya. This informed that a rise in the national GDP and capital formation resulted in a decline in annual FDI reported in the economy.

VI. RECOMMENDATIONS

- The Kenyan Government should invest more, to better Capital Formation and improve the investment landscape in the country.
- The Kenyan Government should undertake cost benefit analysis of FDI injected into the economy to better economic performance.
- More comparative analysis should be done to add more covariates such as inflation, interest rates and levels of infrastructure to determine their effects on FDI in Kenya.

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