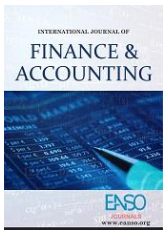
Article DOI: https://doi.org/10.37284/ijfa.2.1.1618



International Journal of Finance and Accounting
ijfa.eanso.org
Volume 2, Issue 1, 2023
Print ISSN: 2790-9581 | Online ISSN: 2790-959X
Title DOI: https://doi.org/10.37284/2790-959X

EAST AFRICAN NATURE & SCIENCE ORGANISATION

Original Article

The Effect of Mining, Manufacturing and Agricultural Foreign Direct Investment on Economic Growth of Tanzania

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Article DOI: https://doi.org/10.37284/ijfa.2.1.1618

Date Published:

11 December 2023

Keywords:

FDI, Economic Growth, Tanzania, ARDL Bounds Tests.

ABSTRACT

This study assessed the effect of foreign direct investment (FDI) inflow on economic growth in Tanzania. Specifically, the study sought to establish whether FDI from mining, manufacturing and agriculture sectors significantly impact economic growth in Tanzania. The study used annual time series data covering twenty-one (21) years from 2000 through 2020. The data were obtained from the Tanzania Bureau of Statistics, Bank of Tanzania, and World Bank Reports. The study employed an autoregressive distributed lag (ARDL) bounds co-integration test to capture the long-run and the causal links among the variables of interest. Findings from co-integration test indicates a long-run interrelationship among the variables of interest. Furthermore, results from both short-run and long-run estimates show that both FDI inflows from the mining sector had a positive and significant effect on economic growth, while FDI inflows in manufacturing and agricultural sectors had a negative and statistically significant effect on economic growth in the case Tanzania over the period under the study. The results imply that the government should design comprehensive policies that will continue attracting more FDI in the mining sector without compromising the impact of FDI from other sectors.

APA CITATION

Kivyiro, P. T. (2023). The Effect of Mining, Manufacturing and Agricultural Foreign Direct Investment on Economic Growth of Tanzania *International Journal of Finance and Accounting*, *2*(1), 106-119. https://doi.org/10.37284/ijfa.2.1.1618.

CHICAGO CITATION

Kivyiro, Pendo Teresia. 2023. "The Effect of Mining, Manufacturing and Agricultural Foreign Direct Investment on Economic Growth of Tanzania". *International Journal of Finance and Accounting* 2 (1), 106-119. https://doi.org/10.37284/ijfa.2.1.1618.

HARVARD CITATION

Kivyiro, P. T. (2023) "The Effect of Mining, Manufacturing and Agricultural Foreign Direct Investment on Economic Growth of Tanzania" *International Journal of Finance and Accounting*, 2(1), pp. 106-119. doi: 10.37284/ijfa.2.1.1618

IEEE CITATION

P. T. Kivyiro "The Effect of Mining, Manufacturing and Agricultural Foreign Direct Investment on Economic Growth of Tanzania", *IJFA*, vol. 2, no. 1, pp. 106-119, Dec. 2023.

MLA CITATION

Kivyiro, Pendo Teresia. "The Effect of Mining, Manufacturing and Agricultural Foreign Direct Investment on Economic Growth of Tanzania". *International Journal of Finance and Accounting*, Vol. 2, no. 1, Dec. 2023, pp. 106-119, doi:10.37284/ijfa.2.1.1618

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INTRODUCTION

Foreign direct investment (FDI) is a category of cross-border investment associated with a resident in one economy having control or a significant degree of influence on the management of an enterprise that is resident in another economy. It is the sum of equity capital, reinvestment earnings, and other capital where the ownership of 10 per cent or more of the ordinary shares of voting stock is the criterion for determining the existence of a foreign direct investment (UNCTAD, 2005). There exist a slight difference between FDI and other forms of indirect investment such as foreign portfolio investment (FPI). In the case of FPI, foreign investors invest in financial securities such as stocks or bond available on the stock exchange of a host country, and the investor does not necessarily have any form of control. Furthermore, according to UNCTAD (2005) an investor pursuing direct investment must have a long-term lasting interest, whereas FPI is a short-term investment. Open economies with skilled labour force and prospects for profitable growth tend to attract massive FDI than closed and highly regulated economies (Mold, 2003; OECD, 2002). There are different forms of FDI; where creating a joint venture, mergers, and acquisitions, establishing a subsidiary company by building new facilities, and reinvesting proceeds earned from their investment (Orji et al., 2021).

FDI has been recognized not only as one of the channels of capital formation but also as a source of advanced technology, technical know-how, employment creation, and access to new markets (Forte & Moura, 2013). Based on some economic and social benefits embedded in FDI, the vast majority of economies have been designing more friendly policies to attract this form of investment. This is because FDI is viewed as a driving force for economic growth and development, and for the past four decades there has been research investigating the causal links between FDI and economic growth in developed and developing countries. The vast majority of developing economies have made significant efforts to attract FDI by formulating coherent policies that are friendlier to foreign investors. This is due to the potential benefits that are embedded in FDI as one of the viable sources of investment in developing countries. For example, since the vast majority of developing economies have insufficient capital to finance their operations, FDI has become one of the tools to cut their needs most specifically when they deposit their fund into local financial institutions. (Akoto, 2016; Sothan, 2017). Furthermore, apart from capital, it has been pointed out that, the technologies that are linked with foreign investment are superb as compared to that of domestic counterparty (Loukil, 2016).

Hence developing economies are aware of the prospects for economic growth that is directly linked with FDI inflows, so many have increasingly created favourable environment that is needed to attract foreign investors (Zheng et al., 2016). The trade liberalization and adoption of suitable macroeconomic policy agendas, development in infrastructure, controlling of higher rates of inflation and solving problems related to trade policies are among the coherent plans embarked on by developing economies to attract foreign investments (Shah & Samdani, 2015; Shah & Khan 2016)

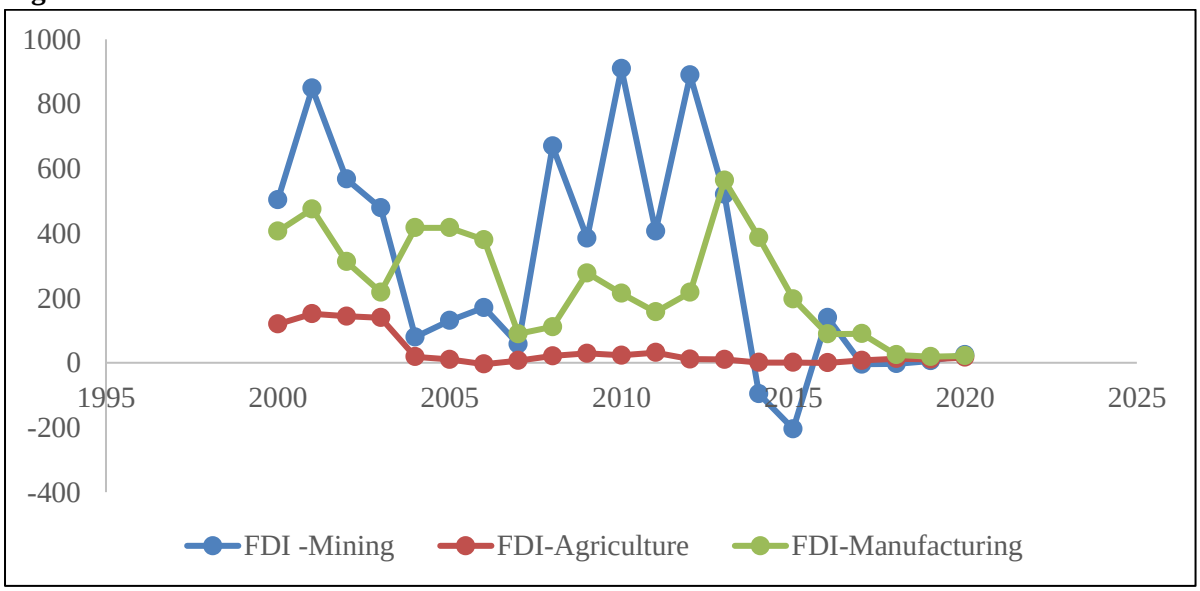
Tanzania like other developing economies is also conscious of the causal links among economic growth and FDI-related benefits. The country has embarked on embracing significant steps to promote private investments from both developed and developing countries. The move started in 1986 when the government of Tanzania embarked on a major reform program to abolish the socialist economic controls and encourage more active private sector involvement in the economy (Gabagambi, 2013).

Since then, the Tanzanian government is committed to developing the coherent strategies to improve investment environment that are friendlier to both foreign and domestic investors (Hansen et al., 2018). The strategies among others: include redrawing tax laws, floating the rate of exchange, licensing international banks,

Article DOI: https://doi.org/10.37284/ijfa.2.1.1618

and setting up an investment development centre to eliminate bureaucracy (Igbokwe-Ibeto, 2017). Tanzania has substantial amount of mineral reserves and a relatively unexplored tourism sector that could make it a viable opportunity for foreign investment as compared to other economies (Epaphra & Mwakalasya, 2017; Robbins & Perkins, 2012). To pave the way for a responsive and coherent investment environment in the country, Tanzania Investment Promotion Policy was developed in 1990, and the Investment Promotion Centre was established. According to the Bank of Tanzania statistics, the annual FDI inflows in Tanzania increased steadily from $157.8 million in 1997 to $202.7 million in 2001, an average of almost $182 million a year. Understandably between 2000 and 2014, Tanzania had one of the strongest growth rates of the non-oil-producing countries in Sub-Saharan Africa. During that period, the annual real GDP growth was 6.6 per cent on average, with 7.2 per cent in 2014 (Epaphra & Mwakalasya, 2017). However, per-capita GDP remained very low. Agriculture, which accounts for the largest share of the total labour force records low levels of investment expenditure. For example, the annual FDI inflows to agriculture are lower than that of mining and manufacturing, accounting for 3.4 percent and 8.2 percent share in GDP, respectively (Tanzania Investment Center, 2015; Tanzania Investment Report, 2017; AFDB, 2019). Figure 1 shows the trend in FDI inflows in three sectors, namely agriculture, mining, and manufacturing, between 2000 and 2020.

Figure 1: Sector-wise FDI inflows from 2000 to 2020



Source: (Tanzania Investment Center, 2021)

From figure 1, we observe a fluctuation trend in all three series in Tanzania. It can further be reported that the vast stake of FDI inflows in Tanzania went into the mining sector as compared to the agriculture and manufacturing sectors. The agriculture sector was the least recipient of FDI inflows over the entire period of the study. The highest peak of mining FDI can be observed in 2010, and the lowest value is depicted in 2015. The highest value of agricultural FDI can be detected in the year 2001 whereas for the case of manufacturing FDI, the highest value was observed in the year 2013. Based on the observed trend of FDI in these three sectors, it can be concluded that the impact of FDI inflows on economic growth in Tanzania depends on the recipient sector. This study is important as it will enable the country to decipher the impact of FDI inflows on the overall economic growth since the major economic policy reforms, such as economic liberalization have already been taken and the government is embarking on all necessary measures in terms of policy formulation and enactment so as to attract an even more share of FDIs inflows to the nation.

Article DOI: https://doi.org/10.37284/ijfa.2.1.1618

LITERATURE REVIEW

Theoretical Literature

For the past three decades, the causal links between FDI and economic growth has received enormous attention in the extant literature. Regardless of the critical role of FDI in economic development, the theoretical relationship between FDI and economic growth has not been thoroughly understood by a wide range of policymakers. The neoclassical growth model has shown that FDI can directly affect economic growth through capital accumulation and the combination of new inputs and global technologies in the production function of the host country (Cobb & Douglas, 1928). As a result, the neoclassical growth model shows that FDI promotes economic growth by increasing the amount and efficiency of investment in the host country (Mahembe & Odhiambo, 2014; Melnyk et al., 2014). The theory posits and defines how steady economic growth of a certain economy is influenced by three deep determinants of economic growth; capital, labour, and technology. According to this theory, the accumulation of capital, labour and technology contributes directly to economic growth. Since FDI has been pointed out to have advanced technologies and more skilled labour force, it is anticipated that their onset in the host country will spill over these significant benefits and hence influence economic development (Mahembe & Odhiambo, 2014).

The latest endogenous growth models which was initially advocated by Romer (1968) also expound that FDI can spur economic development of the host country through transfer of more advanced technology, raising the level of knowledge of human capital and improvement in managerial trainings(Nair-Reichert & Weinhold, 2001).

Even though both the exogenous and endogenous theories of development claim that the formation of capital is a significant factor for economic growth, their treatment of technological advancement differs. The former treats technological advancement as exogenous to the model, while the latter claims that the rise in knowledge and innovation endogenously enhances technological advancement (Elboiashi, 2015). In addition to the accumulation of human resources, FDI by MNCs is anticipated to enhance research and development which generates positive or negative growth spill-over that would influence the companies of the host country and the economy (Sala-i-Martin & Barro, 1995; Rjoub, 2017).

Empirical Literature Review

The effect of FDI Inflow in Manufacturing on Economic Growth

Onakoya (2012) examined the impact of manufacturing and agriculture FDI on the economic growth of Nigeria. The impact of FDI in those sectors was reported to vary; the FDI inflows from manufacturing sector were positive but insignificantly related to economic growth while FDI from the agriculture sector was deduced to be significant in the case of Nigeria. Anowor et al. (2013) reported that manufacturing FDI had a statistically significant effect on the economic growth of Nigeria. The study employed an econometric model using time series data from 1970 to 2011. They also found other variables like domestic investment, trade openness and exchange rate to significantly impact exports in Nigeria. Masipa (2018) examined the causal links between manufacturing FDI inflows and economic growth over the period between 1980 and 2014 in South Africa. The study employed the vector error correction model to examine the long-run association between the variables of interest. The results indicated FDI inflows to have a positive and significant impact on South Africa's economic growth.

Wang (2009) focused on the manufacturing sector to examine the heterogeneous effects of FDI inflows on the host country's economic growth. The study used data from 12 Asian economies over the period between 1987 and 1997. The study revealed strong evidence that FDI in the manufacturing sector has a significant and positive effect on economic growth in the host economies. Ullah et al. (2023) examined the

Article DOI: https://doi.org/10.37284/ijfa.2.1.1618

impact of sectoral FDI inflows on economic growth of developing countries by sing two stage least squared approach. Contrary to Wang (2009), the results indicated that, manufacturing and services FDI are not significant in the case of low-income countries.

The Effect of Mining FDI on Economic Growth

Mungunzul and Chang (2016) reported a positive and significant relationship between mining FDI and economic growth in the case of Mongolia. The results posit that the mining industry is one of the key actors of economic development, specifically during the period between 2011-2015, when FDI in Mongolia increased both the export base and employment of the country. Bucaj (2018) found mining FDI to have a positive and significant impact on economic growth in Kosovo. The study employed the econometric model from endogenous growth theory to examine the causal links among the variables of interest. Gochero and Boopen (2020) analysed the impact of mining FDI on economic growth of Zimbabwe by using the time series data spanning from 1988 and 2018. The study employed the autoregressive distributed lag (ARDL) bound testing approach to examine long run relationship among the variables of interest. The results showed the mining FDI to have a relatively higher positive impact on economic growth as compared to FDI from non-mining sector and domestic investment. The results from short run estimates reported the same conclusion but the effect was relatively lower as compared to the impact in the long run.

Bunte et al. (2018) employed quasi experimental evidence approach to examine the impact mining, agriculture, and forestry FDI on economic growth of Liberia. The study reported that the mining sector, mostly iron-ore, increases growth while agriculture and forestry do not improve economic growth in the case of Liberia. Furthermore, the results showed that Chinese investment projects increase growth while indulgence granted to U.S. investors do not. Rutaihwa and Simwela (2012) examined the significance of mining FDI on exports in Tanzania by using the ordinary least square approach, and the result showed that FDI in the mining sector has been exerting negative pressure on the country's exports. Usiri (2014) found that FDI inflows in the mining sector have a positive and significant impact on the economic growth of Tanzania.

The Effect of FDI in Agriculture on Economic Growth

The causal links between FDI in agriculture and economic growth have also been investigated in academic research but to a lesser extent as compared with FDI in mining and manufacturing sectors. Epaphra and Mwakalasya (2017) investigated the relationship between FDI, agricultural sector and economic growth in the case of Tanzania by using the time series data spanning between 1990 and 2015. The results showed the existence of a positive relationship between FDI and economic growth, and the contribution of the agricultural sector to GDP was less than thirty per cent. Opoku et al. (2019) employed the system of generalized method of moment to examine the impact of FDI on economic growth in some of the selected African economies. The study focused on various sectors whereby the results indicated that, FDI inflows in agricultural and services sectors is very significant. Owutuamor and Arene (2018) examined the causal links between FDI inflows and agricultural growth in Nigeria by employing Granger causality analysis. The study found that FDI in agriculture does not directly affect agricultural growth.

Dike (2018) employed panel-VECM to examine the effect of agriculture FDI on the economic growth of five Sub-Saharan African countries (Ghana, Nigeria, South Africa, Sudan, and Tanzania) by using the time series data over the period between 1995 and 2016. The results from panel co-integration analysis indicated the presence long-run level relationship among the variables of interest. Granger causality indicated bi-directional causality between agriculture FDI and economic growth. Other studies showed that FDI could help raise labour productivity by training farmers to better access to farm inputs (

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Oloyede, 2014). Owutuamor and Arene (2018) examined the impact of FDI and other macroeconomic variables on agricultural growth in Nigeria by using the annual time series data between 1981 and 2014. The results indicated a positive but insignificant relationship between agricultural growth and FDI in agriculture, meaning that FDI has no direct effect on agricultural growth. Other studies revealed that agriculture FDI, specifically on an irrigation, could help improve marginal arable land, leading to its efficient use (Gunasekera et al., 2015; Kadigi et al., 2019). Also, FDI can influence agricultural exports and enhance farmers' access to domestic and international markets through improved storage, transport, and communication infrastructure (Gunasekera et al., 2015).

METHODOLOGY

Data and Theoretical Model

The study used time series data covering the period between 2000 and 2020, sourced from the published national and international institutions, including the Bank of Tanzania (BOT), the Tanzanian National Bureau of Statistics (NBS) and World Bank (WB) websites (World Bank, 2021). The data's span was chosen because many economic policy reforms such as industrialization, mining, and agricultural reforms were embarked on since 2000. Also, such a time frame was chosen to yield the most recent years and relevant results, given that data was already available annually. Furthermore, the time range chosen was due to the availability of data for the interested variables. In estimating the empirical relationship between FDI and economic growth. The study adopted a modified Cobb Douglas production function where the capital component was decomposed down into domestic investment and FDI. The FDI was further tripled into mining FDI, manufacturing FDI and agriculture FDI. The resulting production model is as indicated in Equation (1)

$$Y_t = A_t(K_t)^{\beta_1}(FDIMN_t)^{\beta_2}(FDIMF_t)^{\beta_3}(FDIAGR_t)^{\beta_4}(L_t)^{\beta_5} \quad (1)$$

Where Y_t stands for economy's output (GDP) at time$t$ which is proxied by Gross Domestic Product (GDP), A denotes technological progress, K represents domestic investment, which is measured by gross fixed capital formation,$L$is labor, $FDIMN$ is mining FDI, $FDIMF$ denotes manufacturing FDI, and $FDIAGR$ stands for FDI from the agricultural sector. The parameter of regressor measures elasticities of the output, and hence Equation (1) is linearized by taking logarithm on both sides of the equation to generate Equation (2).

$$\ln y_t = \alpha + \beta_1 \ln k_t + \beta_2 \ln fdimn_t + \beta_3 \ln fdimf_t + \beta_4 \ln fdiagr_t + \beta_5 \ln l_t + \mu_t \quad (2)$$

Where μ_t denotes the stochastic error term, the lowercase variables are the logarithm of the respective uppercase variables defined in Equation (1). The slope coefficients $\beta_1, \cdots \beta_5$ are partial coefficients.

Unit Root and ARDL Co-Integration Test

In testing for co-integration among FDI from mining, manufacturing, agricultural and gross fixed capital formation, the study employed the autoregressive distributed lag (ARDL) bounds test proposed by Pesaran et al. (1996, 2001). The test has been pointed out as a suitable technique for a small sample as compared to other co-integration techniques such as Johansen and Juselius (1990) and Johansen (1991). ARDL bounds co-integration approach is appropriate for either I(0) or I(1) or mixed integration. However, the approach is not suitable if the model variables consist of a higher order of integration than order one, hence in order to avoid spurious results that might occur, the study conducted unit root tests by employing the Augmented Dickey-Fuller (DF) (1979) and Phillips-Perron (PP) (1988). In both unit root tests employed, the null hypothesis states that the series is not stationary, where the corresponding alternative hypothesis states that the series is stationary. The null hypothesis is

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rejected if the computed test statistics is greater than the critical value. For the ARDL bounds tests, the null hypothesis stated no co-integration relationship among the variables of interest. The hypothesis is rejected if the computed *F*-statistics is higher than the upper critical bound I(1). The null hypothesis is not rejected if F-statistics is lower than the lower critical bound I(0). Otherwise, the results are inconclusive if the computed F-statistics falls within the two bounds. With respect to Equation (1), the ARDL model specification is specified in Equation (3). This implies that the first step in the implementation of the bounds test approach is to re-specify Equations (2) as a conditional error correction model.

$$\Delta \ln y_t = \beta_0 + \alpha_1 \ln y_{t-1}$$

$$+\beta_2 \ln k_{t-1} + \beta_3 \ln fdimn_{t-1} + \beta_4 \ln fdimf_{t-1} + \beta_5 \ln fdiagr_{t-1} + \beta_6 \ln l_t + \sum_{i=1}^{p} \beta_{7i} \Delta \ln y_{t-i} + \sum_{i=1}^{p} \beta_{8i} \Delta \ln k_{t-i} + \sum_{i=1}^{p} \beta_{9i} \Delta \ln fdimn_{t-i} + \sum_{i=1}^{p} \beta_{10i} \Delta \ln fdimf_{t-i} + \sum_{i=1}^{p} \beta_{11i} \Delta \ln fdiagr_{t-i} + \sum_{i=1}^{p} \beta_{12i} \Delta \ln l_{t-i} + \mu_t \quad (3$$

Where Δ is the difference operator, β_0 is the drift components, β_i are the short-run multipliers (coefficients), and *p* is the lag order. Other model variables are as defined earlier. The co-integration among the variables is conducted by employing the computed F-statistics by imposing restrictions on the estimated long-run coefficients of one period-lagged level of the series equal to zero, as indicated hereunder:

$\boldsymbol{H_0}: \beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = \beta_6 = 0$ (No level relationship)

Against $\boldsymbol{H_1}: \beta_1 \neq \beta_2 \neq \beta_3 \neq \beta_4 \neq \beta_5 \neq 0$ (There is a level relationship)

As we have pointed out, the computed *F*-statistics are now compared with simulated critical values generated by Pesaran et al. (1996), which are more appropriate for small samples. If the computed *F* statistics falls below the lower critical bound I(0), then the null hypothesis of no co-integration is not rejected, if the *F* statistics is higher than the upper critical bound then the null hypothesis is rejected, indicating that FDI in the mining, manufacturing, agricultural sectors, and economic growth are co-integrated, hence the existence of long-run equilibrium relationship. The test is inconclusive if the value falls between the lower and upper critical bounds. If the variables of interest are co-integrated, both long-run and short-run error corrections are estimated based on the ARDL (m, n, p, q, r, s) specification hereunder:

$$\ln y_t = \alpha_0 + \sum_{i=1}^{m} \alpha_{1i} \ln y_{t-i} + \sum_{i=1}^{n} \alpha_{2i} \ln k_{t-i} + \sum_{i=1}^{p} \alpha_{3i} \ln fdimn_{t-i} + \sum_{i=1}^{q} \alpha_{4i} \ln fdimf_{t-i} + \sum_{i=1}^{r} \alpha_{5i} \ln fdiagr_{t-i} + \sum_{i=1}^{s} \alpha_{61} \ln l_t + \mu_t \quad (4)$$

$$\Delta \ln y_t = \alpha_0 + \sum_{i=1}^{m} \alpha_{1i} \Delta \ln y_{t-i} + \sum_{i=1}^{n} \alpha_{2i} \Delta \ln k_{t-i} + \sum_{i=1}^{p} \alpha_{3i} \Delta \ln fdimn_{t-i} + \sum_{i=1}^{q} \alpha_{4i} \Delta \ln fdimf_{t-i} + \sum_{i=1}^{r} \alpha_{5i} \Delta \ln agr_{t-i} + \sum_{i=1}^{s} \alpha_{6i} \Delta \ln l_t + \gamma ECT_{t-1} + \mu_t \quad (5)$$

Where μ_t is the white noise error term, γ stands for coefficient of the error correction term ECT_{t-1} which measures the speed of adjustment into long-run equilibrium from short-term disequilibrium. According to Engle and Granger (1987), the presence of co-integration among the variables under the study signifies that causality exist at least in one direction and causality is performed based on the vector error correction model (VECM) framework to validate the causal link between insurance and economic growth. For robustness check, the fully modified ordinary least square (FMOLS) of Phillips and Hansen (1990) was also employed to capture the causal links among the variables under the study.

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RESULTS AND DISCUSSION

Descriptive Statistics

Descriptive statistics analysis was conducted to establish the statistical properties of all variables employed in this study. We present a descriptive analysis of the main variables which are Mining FDI, agriculture FDI and manufacturing FDI. The results in *Table 1* show that GDP growth reveals an inspiring pattern with the smaller standard deviation of 3.844. The range is also small as compared to other series. The highest average FDI inflow is recorded in the mining sector as compared to FDI inflows generated from the other two sectors.

Table 1: Results for descriptive statistics

Statistics	GDP	FDIMN	FDIAGR	FDIMF
Mean	34.080	308.560	36.193	242.190
Standard Error	3.844	74.092	11.331	35.747
Median	31.530	170.650	12.800	217.300
Kurtosis	-1.411	-0.994	0.976	-1.054
Skewness	0.237	0.430	1.617	0.268
Range	52.030	1114.300	155.790	544.980
Minimum	12.370	-204.400	-4.390	18.720
Maximum	64.400	909.900	151.400	563.700
Sum	715.670	6479.770	760.060	5085.980
Count	21	21	21	21

Unit Root and Co-integration Results

As we have pointed out before, the current study employed the ARDL bounds test to test co-integration relationship among FDI in the mining sector, FDI in the manufacturing section, FDI in the agricultural sector and economic growth. The approach as posited by Pesaran et al. (1996, 2001) does not require the series of interest to be stationary at level or after first differencing, however, the technique will not be suitable if the series of interest are I(2). Therefore, before embarking on testing for co-integration based on ARDL bounds test, the study conducted unit root test by employing the most common techniques that have been used for testing stationarity for the case on individual country. The two approaches are Augmented Dickey Fuller (ADF) (Dickey & Fuller, 1979) and Phillips-Perron (PP) (Phillips & Perron, 988) unit root tests. *Table 2*, reports results for unit root. It can be observed that the null hypothesis of a unit root is not rejected in all the series except labour force under the ADF approach. However, the null hypothesis is rejected in the first difference series. This is pervasive in both ADF and PP approaches. It indicates that all the series became stationary after the first difference. No series was integrated of order two (I(2)); hence we are now free to test level relationship (co-integration) by deploying the ARDL bound approach. *Table 3*, presents results for bounds co-integration tests. It can be observed that the computed *F*-statistics is above the higher critical bound simulated by Pesaran et al. (2001) at 1% level of significance. Therefore, we can conclude that there exists a long-run relationship among the model variables. The next procedure is to be able to estimate both long run and short run based on the ARDL approach and Error correction model.

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Table 2: Results for unit root

Variable	T-Statistics					
	Level series		First Difference Series			
	ADF	PP	ADF	PP	Order (ADF)	Order (PP)
$\ln y_t$	-1.002	-1.256	-3.286**	-3.286**	I(1)	I(1)
$\ln fdimn_t$	-2.218	-2.178	-5.676***	-5.606***	I(1)	I(1)
$\ln fdimf_t$	-2.853	-1.807	-4.046**	-4.123***	I(1)	I(1)
$\ln fdiagr_t$	-0.213	-1.010	-3.781**	-3.78**	I(1)	I(1)
$\ln l_t$	-4.078**	-1.606	-3.361**	-3.361**	I(0)	I(1)
$\ln k_t$	-1.677	-1.764	-3.340**	-3.313**	I(1)	I(1)

***Note**: ***,**denote significance at 1% and 5% level respectively, the test equation in the level series include both trend and intercept, in the difference series only the constant is included, the lag length is based on Schwarz information criterion (SIC) except for logfdiagr series where lag length was fixed to 2*

Table 3: ARDL bound test results

Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	203.565***	10%	2.45	3.52
k	4	5%	2.86	4.01
		2.50%	3.25	4.49
		1%	3.74	5.06

***Note:** ***denotes significance at 1%, k is the number of regressors.*

Long-Run Estimates

Table 4 reports results for long-run estimates. It reveals that FDI in the mining sector has a positive impact on the economic growth of Tanzania in the long run. The model variable is found to be significant at 5% level of significance. The estimated coefficient of 3.147 implies that a 1% increase in FDI in the mining sector increases the level of economic growth by 3.147% in the long-run. The results contradict the study by Epaphra (2016), who did not find any impact of mining FDI on economic growth in the case of Tanzania.

FDI in the manufacturing sector is found to have a negative but significant impact on economic growth. The estimated coefficient of -7.183 posits that a 1% increase in FDI leads to a 7.183% decrease in growth in the long run. Our results contradict the findings of Usiri (2014) and Onakoya (2012), who found the effects of FDI in the manufacturing sector on economic growth to be positive and statistically significant. Furthermore, the results also indicate a negative and significant impact between FDI in the agricultural sector and economic growth. The coefficient of -7.524 shows that a 1% increase in FDI in the agricultural sector decreases economic growth by 7.524% over the period under the study. The results imply that despite the increasing number of FDI inflows in agriculture sectors, agriculture's contribution toward the country's economic growth is minimal. Also, results support the argument that agriculture is gradually becoming less vital to economic growth in Tanzania. These results are in line with Mwakalasya (2016) who found that there is no significant effect of FDI inflows on the agriculture value added-to-GDP ratio in Tanzania even though FDI inflows in the economy have been outstanding, particularly in the past two decades. These counter-intuitive results might be due to the substitution effect, which means the cash flow generated from the manufacturing and agricultural sector have not been re-invested in the host country. But also, another plausible reason may be the fact that FDI technologies embedded in these two sectors in the case of Tanzania, are to some extent obsolete and outdated and hence do not contribute to economic growth. The same observation is pervasive in the case of gross fixed capital formation, which was employed as a proxy variable for domestic investment. The model variable is negative and significantly related to economic growth. A 1% increase in domestic

Article DOI: https://doi.org/10.37284/ijfa.2.1.1618

investment is found to decrease growth by 30.171% over the period under the study. The impact of COVID-19 might be another credible reason for such surprising results. The predicament did not only affect the health sector but also other sectors as well.

Table 4: ARDL long run estimates (Dependent variable y_t)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
$\ln fdimn_t$	3.147**	0.673	4.680	0.0428
$\ln fdimf_t$	-7.183**	1.570	-4.574	0.0446
$\ln fdiagr_t$	-7.524**	1.681	-4.477	0.0465
$\ln k_t$	-30.171**	7.204	-4.188	0.0526

*Note: ARDL (1,1,1,1,1) was selected, ** denotes significance at 5% level*

Short Run Estimate

Table 5 reports results for the short-run derived from the unrestricted error correction model. The adjustment parameter (γ) stood to be negative (-0.041) and significant at 1% level. The variable continues to strengthen the results for the existence of long-run relationship between FDI and economic growth in the case of Tanzania. The coefficient of -0.041 signifies that about 4.1% disequilibrium in the short-run will be corrected into long-run equilibrium within a year. The results from short-run estimates indicate that FDI in the mining sector is positive and, statistically and significantly related to economic growth but to a lesser extent as compared with the corresponding long-run coefficient. This implies that the effect of mining FDI to economic growth is more realized in the long run than in the short run. The coefficient of 0.058 indicates that a 1% increase in mining FDI increases growth by 0.058% in the short run. The results are in line with the study by Gochero and Boopen (2020) who posited that in the short-run, mining FDI as well as non-mining FDI has a positive effect on economic growth but at a relatively lower extent in the case of Zimbabwe. For the case of relationship between manufacturing FDI and economic growth, the impact is also negative. The coefficient stood to be -0.164 which vindicate that a 1% increase in manufacturing FDI decreases growth by 0.164%. but to a lesser extent as compared with similar conclusions in the long-run. The growth decreases by 0.57% by a unit increase in agricultural FDI.

Table 5: Short run estimate based on Unrestricted error correction model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6.296***	0.1128	55.830	0.0003
$\Delta\ln fdimn_t$	0.058***	0.0009	62.349	0.0003
$\Delta\ln fdimf_t$	-0.164***	0.0045	-36.664	0.0007
$\Delta\ln fdiagr_t$	-0.186***	0.0034	-54.230	0.0003
$\Delta\ln k_t$	-0.570***	0.0184	-31.035	0.0010
ECT_{t-1}	-0.041***	0.0007	-55.258	0.0003

*Note: ***denotes significance at 1% level*

CONCLUSION AND POLICY IMPLICATION

The study's main objective was to assess the effect of FDI on the economic growth in Tanzania using time series data for the period from 2000 to 2020. Specifically, the study tested the influence of FDI in agriculture, mining and manufacturing labour and fixed capital formation on the economic growth of Tanzania by employing the conventional Cobb-Douglas production function. Both labour and gross fixed capital formation were used as control variables. The study employed the ARDL bounds test approach to test the co-integration relationship among the variables of interest based on the conditional error correction model. Long-run and short-run estimates were further estimated based on the conventional ARDL and unrestricted error

Article DOI: https://doi.org/10.37284/ijfa.2.1.1618

correction models. The unit root tests indicated that some of the model variables were stationary at level I(0) while other series were integrated of order one (I(1)). Therefore, the presence of a mixture of I(0) and I(1) model variables prompted the current study to employ the ARDL bounds tests approach to test the level relationship (co-integration) among the variables of interest. The results indicated the presence of co-integration relationship between FDI and economic growth.

Empirical results indicated a strong and significant positive relationship between foreign direct investment in the mining sector and economic growth in Tanzania in both the short and long run. However, FDI from both manufacturing and agricultural sectors was negatively and significantly related to economic growth, which implies that the respective FDI decreases growth in both the short and long run. Policy implications of these results are that, FDI in the mining sector is a precondition for economic growth in Tanzania, and therefore the study recommends that the Tanzania government attract more FDI in the mining sector without compromising other sectors as well in order to tap the benefits embedded in FDI. For example, capital inflows from FDI enable home countries to reduce depending heavily on foreign aid, which normally comes with some strong conditions. FDI also has the potential to absorb some of the surplus literate labour in the rural and urban informal sectors and hence reduce poverty. This in turn, improves the living standards of the vast majority of people.

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