

Short-Term Effects of COVID-19 on Foreign Direct Investment Influxes: Evidence from the United Republic of Tanzania

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Abstract

The COVID-19 outbreak in 2019 caused health and economic challenges at a global scale, similarly, the outbreak affected Foreign Direct Investment (FDI) inflow in many countries including the United Republic of Tanzania (URT) in 2020. Additionally, the economic prospects were also damaged by a slump in oil prices. The United Nations Conference on Trade and Development (UNCTAD) predicted that FDI will decline by 25% to 40% due to pandemic containment measures. This study intended to investigate the extent to which COVID-19 has affected FDI inflow in the URT over the near term. Specifically, the study focused on two factors: first, the number of FDI projects registered; second, the number of jobs created by FDI projects (in all sectors or agriculture alone). This study adopted both quantitative and qualitative approaches. The fixed effect model was used in the ex post facto study design. This study used Excel and STATA software in handling and processing the data. The study shows a significant overall decline in FDI influxes, particularly after COVID-19. Similarly to this, the majority of FDI observed in the manufacturing and construction sectors goes toward building infrastructure, which could help create new jobs, increase household incomes, and increase domestic spending to help the economy. An increase in FDI per unit has no appreciable effect on the number of projects over years across sectors, according to the study's finding the FDI value is not statistically significantly different from zero at the 5% level of significance. Likewise, on average there is no significant effect of a unit increase in FDI on the number of jobs created over years across sectors. It is recommended that Government should attract more FDI in order to stimulate investment and hence promote jobs and economic development.

Keywords: Foreign, Covid-19, Trade, Investment, Projects, Jobs

Introduction

Foreign Direct Investment (FDI) has advanced steadily after the beginning of globalization development (Camino-Mogro and Armijos, 2021). However, there has been a constant decrease in FDI inflows due to various shocks like Covid-19 (OECD, 2020) and ongoing Ukraine and Asia war. Furthermore, the COVID-19 pandemic has profoundly shaken the world economy, and global share fall too consequently. Tourism is the hardest-hit sector (OECD, 2020). The COVID-19 pandemic lead to the enactment of severe measures such as closing borders, reducing the transportation of tourists, and decreasing tourist demand. Indeed, in 2020, it was predicted that international

tourism would fall by 80 percent (OECD, 2020). The data show that global FDI flow dropped by 37 percent in 2020 from US\$1.54 trillion in 2019 to less than US\$ 1 trillion, this has never happened since 2005. In 2020, both the number of FDI projects and capital investment in FDI waned by a third from 2019 levels (FDI, 2021). In 2020, FDI markets documented drop by 33.2 percent from 11,223 projects to 16,816 documented in 2019. They mobilized US\$ 528.2 billion, down by 34 percent from the preceding year, while the number of job openings generated fell by 40% to 1.36 million within the time (FDI, 2021). The reduction in current years and the information that FDI is associated to the prosperous of commodities and the end

of the super-cycle of commodities validates that FDI flows are powerfully linked to external shocks, which places the countries of the region in a condition of great susceptibility (Camino-Mogro and Armijos, 2021). Precisely, exporters of merchandises, with few FDI influxes and/or great external supporting supplies, are more susceptible to those uncontrolled shocks. All these features can stimulate the degree of impact of a potential catastrophe caused by the COVID-19 pandemic (Camino-Mogro and Armijos, 2021).

The COVID-19 pandemic is an unprecedented global health and economic shock, for which many countries were not well prepared. It is estimated that the pandemic killed more than 6 million people worldwide in the first two years and could cost about US\$13.8 trillion in cumulative output loss globally through 2024 (Agarwal *et al.*, 2022; IMF, 2022). COVID-19 impacted countries differently, South Africa, saw less economic disruption (2.6%) in 2020 compared to 3.2% in 2019 (South African National Department of Health, 2020). Increasing consumer spending, quantitative easing, more regional integration, and revamping economic policy frameworks to improve flexibility and inclusion were among the major steps taken throughout the year to mitigate economic concerns (IMF, 2021).

Recognizing that the Organization for Economic Co-operation and Development's (OECD 2020) report revealed that the total amount of FDI inflows to emerging economies has decreased, particularly given that the most industrialized sectors of these economies, including manufacturing and agriculture, were the ones most negatively impacted by the pandemic's shock. Using Tanzania as an example, a variety of pre-pandemic factors, such as the political climate, particularly from 2015 to 2020, organizational practices, and amount of taxes imposed on investors, have a negative impact on the levels of FDI. Due to these considerations, we develop an assessment method that takes into account all of them and enables researchers to determine the extent of immediate impact of COVID-19 (OECD, 2020). The COVID-19 pandemic was one of history's most economically upsetting events because

it was viewed as an uncontrollable shock that undermined the global economy and healthcare infrastructures (Camino-Mogro and Armijos, 2021). Because many countries verified lockdown of practically all economic endeavors and blocked their borders to lessen contamination, the economy has been severely damaged, especially in the labor market. This led to the forceful device stopping for a few months and the spread of unemployment. As a result, there are differences, particularly in countries with little capacity to lift the lockdown (Camino-Mogro and Armijos, 2021). The COVID-19 tragedy also had an impact on global commerce and demand and supply shocks, therefore FDI movements started to wane due to the improbability of how the markets would react to the shutdown and the length of the lockdown in each nation. This weakening started in developed economies and it went as far as affecting emerging countries predominantly.

The repercussions of the COVID-19 crisis' pretentious strong FDI are likely to continue for a long time (ECLAC, 2020). In 2020, the load was particularly felt due to a number of transmission mechanisms (Camino-Mogro and Armijos, 2021). Furthermore, it was projected that COVID-19 would negatively affect foreign direct investment (FDI) inflows due to emerging economies' limited capacity, subpar infrastructure, and weak economies to respond to disasters like the Covid-19 pandemic. The calamity may result in a permanent and protracted collapse, as shown by ECLAC (2020) and the OECD (2020), as the anticipated level of global FDI flows in 2021 would represent a 60 percent decline from 2015.

East Africa Countries (EAC) external shares have been reinforced by its main sectors like construction, manufacturing and service over the years that promote industrialization process. The block firm to exploit its natural resources and take benefit of the investment openings in minerals in Burundi, Rwanda, Tanzania and Uganda, oil from South Sudan, tourism and financial facilities in almost all the member States. All member states fight in generating favorable environment to fascinate FDI and promote industrial development (AfDB, 2021). The benefits of FDI cannot be

exaggerated. It provides a market for the offered natural resources and enables skills transfer, boost the manufacturing and services sector which results in the creation of jobs and helps to reduce unemployment, increased employment translates to higher incomes and equips the population with more buying powers, boosting the overall economy of a country.

This paper analyzes the short-term impact of the COVID-19 epidemic on Tanzanian and FDI inflows. The Government of Tanzania quickly implemented several World Health Organization (WHO) recommended measures between February and April 2020 (the early months of the pandemic), and as of February 2021, the Ministry of Health and Socio Welfare (MHSW) issued fifteen (15) guidelines (Makoni, 2021). The nation decided not to impose a lockdown at the time because doing so would have restricted citizens' access to vital services like healthcare, which would have had a negative impact on people with chronic illnesses like TB and HIV infection. In a country like Tanzania, where there are numerous infectious and non-infectious diseases, this would have had serious consequences. It might have also prohibited citizens from laboring, affecting households' capability to afford food or health care, hence pushing more people into poverty (Makoni, 2021).

Tanzania's COVID-19 restraint actions have been prominently not as much of strict as one imposed in neighboring states like Kenya and Uganda, where lockdowns and travel restrictions have principally become the norm like Uganda and Kenya (BOT, 2020). However, the country closed schools and universities, a ban on mass public crowds forced, other directives was one need to leave home for essential purposes not otherwise, reports indicate daily life for the majority of labor force has been somewhat affected. The lockdown in country like Tanzania might have also banned citizens from working, upsetting the ability of households to pay for health care or food and push more people into deficiency (Makoni, 2021).

This paper contributes to the increasing literature on cautiously and FDI in the context of a lockdown and economic undertakings specifically in Tanzania. It also contributes to

filling the existing gap of studies on how the COVID-19 calamity could have affected the influx of FDI, focusing on its movements in a developing economy that is highly susceptible to global shocks. Finally, there is a contribution of the paper with an analysis of different country specific sectors with various companies in the country where most FDI goes.

In 2020, the total registered investments in the EAC Region declined by 46.26 percent to US\$6,250.20 million from US\$11,637.00 million in 2019. Uganda registered the highest inflows at US\$1,445.48 million, followed by Rwanda (US\$1,281.39 million) and South Sudan (US\$1,251.14 million) (Fig 1) (EAC, 2016, EA, 2017, EAC, 2018; EAC, 2019 and EAC, 2020). In terms of growth, Burundi experienced the highest growth by 179.7 percent. Because of the occurrence of COVID-19, economic growth was slowed down from 6.8% in 2019 to 2.1% in 2020. The shrink was determined largely by construction and manufacturing on the supply side, and investments on the demand side. Fiscal and monetary policies have been put up to sustenance of credit and economic growth, with a decrease in the policy rate from 7% in August 2019 to 5% in May 2020. Inflation clear-fell to 3.3% in 2020 from 3.5% in 2019, due to a stable weakening in food prices. Exchange rates continued to be stable because the Bank of Tanzania interventions ensured stability in the foreign exchange market. There was a reduction of recurrent expenditures assisted by the government fiscal consolidation, but the hostile effect of COVID-19 on incomes increased the fiscal deficit slightly from 2.0% of GDP in 2019 to 2.3% of GDP in 2020 which is still lower than the 5% target of the government.

Tanzania's administration, like those of other African nations, has heeded the need for health security and wellbeing. The nation works with some international and domestic stakeholders in the health sector through the practice of global health diplomacy. So, the goal of this study is to evaluate how the Tanzanian government has responded to the COVID-19 pandemic and how it has worked with other stakeholders to enhance community health security and response to the pandemic (Hamis *et al.*, 2023). About 70 countries, as

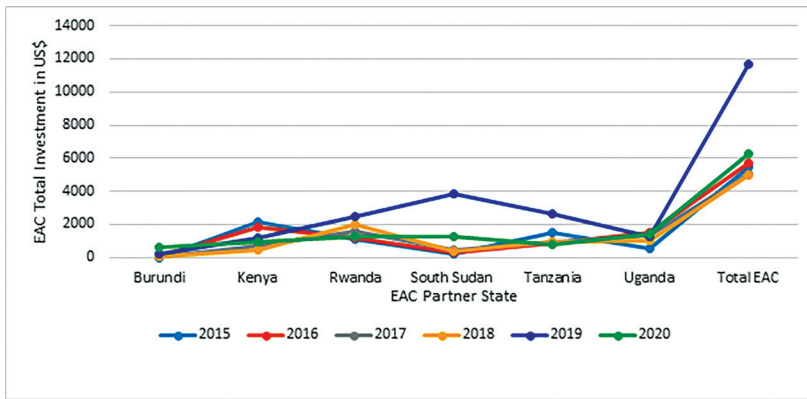


Figure 1: EAC Total Investments Inflow to the EAC Region 2015-2020

Source: EAC Annual Reports (2015- 2020)

well as business, civil society, and international organizations, are involved in the Global Health Security Agenda (GHSA), a multisectoral, transnational initiative. Its objective is to assist nations in strengthening their capacity to reduce the risk of, detect, and react to infectious diseases (IHR, 2005). The International Health Regulations (IHR) (Nwajiuba, 2002) create a thorough legal framework that explains nations' duties and rights in responding to public health emergencies and incidents that may cross international borders. A portion of international law known as the IHR is enforceable in 196 nations, including the 194 WHO Member States.

Contrary, BBC (2020) reported that President John Pombe Joseph Magufuli declared Tanzania to be "coronavirus-free," and many people thanked those who prayed for this. Data on the number of instances in the nation cannot be published or released, according to the administration. The final official data on Coronavirus cases, which read 509 cases with 21 fatalities, was revealed on April 29, 2020 (Hamis *et al.*, 2023). There were no official statistics on the number of people who lost their jobs between January 2020 and June 2020, when the disease was at its worst, in terms of employment.

However, a sizable number of individuals have lost their jobs, maybe as a result of Tanzanian businesses being unprepared for the shock that halted economic activity (BBC, 2020). Information on COVID-19 Cases from September 2021 to January 2022 was recently published by the Ministry of Health,

additionally, 95 percent of patients admitted had not had a vaccination, compared to 4.9% of those admitted (Hamis *et al.*, 2023) (Table 1). The Tanzanian government has implemented crucial efforts to stop the COVID-19 spread from March 2021. (BOT, 2020). All sectors have been impacted, including Tanzania's tourism industry, which is one of the most crucial for job creation and economic growth (Henseler *et al.*, 2022). Additionally, these precautions were scaled back once the government stopped disclosing COVID-19 test results and cases in May 2020 (Hamis *et al.*, 2023). However, Tanzania continued to suffer from a drop in tourist arrivals (Henseler *et al.*, 2022). Indeed, in 2020, the number of visitors dropped by 60%, while the revenues of public sector tourism institutions decreased by 72% (from TZS 489.4 billion in 2019 to TZS 136.2 billion in 2020) (World Bank, 2021).

Table 1: Data on Number of Patients

Number of Patients	Number	Percent
Patient Admitted	3,147	-
Patient Admitted with No Vaccination	2,990	95
Patient Admitted and Vaccinated	157	4.9

Source: Ministry of Health (2022)

The aim of this study was to assess the short-term effect of COVID-19 on the levels of incoming FDI influxes in terms of value and number of projects and jobs created. The study

further analyzed differences among FDI sources, capital rises and the sectors of the economy for period of ten years i.e. from 2010 to 2020. The study collated data regarding to source of influx (country of origin) of the FDI to determine the trend which are more affected by shocks.

The Internalisation Theory

Internalization theory emphasizes flaws in markets for intermediate products, FDI is an intermediate tool in the form of capital, and technology in the production process to make other goods, which are ultimately sold to consumers (Rugman, 1981). This theory aims to explain the development of multinational corporations and the drivers behind their pursuit of foreign direct investment. In 1976, Buckley and Casson first formulated the hypothesis, followed by Hennart in 1982 and Casson in 1983. The theory was first introduced by Coase in a national context in 1937 and Hymer in an international one in 1976. Two key factors of FDI were found by Hymer in his doctoral dissertation. One was the elimination of rivalry. The second was the advantages that some businesses have in a specific activity (Hymer, 1976). The theory's founders, Buckley and Casson, show how international businesses structure their internal operations to provide certain advantages, which then to be exploited. Internalisation theory is considered very important also by Dunning, who uses it in the eclectic theory, but also argues that this explains only part of FDI flows. Hennart (1982) develops the idea of internalization by developing models between the two types of integration: vertical and horizontal.

Hymer, who created the idea of firm-specific advantages, shows that FDI only happens when the advantages of utilizing these advantages outweigh the relative costs of conducting business abroad. According to Hymer (1976), the MNE manifests as a result of market flaws that prevented the end product market from experiencing ideal competition. Hymer has talked on the issue of foreign businesses paying more for information than domestic businesses, how governments are treated differently, and currency risk (Eden and Miller, 2004). The outcome implied the same

conclusion: international corporations incur certain adjustment costs when making foreign investments. Hymer understood that FDI is a firm-level strategic choice rather than a financial one based on capital markets. All the empirical results reveal that for FDI there is not a unified theoretical explanation, and it seems at this point very unlikely that such a unified theory will emerge.

Methodology

The study used a document review approach and the time series data already available from previous research and publications. This study aimed at generating the effect of COVID-19 on FDI inflow. The study used times series data for 2010 to 2020 on FDI value, number of jobs created and number of project registered using data from National Bureau of Statistics (NBS), EAC annual trade and investment report and UNCTAD. These data comprised information from investment data sheets, which comprise data regarding the features of the investment: the name of the shareholders, the country of origin, and the type of investment (whether external or local), the amount of capital apportionment and others. Moreover, considering that the FDI variable is very unpredictable, the study converted it into logarithms to achieve stability, reduced a typical observations and made the results interpretative. A macro variable was considered for the study as country risk indicator because this indicator internments factors such as organizational procedures, administrative instability, taxes and other limitations that dissuade non-nationals from investing in the country. The researcher entirely uncontrolled shock of the COVID-19 pandemic that encouraged a lockdown (and a resulting pause of activities) on March 2020 in Tanzania.

This study adopted the ex- post facto research design. The motives for selecting this design rest on the following grounds as outlined by Kothari (2004). It was used to test the hypothesis about correlation relationships or cause and effect where it was not practical or ethical to apply a true experimental or even a quasi-experimental design. In addition, in the context of social science research ex post facto research design seeks to reveal possible

relationships by detecting an existing condition without manipulation. Above all, ex post facto research design saved time and costs as if applied to data previously collected but not necessarily amassed for research purposes. The study adopted fixed effects regression model to estimate the effect of inherent characteristics of individuals cases in a panel data set. Examples of such intrinsic characteristics are genetics, acumen and cultural factors. Such factors are not directly observable or measurable but one needs to find a way to estimate their effects since leaving them out leads to a sub-optimally trained regression model. The Fixed Effects model is designed to address this problem. At least three alternatives to the within transformation exist with variations, one is to add a dummy variable for each individual (omitting the first individual because of multicollinearity). This is numerically, but not computationally, equivalent to the fixed effect model and only works if the sum of the number of series and the number of global parameters is smaller than the number of observations (Oscar, 1983).

The dummy variable approach is particularly demanding with respect to computer memory usage and it is not recommended for problems larger than the available RAM, and the applied program compilation, can accommodate. Second alternative is to use consecutive reiterations approach to local and global estimations. This approach is very suitable for low memory systems on which it is much more computationally efficient than the dummy

variable approach (David *et al.*, 1986). The third approach is a nested estimation whereby the local estimation for individual series is programmed in as a part of the model definition (Mike and Chris, 2006). This method is the most memory and computationally efficient, but it calls for expert programming knowledge and access to the model programming code, even if it can be implemented in SAS (Mike and Chris, 2003; Chris *et al.*, 2000). Finally, if the series-specific estimation is linear (within a nonlinear model), each of the aforementioned options can be enhanced. In this situation, the direct linear solution for each series can be programmed into the nonlinear model definition.

This study used excel and STATA software in handling and processing the data. At first data entry and coding was done using excel software whereby data cleaning was done. After data cleaning the data was then exported into STATA version 12.

Results and Discussion

Total Investments Influx to Tanzania

Tanzania's total registered investments decreased by 71.2% from US\$ 2,624.40 million in 2019 to US\$ 754.59 million in 2020 (Fig. 2). The COVID-19 epidemic decreased Foreign Direct Investment (FDI) in the country, which had an impact on regional and worldwide investment activity. The Government did not impose an absolute lockdown because doing so would have restricted the people access to social and economic necessities, which would

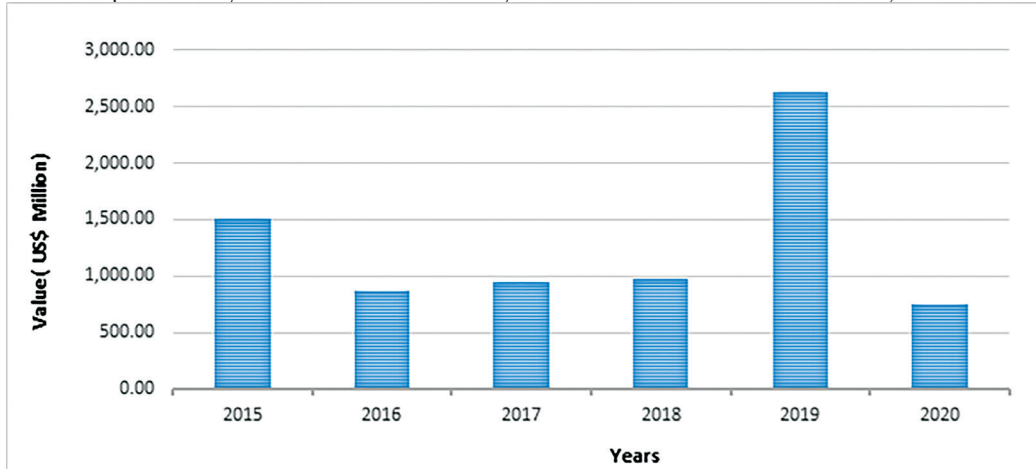


Figure 2: Total Investments Influx to Tanzania 2015-2020

Source: National Bureau of Statistics Reports (2020)

have had extremely pretentious effects to people with chronic disease like Tuberculosis or HIV and those with communicable and non-communicable diseases. Lockdown forces have also prohibited citizens from working, as well as disturbing household capacity to purchase necessities like food and health services and affect household welfare.

Domestic Investment

Tanzania's growth plan included domestic investments. The data reveals that in 2020, domestic investment decreased to 29% from 71% recorded in 2019 (Fig. 3).

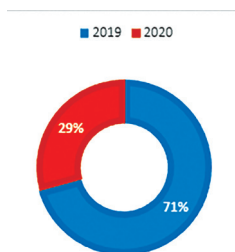


Figure 3: Domestic Investments in Tanzania 2019-2020

Source: NBS Reports (2020)

Comparing to other EAC partner state, in the year 2019, Tanzania saw a significant rise in domestic investment compared to other EAC members, amounting to US\$ 1,407.20 million. Rwanda came in second with US\$9992.11 million (Table 2). However, in the year 2020 the country recorded low domestic investment reached to US\$ 69 million Putting more of an emphasis on local investment in areas with lower capital obligations continues to manufacture goods and create jobs, while also supporting

economic growth and providing interim materials for additional product manufacturing and processing.

Number of Jobs Generated Through FDI in Tanzania

According to Fig. 4, the study resolute the number of employments created by FDI inflows to Tanzania has drastically fallen by 86.13%, from 46,765 jobs in 2019 to 6,487 jobs in 2019 (2020). Maximum FDI attraction did not explain the additional jobs created, it was observed, d to in the years 2019, all member states witnessed a decline in the number of employments generated by FDI in 2020. The least number of jobs were produced through FDI in Tanzania, Kenya, and South Sudan, respectively. The COVID-19 pandemic may have contributed to the dramatic decline in FDI inflow that occurred across all member nations in 2020.

Major Sources of FDI in United Republic of Tanzania

The top FDI sources in 2020 were Bulgaria, China, Britain, Italy, British Virgin Islands, and Egypt (Annex 1). On the other hand, China was the largest source of FDI into Tanzania in 2018, investing in 86 projects worth US\$M 264.5, creating 20,794 employments. China was followed by Singapore and India (EAC, 2020). Similar to in 2020, the data reveals that only two major projects totaling US\$201.26 million came from Bulgaria and created 150 employments. Between now and then, China invested a total of US\$138.5 million in 22 projects and 426 employment (EAC, 2020). According to Covid-19, the number of employments created in 2020 fell to 2,442 from 46,765 in 2019.

Table 2: EAC Domestic Investments, 2019-2020 (US\$ million and Percentage Change)

Country	2019	2020	% Change
Burundi	87.20	251.57	188.50
Kenya		103.63	
Rwanda	992.11	331.39	-66.60
South Sudan	563.70	67.94	-87.95
Tanzania	1,407.20	69.69	-95.05
Uganda	433.00	518.38	19.72
Total EAC	3483.21	1342.60	-61.46

Source: EAC Annual Reports (2019- 2020)

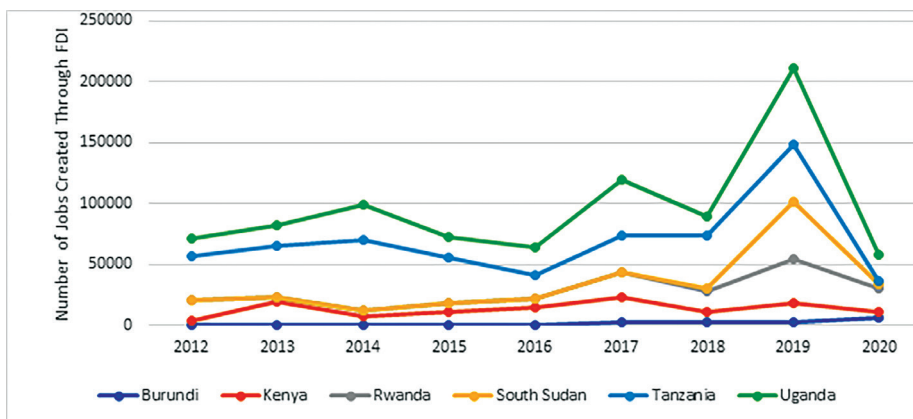


Figure 4: Number of Jobs Created Through EAC FDI, 2015-2020

Source: EAC Annual Reports (2012- 2020)

Unit Root Test

Augmented Dickey–Fuller (ADF) was used to test on the stationarity on level series and on the first differenced series to determine the order of integration. The ADF test estimated results in Table 3, showing that all variables. Nmb_Prjcts_Jobs_ was stationary i.e I(0) at its level form given that its test statistic is greater than the corresponding critical value or less than critical value in its absolute values at 5 percent level of significance .

is no fixed effects given the $F(8, 79) = 1.74$ and (p-value = 0.1029) greater than 0.05.

Additionally, 2,442 jobs were created in 2020 as a result of FDI into the United Republic of Tanzania, including 1,310 in manufacturing, 156 in construction, 179 in agriculture, 195 in wholesale and retail trade, and 321 in tourism, transport, communication, and storage against the creation of 775 jobs overall in 2019 (EAC, 2022). Because the FDI value is not statistically different from zero at the 5% level

Table 3: Augmented Dickey-Fuller (ADF) test results

Variables	Levels		First Difference		Integration order
	Test Statistics	Critical Value	Test Statistics	Critical Value	
Nmb_Prjcts	-1.345***	-2.000	-2.436***	-2.000	I(1)
Jobs	-5.632***	-2.000	-4.342***	-2.000	I(0)

Note: ** “0.05” and *** “0.01” indicates the rejection regions of null hypothesis at the respective levels of significance

Project Created Through FDI

Table 4 below shows the findings that were used to examine the trend in the number of projects developed as a result of FDI inflow. This study used secondary data from 2010 to 2020 to analyse the effect of the projects developed as a result of FDI inflow. The Hausman test suggests the use of the fixed effect model against the random effect model given the (p-values=0.0013) which is less than 0.05, implying that there is a correlation between the fixed effects with the independent variables. Furthermore, Pseudo $R^2=0.277$ meant that about 27.7% of the number of projects created could be explained by the model. Hence, there

of significance, it can be said that an increase in FDI per unit does not significantly affect the number of projects over time or across sectors. The analysis supports Ankoman and Crompton (1990); Pelizzo and Kinyondo (2015); Kyara *et al.* (2021) findings that infrastructure investment in the construction sector could assist create new jobs and thus increase household income and domestic consumption to stimulate the economy.

Likewise, the results are in line with those of Blake (2008) and Henseler *et al.* (2022), who found that poor households recover from pandemic crises better in rural than in urban areas because their income comes from work in

the primary sectors (such as agriculture, fishery, and forestry), which can do so independently of the tourism industry. This indicates that all economic levels in Tanzanian society have been affected by COVID-19 initiatives, even at a comparable relative range. The effects are significantly more severe for poorer households since the loss of income may have a greater impact on their ability to purchase goods and services. The observation of the harder hit agrees with the findings of Damania and Scandizzo (2017), who find that a contracting tourism sector has the heaviest impact on extremely poor rural households caused by the increase in local currency value and the corresponding increase in local prices.

deviations of errors.

Table 5: Lagrange Multiplier (LM) Random effects

	Var	Sd=Sqrt(Var)
Nmb_ Prj-	7840494	2800.088
e	6346462	2519.219
u	0	0
chibar2(01) = 0.00		
Prob>chibar2=1.0000		
Test: Var(U) = 0		

Table 4: Fixed Effect Model

Nmb_Prjets	Coef.	St.Err.	t-value	p-value	95% Conf	Interval	Sig
Value USM_	-.182	.122	-1.50	.139	-.424	.06	
Year_2	77.889	1187.914	0.07	.948	-2286.594	2442.372	
Year_3	600.246	1258.612	0.48	.635	-1904.958	3105.449	
Year_4	746.622	1294.245	0.58	.566	-1829.507	3322.752	
Year_5	653.156	1268.666	0.51	.608	-1872.061	3178.373	
Year_6	-56.145	1187.772	-0.05	.962	-2420.347	2308.057	
Year_7	-36.163	1187.579	-0.03	.976	-2399.98	2327.655	
Year_8	1881.118	1188.871	1.58	.118	-485.27	4247.506	
Year_9	3319.896	1187.862	2.79	.007	955.516	5684.277	***
Year_10	3315.377	1188.033	2.79	.007	950.657	5680.097	***
Year_11	-136.001	1189.003	-0.11	.909	-2502.652	2230.649	
Constant	159.045	842.532	0.19	.851	-1517.973	1836.063	
Mean dependent var		834.889		SD dependent var		2800.088	
R-squared		0.277		Number of obs		99.000	
F-test		2.757		Prob > F		0.001	
Akaike crit. (AIC)		1833.286		Bayesian crit. (BIC)		1864.427	
F test that all u_i=0		F(8, 79) = 1.74		Prob > F		0.1029	

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

Lagrange Multiplier (LM) Random effects

The study adopted Lagrange Multiplier (LM) as it provides a standard means of testing parametric restrictions for a variety of models. The data from Table 5, shows the value of score of the variance is 0, this explains the dispersion of errors of a given dataset. Hence data set dispersion indicates better squares of standard

Projects generated

Furthermore, there is no random effects given $p > 0.05$. The pooled model regression shows that pseudo $R^2 = 0.233$ meant that about 23.3% of the number of projects created could be explained by the model (Table 6). The results align with Camino-Mogro and Armijos (2021) which shows lockdown leads to 90% reduction of the total FDI in Ecuadorian firms and 70%

reduction of FDI capital increases, hence this lead to reduction of number of jobs.

Job Generated Fixed Effect model

The results that aimed at exploring the

Table 6: Projects Generated Pooled Regression

Nmb_Prjcts_	Coef.	St.Err.	t-value	p-value	95% Conf	Interval	Sig
ValueUSM_	.031	.02	1.59	.115	-.008	.071	
Year_2	27.867	33.997	0.82	.415	-39.706	95.44	
Year_3	-130.576	75.764	-1.72	.088	-281.164	20.013	*
Year_4	-155.42	90.97	-1.71	.091	-336.231	25.392	*
Year_5	-129.276	80.911	-1.60	.114	-290.095	31.543	
Year_6	-17.807	25.367	-0.70	.485	-68.226	32.612	
Year_7	-28.417	25.048	-1.13	.26	-78.202	21.369	
Year_8	1978.549	724.216	2.73	.008	539.092	3418.006	***
Year_9	3366.002	1834.101	1.84	.07	-279.473	7011.477	*
Year_10	3373.425	2096.646	1.61	.111	-793.886	7540.735	
Year_11	-33.741	23.048	-1.46	.147	-79.551	12.07	
Constant	38.887	23.464	1.66	.101	-7.75	85.524	
Mean dependent var		834.889			SD dependent var	2800.088	
R-squared		0.233			Number of obs	99.000	
F-test		3.032			Prob > F	0.002	
Akaike crit. (AIC)		1849.320			Bayesian crit. (BIC)	1880.461	

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

Table 7: Fixed Effect Model

Jobs_	Coef.	St.Err.	t-value	p-value	95% Conf	Interval	Sig
Value USM_	-.16	.142	-1.13	.261	-.442	.121	
Year_2	3977.696	1381.176	2.88	.005	1228.534	6726.857	***
Year_3	-4078.7	1463.376	-2.79	.007	-6991.476	-1165.924	***
Year_4	-3855.314	1504.806	-2.56	.012	-6850.555	-860.074	**
Year_5	-3649.575	1475.066	-2.47	.015	-6585.62	-713.529	**
Year_6	-638.472	1381.011	-0.46	.645	-3387.307	2110.363	
Year_7	-2833.931	1380.787	-2.05	.043	-5582.319	-85.543	**
Year_8	-4897.428	1382.289	-3.54	.001	-7648.804	-2146.051	***
Year_9	-4853.53	1381.116	-3.51	.001	-7602.573	-2104.488	***
Year_10	-4806.392	1381.314	-3.48	.001	-7555.829	-2056.955	***
Year_11	-4654.389	1382.442	-3.37	.001	-7406.071	-1902.708	***
Constant	4939.17	979.604	5.04	0	2989.317	6889.023	***
Mean dependent var		1950.758			SD dependent var	4120.120	
R-squared		0.524			Number of obs	99.000	
F-test		7.894			Prob > F	0.000	
Akaike crit. (AIC)		1863.132			Bayesian crit. (BIC)	1894.273	
F test that all $u_i = 0$		F(8, 79) = 3.45			Prob > F	0.0018	

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

trend of number of job generated through FDI in different sectors are displayed in Table 7. The test suggests the use of Fixed effects model against Random effect model given the (p-values=0.0013) which $p > 0.05$, implying that there is a correlation between the fixed effects with the regressors. Cognizant, while the value of coefficient correlation is (0.524), this is Pseudo $R^2=0.524$ meant that about 52.4 % of the number of job created could be explained by the model. There is Fixed Effects given the $F(8, 79) = 3.45$ with its (p-value=0.0018) less than 0.05. FDI is not statistically significant different from zero at 5% level of significant, therefore on average there is no significant effects of a unit increase in FDI on the number of jobs created over years across sectors but during 2019 =Year_10 up to 2020=Year_11 there has been a significant drop on the created jobs due to covid-19 pandemic given their p-values are less the 0.05. Means Covid-19 cause a decrease in FDI hence jobs created across all sectors.

The data from Table 8, shows the value of score of the variance is 0, this explains the dispersion of errors of a given dataset. Hence

data set dispersion indicates better squares of standard deviations of errors.

Table 8: Lagrange Multiplier (LM) Random effects

Estimated Results:		
	Var	Sd=Sqrt(Var)
Jobs_	1.70e+07	4120.12
e	8579458	2929.071
u	278922.5	528.1312
chibar2(01) = 8.77		
Prob>chibar2 = 0.0015		
Test: Var(U) = 0		

Hausman Test for Model Specification

The study used the Hausman Test (also called the Hausman specification test) to detect endogenous regressors (predictor variables) in a regression model. Endogenous variables have values that are determined by other variables in the system. Table 9 found the p-value of 0.0013 which is small (less than 0.05), reject the null hypothesis.

Table 9: Hausman Test for Model Specification

	-Coefficients-			
	(b) REj	(B) FEj	(b-B) Difference	Sqrt(diag(V_b-V_B)) S.E
Value USM_	.0922229	-.1603857	.2526085	-
Year_2	3918.5	3977.696	-59.19572	542.0125
Year_3	-4943.545	-4078.7	-864.8446	519.8057
Year_4	-4922.779	-3855.314	-1067.465	507.7371
Year_5	-4575.494	-3649.575	-925.9197	516.4628
Year_6	-593.1033	-638.4721	45.36877	542.0548
Year_7	-2824.765	-2833.931	9.166602	542.1125
Year_8	-4782.129	-4897.428	115.299	541.7264
Year_9	-4798.97	-4853.53	54.56063	542.0279
Year_10	-4737.699	-4806.392	68.69268	541.977
Year_11	-4533.376	-4654.389	121.0139	541.6869

b= Consistent under Ho and Ha; Obtained From xtreg

B=Inconsistent under Ha, Efficient under Ho; Obtained From xtreg

Test: Ho: Different in coefficient not systematic

$$\text{Chi2}(10) = (b-B)'[(V_b-V_B)^{-1}](b-B) = 28.88$$

Prob >Chi2 = 0.0013

Conclusions

This study intended to investigate the extent to which COVID-19 has affected FDI inflow the study used data from 2010 to 2020 on FDI value, number of jobs created and number of projects registered. In general, the Tanzanian total investment decreased by almost - 71.25% (from US\$ M 2,624.40 to US\$M 754.59 in 2020). Empirical findings showed significant overall decline in FDI influxes, particularly after COVID-19. Similarly, to this, the majority of FDI observed in the manufacturing and construction sectors. An increase in FDI per unit has no appreciable effect on the number of projects over years across sectors, according to the study's finding the FDI value is not statistically significantly different from zero at the 5% level of significance. Likewise, on average there is no significant effect of a unit increase in FDI on the number of jobs created over years across sectors. Regarding to number of projects registered, the data appeal about 27.7% of the number of projects created could be explained by the model. However, in 2020 most FDI were directed into manufacturing and construction, except for South Sudan and Rwanda whose high number of FDIs were in transport and utilities (water and energy), and agriculture, respectively goes toward building infrastructure, which could help create new jobs, increase household incomes, and increase domestic spending to help the economy.

Ethical Considerations

It is contended that "ethical consideration are central when design evaluating research" (Cozby, 2007). During these national policies were extremely observed and sustained by the researcher. Therefore, deliberation was paid on observing the rules and observation during the whole preparation process of the study. Furthermore, the study guaranteed that the given data was not used for some other purpose(s).

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Annex 1: United Republic of Tanzania Major source of Foreign Direct Investment, 2015-2017

Origin	2015				2016				2017						
	N	J	V (US\$M)	Origin	N	J	V (US\$M)	Origin	N	J	V (US\$M)	Origin	N	J	V (US\$M)
USA	16	1,823	1,271.30	Mauritius	6 235	2,405.	12	Germany	2	4,840	1,890.4		2	4,840	1,890.4
China	105	6,232	1,146.83	China	17	4,598	650.11	China	67	16,774	330.1		67	16,774	330.1
Pore	1	251	51.2	Mauritius	11	2,042	297.8	China	22	426	8.522		22	426	8.522
Dutch	5	401	306.42	UK	1	4,508	375.64	UK	14	1,017	178.3		14	1,017	178.3
UK	43	2,151	142.63	Iran	59	1,600	313.15	India	29	1,953	167.9		29	1,953	167.9
India	22	873	73.08	Congolese	34	680	300.00	Luxembourg	1	2	110.0		1	2	110.0
Tius	9	890	29.0	UK	22	1,433	34.2	Canada	1	5	0.35		1	5	0.35
Mauritius	4	1,094	60.00	Libyan	3	115	238.32	Australia	4	477	92.0		4	477	92.0
Alia	3	308	27.0	Australia	9	52	31.9	British	4	85	1.985		4	85	1.985
Botswana	1	921	53.90	Indian	2	1,008	110.26	Mauritius	4	412	49.0		4	412	49.0
Africa	9	299	14.1	United states	3	618	20.4	France	1	7	0.096		1	7	0.096
Libyan	1	20	50.99	British Virgin Island	2	771	64.06	Kenya	16	701	29.1		16	701	29.1
Arabia	1	305	13.0	South Africa	15	262	17.3	Italy	1	51	1.17		1	51	1.17
Kenya	14	1,224	33.43	USA	1	224	30.86	UAE	3	160	26.7		3	160	26.7
UAE	3	102	33.39	UAE	4	28	25.01	Ukraine	1	324	25.0		1	324	25.0
Land	2	573	12.2	Ethiopia	6	352	10.6	Lebanon	1	8	0.175		1	8	0.175
Sub total	214	14,840	3,171.98	Sub total	129	13,767	4,512.53	Sub total	141	26,660	2,898.6		141	26,660	2,898.6
Total	135	25,643	502.4	Sub total	303	15,064.9	1,066.4	Serbia	1	5	0.1		1	5	0.1
Others	91	23314	277.73	Others	114	4421	227.00	Others	81	4,082	152.8		81	4,082	152.8
Total	305	38,153	3,449.71	Total	243	18,187	4,739.53	Total	222	30,7442	3,051.4		222	30,7442	3,051.4

Source: Tanzania Investment Centre (TIC), 2021

Key: N= Number of project V = Total value of the project J = Jobs create

Annex 1: United Republic of Tanzania Major source of Foreign Direct Investment, 2018-2020

2018	2019				2020						
	N	J	V (US\$M)	Origin	N	J	V (US\$M)	Origin	N	J	V (US\$M)
China	86	20,794	264.5	China	196	5,777	530.0	Bulgaria	2	150	20.26
India	11	827	41.7	Canada	3	2,125	60.4	British Virgin Islands	3	128	5.800
Kenya	12	1,012	36.9	India	33	2,138	50.4	Egypt	4	128	3.924
Mauri											
Austr											
South											
Saudi											
Belgium	1	384	12.8	UAE	5	266	13.5	Kenya	5	27	0.303
Switzer											
Sub											
Others	135	17,378	2,619.8	Others	472	31,700	1552.3	Other	8	265	12.231
Total	270	43,021	3,122.2	Total	775	46,765	2,618.7	Total	53	1285	54,916

Source: Tanzania Investment Centre (TIC), 2021

Key: N= Number of project V = Total value of the project J = Jobs create