

The Role of Foreign Direct Investment in Transforming Zambia's Agricultural Landscape: Evaluating the Impacts and Challenges 2000s

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Abstract

This study examines the pivotal role of Foreign Direct Investment (FDI) in transforming Zambia's agricultural landscape during the 2000s, characterized by significant economic reforms and heightened global investment dynamics. As Zambia endeavored to enhance its agricultural productivity and food security, FDI emerged as a crucial mechanism for introducing not only capital but also advanced technology and expertise into the agricultural sector. This paper comprehensively evaluates both the positive impacts and the multifaceted challenges associated with FDI in Zambian agriculture. Quantitative method was employed, and secondary data was collected for this study. The key findings indicate that FDI has significantly contributed to increased crop yields, improved infrastructure, and enhanced access to international markets, thereby fostering economic growth and development. Additionally, the influx of foreign capital facilitated the adoption of modern farming techniques and improved supply chain efficiencies. However, the study also reveals persistent challenges, including land tenure issues, environmental concerns, and the marginalization of smallholder farmers, which complicate the integration of foreign investment into local agricultural systems. These challenges underscore the need for nuanced approaches to policy formulation. The study emphasizes the necessity for balanced policies that maximize the benefits of FDI while concurrently addressing its socio-economic and environmental challenges. To achieve a sustainable agricultural transformation in Zambia that benefits all stakeholders, particularly the most vulnerable segments of the farming community.

Keywords

Foreign Direct Investment, Agriculture, Economic Reform, Crop Yields,

1. Introduction

Zambia possesses numerous attributes that make it an attractive destination for foreign direct investment (FDI), [Ndlovu & Haabazoka \(2024\)](#), which is measured in US dollars. As a mining economy with decades of experience in mining-related activities, Zambia's natural resources are comparable, if not superior, to those found in many successful mining nations such as Zambia, Congo, DRC. [Gammeltoft & Rasiah \(2009\)](#) recent export trends, particularly those driven by FDI, illustrate the considerable potential for investment in non-conventional export sectors, such as vegetables, flowers, and non-copper mining. There are also significant opportunities for investment in higher-value-added activities within mining, services, and agriculture. Zambia has underutilized rural resources, including pristine wilderness areas suitable for tourism, which, if developed effectively, could attract substantial amounts of FDI. Export potential is further enhanced by regional trading arrangements and preferential market access opportunities provided by developed countries.

The contribution of FDI inflows to Zambia's economic growth, measured as real GDP (adjusted for inflation), is well-documented. Empirical studies across various countries have consistently shown that FDI has a statistically significant and positive impact on GDP. Consequently, the Zambian government should prioritize attracting more FDI, given its beneficial and substantial effects on GDP. Statistical indicators reveal that FDI values in Zambia were approximately ZMK 1.8 billion (USD 0.09 billion) in 1970 and ZMK 38 billion (USD 1.9 billion) in 2011, while the real GDP figures for those years were ZMK 34 billion (USD 1.7 billion) and ZMK 380 billion (USD 19 billion), respectively. The concurrent increases in both FDI and GDP suggest a strong linkage between the two, as supported by the World Bank's "International Development Indicators" (2025). Foreign investment in Zambia is also noted for creating employment opportunities for many citizens. As investors establish businesses in Zambia, they contribute to the country's development through job creation and the transfer of modern technology systems.

Export potential is additionally more advantageous by using regional trading arrangements and privileged marketplace gets entry to opportunities granted by developed countries. Does overseas direct investment influx (FDI) make contributions to the gross domestic product (GDP) of Zambia? Most empirical studies on extraordinary countries and areas have observed that FDI has an economically and statistically effective impact on GDP ([Chirwa & Odhiambo, 2018](#)). So, the Zambian authorities need to attract extra FDI into their own land and take advantage of it, provided that the effect of FDI on GDP is advantageous and sizable.

Past the argument from existing literature, statistical indicators show that the values of FDI in Zambia have been \$0.09 billion in 1970 and \$1.9 billion in 2011, and consequently the values of actual gross domestic product (GDP) of Zambia were \$1.7 billion and \$19 billion at the identical years, respectively (The value of real GDP is often used as proxy for financial growth). The huge and simultaneous increases in both variables suggest that there ought to be of linkage between FDI and GDP in Zambia, consistent with “international development signs” by using the globe financial (2013). I prepared the shape of this paper as follows: the second segment brings literature evaluation up, the 1/3 section shows the theoretical arguments, the fourth segment provides element statistics approximately the records and methodology, the fifth section indicates the empirical results, and consequently, the remaining section summarizes the findings of this study.

Foreign investment in Zambia is said to create employment opportunities for many citizens. To some extent, as investors are doing business in Zambia [Beve-ridge & Oberschall \(2015\)](#), they are contributing to the development of the country through the direct creation of employment opportunities for the whole population, as well as transferring up-to-date technology systems, the downside of these will be discussed later.

1.1. Statement of the Problem

Since natural-resource prices are volatile, resource-rich countries frequently struggle to convert mineral wealth into sustained, broad-based growth; the literature shows a robust association between resource dependence and weaker long-run growth unless offsetting institutions and policies are enacted ([Sachs & Warner, 2001](#)). Empirically, commodity price swings can produce boom-bust patterns that raise short-term foreign exchange and fiscal receipts but leave the economy vulnerable to covariate shocks when prices or demand fall. This vulnerability is commonly discussed as part of the “resource curse”/Dutch-disease family of problems. The Dutch disease mechanism, coined in *The Economist* (1977) and formalized in subsequent literature, describes how resource windfalls can appreciate the real exchange rate and crowd out tradable manufacturing, undermining diversification and long-run competitiveness ([Corden, 1984](#)).

Zambia’s experience is a clear case study of these dynamics. The economy remains highly exposed to copper: mining (predominantly copper) accounts for the lion’s share of export earnings and is a major source of government revenue and FDI. Recent diagnostics put the mining share of exports at roughly 70% - 75% of total exports and estimate mining’s contribution at about 10% - 15% of GDP, while the sector regularly supplies a large share of fiscal receipts (EITI; IFC). Over the last decade, the bulk of announced FDI and actual foreign capital inflows have been concentrated in the metals/mining sector, making mining the dominant recipient of new foreign investment and a principal driver of capital formation in Zambia.

FDI inflows to the mining sector have eased capitalization shortfalls, financed mine refurbishment and greenfield projects, and helped relieve balance-of-pay-

ments pressure during boom episodes; however, FDI alone is not a panacea [Jenkins & Edwards \(2006\)](#). Capital-intensive mining creates relatively few formal jobs (mining accounts for only a small share of total employment, even while contributing disproportionately to exports and government revenue), and it leaves the broader economy exposed to global commodity cycles and real-exchange-rate shocks that can retard manufacturing and non-mining tradables. The International Council on Mining and Metals and national surveys show mining's relatively small direct employment footprint (while simultaneously representing a very large share of formal FDI and export earnings).

The recent empirical record illustrates these structural constraints. After a period of depressed copper prices and constrained output, Zambia's copper production recovered in 2024 (production rose by roughly 12% year-on-year to about 820,000 tons, according to government and market reports) ([Radetzki, 1982](#)), but output and fiscal receipts remain sensitive to global prices and to domestic bottlenecks (notably energy and logistics). That recovery underscores how FDI and investor re-entry can raise output quickly, yet it also illustrates that boom-driven gains are reversible and therefore insufficient as a sole strategy for long-term, inclusive growth. Problem statement (synthesized): Given Zambia's continued dependence on copper exports and the concentration of FDI in the mining sector, Zambia faces two linked policy problems. First, the volatility of global copper markets and the capital-intensive, enclave nature of mining mean that FDI-led mining expansion raises export and fiscal receipts but does not reliably generate diversified, employment-rich growth; second, the country is vulnerable to Dutch-disease effects (exchange-rate appreciation, resource movement toward non-tradable segments, and crowding out of manufacturing), which can lock in dependency and raise macroeconomic vulnerability. To pursue sustainable development, Zambia needs policies that a) capture a larger share of resource rents for durable public investment and stabilization (fiscal rules, stabilization/sovereign wealth mechanisms and stronger revenue administration), b) deepen forward and backward linkages from mining into local manufacturing and services (local procurement, processing, targeted industrial policy), and c) build macro-fiscal and energy resilience so that short-term commodity gains translate into long-term productive capacity rather than transient fiscal windfalls. These policy imperatives are supported by recent diagnostics from multilateral institutions and by the observed pattern of cyclical output and capital flows into Zambia's copper sector.

The above diagram ([Figure 1](#)) is a visual description of the study. With the level of FDI concentrated in the mining sector, its impact on economic growth is limited to the robust functioning of the Mining sector. Furthermore, the high macroeconomic contribution of the mining sector entails that the stability, or lack thereof, of the economy is defined by this sector. Most importantly, the high proportion of exports that the mining sector commands clearly indicates that Zambia is not only dependent on primary export commodities but also lacks

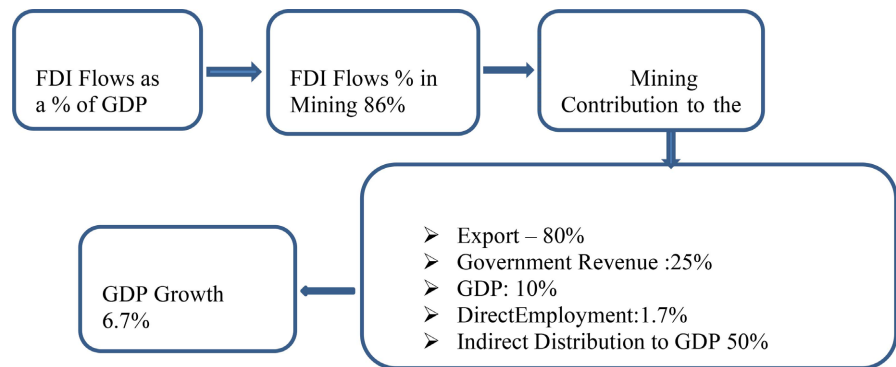


Figure 1. Relationship between resource development and FDI (As Act 2013). **Source:** Author's own Construct using data from Vaz et al. (2019), Chansa et al. (2018), and Ram & Ural (2013).

economic diversification. A combination of these factors suggests that the manufacturing sector is underutilized and therefore creates a dependency on manufactured imports. Compared to other resource-rich nations, the mining sector's contribution to the economy in Zambia is the highest. For instance, the average contribution to exports in other resource-rich countries are between 30% and 60%, that of government revenue is 3% - 20%, and that of direct employment is around 1% (Ram & Ural, 2013). This study aims to investigate whether this FDI structure may be responsible for the lack of economic growth dynamism.

1.2. Research Objectives

The main research objective is to investigate the impact of foreign direct investment in Zambia. Specific objectives are summarized as follows:

- 1) To analyze the impact of FDI on economic growth;
- 2) To analyze the impact of FDI on economic dynamism in the agriculture and manufacturing sectors.

1.3. Main Research Questions

What is the impact of Foreign Direct Investment on economic growth in Zambia?

Sub research questions are:

- 1) To what extent has FDI contributed to the economic growth in Zambia?
- 2) Is the concentration of FDI in the mining sector capable of driving dynamic growth in Zambia's economy?
- 3) Does the current investment policy promote multi-sector FDI?

According to UNCTAD's 2020 World Investment Report, FDI flows in Zambia increased from USD 408 million in 2018 to USD 753 million in 2019. In the same year, the total FDI stock was estimated at USD 19 billion. FDI remains dominated by large mining investments from Canada (Table 1).

1.4. Infrastructure Development and Foreign Investment in Zambia

Zambia has attracted infrastructure investment from a range of international actors,

Table 1. FDI in figures.

Foreign Direct Investment	2017	2018	2019
FDI Inward Flow (Million USD)	1108	408	753
FDI Stock (Million USD)	19,866	20,435	19,134
N0. Number of Greenfield Investments	15	15	20
Value of Greenfield Investment	2008	1,123	625

Source: *Annex, 2024*.

including Australia, the United Kingdom, China, and the United States, with large-scale projects in particular being undertaken predominantly by Chinese companies. The country's infrastructure, however, continues to face significant quality gaps that constrain both domestic and foreign investment. Critical areas requiring enhancement include the national road network, railway systems, and electricity generation capacity. For example, Sino Hydro Corporation has been responsible for the construction of the Kafue Gorge Lower Hydroelectric Power Station, a project valued at approximately USD 2 billion, with completion initially targeted for 2020 (*Tanyi-Tang, 2021*). In addition, the Batoka Gorge Hydroelectric Project, designed to generate 2.4 GW on the Zambezi River, was awarded in 2019 to a consortium comprising General Electric and the Power Construction Corporation of China. These megaprojects reflect Zambia's reliance on foreign capital and expertise to expand its infrastructure base, which remains essential for improving competitiveness and supporting long-term economic development.

As the country largely depends on the mining sector, the government is seeking to diversify the economy and to become less dependent on copper. To this extent, several tax incentives are granted to foreign investors (for more info, consult the Investment Guide to Zambia by the Zambia Development Agency, ZDA). Generally, Zambian law does not restrict foreign investors in any sector of the economy, although there are some limitations (especially regarding land ownership, as there is no private land in the country, and specific sectors of national interest). However, the increase in taxes on mining companies, the plan to reduce tax deductions on investment expenses in 2020, the uncertainties concerning the tax framework (a revision of the mining code is underway), the high level of interest rates, and the disputed judicial liquidation of the Konkola mine could create an economic climate unfavourable to foreign investors in the years to come. The regulatory environment does not favour entrepreneurial activity, the requirements for commercial licenses are long and costly, and the application of regulations is not uniform. In addition, the protection of property rights and the enforcement of contracts are still weak by international standards. Zambia ranks 85th out of 190 countries in the Doing Business 2020 report published by the World Bank, gaining two places compared to the previous edition.

1.5. What to Consider If You Invest in Zambia

1.5.1. Strong Points

- 1) The Zambian Development Agency (ZDA) provides a variety of incentives for foreign direct investment;
- 2) Zambia has one of the most open trade environments in Africa and is a member of the Southern Africa Development Community (SADC) and the Common Markets for Eastern and Southern Africa (COMESA);
- 3) Businesses in Zambia benefit from one of the lowest profit taxes in the region;
- 4) Increasing regional cooperation through multilateral organizations, including SADC and the African Union should continue to reduce the likelihood of interstate conflict.

1.5.2. Weak Points

- 1) Investments under USD10 million are not eligible for certain tax breaks and incentives;
- 2) Weaknesses in public finances and government expenditure act as a barrier to investment;
- 3) High levels of trade bureaucracy add significantly to shipping lead times to and from Zambia, hindering trade competitiveness;
- 4) Amendments to the Companies Act could see minimum quotas for domestic investment imposed in some industries in the future;
- 5) Corruption is still a worrying issue;
- 6) Government Measures to Motivate or Restrict FDI;
 - a) Some of the government incentives to FDI are:
 - 7) Dividends paid out on farming profits are exempt for the first five years of activity;
 - 8) Initial allowance of 10% on capital expenditure incurred on the construction or improvement of an industrial building is deductible;
 - 9) Foreign exchange losses of a capital nature incurred on borrowings used for the building and construction of an industrial or commercial building are tax deductible;
 - 10) Income earned by companies in the first year of listing on the Lusaka stock exchange qualifies for a 2% discount on the applicable company tax rate in the particular sector. However, companies with more than 1/3 of their shareholding in the hands of Zambians qualify for a 7% discount;
 - 11) Implements, machinery and plant used for farming, manufacturing or tourism qualify for wear and tear allowance of 50% of the cost per year in the first two years of activity:
 - a) Investors who invest at least USD 250,000 in any sector or product not provided for as a priority sector or product is entitled to non-fiscal incentives such as investment guarantees and protection against state nationalization and protection against non-commercial risks (Zambia is a signatory of Multilateral Investment Guarantee Agency).
 - b) For more info, consult the Investment Guide to Zambia by the ZDA.

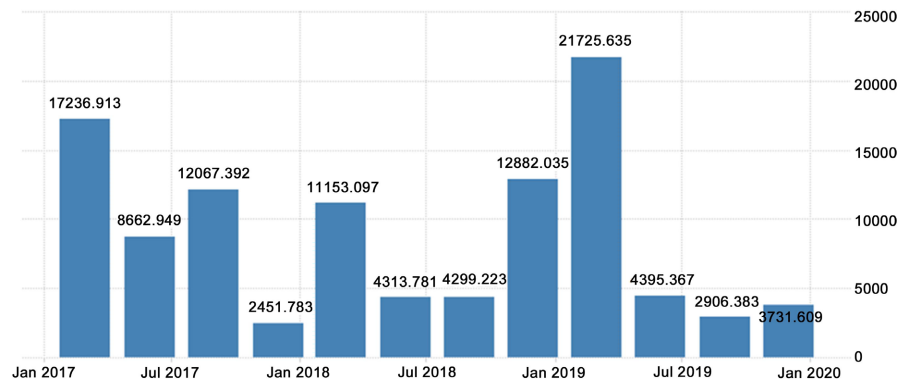


Figure 2. FDI in Zambia from 2017-2020. **Source:** (Lubinda & Mwewa, 2022).

Figure 2 indicates the foreign direct funding in Zambia from 2017 to 2020. During the fourth quarter of 2019, foreign direct investment in Zambia improved to Zambian Kwacha (ZMK) 73 billion, equivalent to approximately USD 2.6 billion, up from ZMK 91 billion, or about USD 3.2 billion, in the previous period. Like other investors, foreign traders assess several factors when deciding where to direct their foreign direct investment. For the full year of 2019, FDI remained relatively stable at USD 1.82 billion, compared to ZMK 32.65 billion, or around USD 1.77 billion, the year before (Chaudhry et al., 2013). In the 1970s, inflows of foreign direct investment into Zambia began to rise until 1974. After the recession, these inflows started to increase gradually in the late 1970s and early 1980s.

Between 1983 and 1985, there was a noticeable decline in foreign direct investment (FDI). In 1983, FDI amounted to approximately USD 140 million (ZMK 2800 million), which was lower than the previous year's figure of about USD 165 million (ZMK 3300 million). The sluggish growth during this period was largely attributed to the global recession and the challenges posed by the digital crisis. Starting in 1987, following the implementation of the Industrial Master Plan (IMP) for 1986-1995, foreign direct investment gradually increased. It rose from around USD 145 million (ZMK 2900 million) in 1983 to approximately USD 775 million (ZMK 15,500 million) by 1993, despite a sharp decline in 1994 and 1995. Nevertheless, FDI inflows managed to recover, reaching a record high of about USD \$1250 million (ZMK 25,000 million) in 1997 (Chaudhry et al. (2010)). In 1997 and 1998, bad foreign direct funding inflows transpired because of the African financial crisis. At some point this time, it became a result of the September 11, 2001, occurrence that came about to the World Trade Center in the United States boom (Mwega & Ngugi, 2006). After the prevalence, the inflows of overseas direct funding became unstable within the following years from 2002 to 2005.

1.6. Scope of the Study

This study examines the impact of foreign direct investment on Zambia's economic growth, utilizing secondary data covering the period from 1988 to

2018.

1.7. Operation Definition

Real Exchange charge: is the value of one country's currency against another after adjusting for price levels (inflation) in both countries. It shows the relative purchasing power of currencies and indicates the competitiveness of a nation's goods and services in international markets [Begg et al. \(2014\)](#). Real Interest charge is described as the amount charged, expressed as a percent of the principal, by means of a lender to a borrower for the use of the property. Interest may be expressed as a percent of cash taken over the length of twelve months [Devereux & Yetman \(2002\)](#). Inflation fee: This is the sustained growth in the general charge stage of goods and services, and additionally it is measured as a percent in step with the unit of time, say, a year or a month, [Begg \(2013\)](#). Foreign Direct Investments is defined as investment made to acquire lasting or lengthy-time period interest in firms working outdoor the economic system of the investor ([Oviatt & McDougall, 1999](#)). Economic Growth is typically described as a boom in the manufacturing and consumption of goods and services ([Begg, 2013](#)).

2. Literature Review

2.1. Overview of Foreign Direct Investments and Economic Growth in Zambia

According to ([Shahrudin et al., 2010](#)) Malaysia is one of the nations in Asia that has benefited from strong foreign funding inflow. ([Kumar et al., 2018](#)), has supported this view as he stated there's no denying the position that overseas investments have performed in economic growth, as it has been a large factor in Zambia's growing financial system and Zambia will increasingly adopt a more centered approach in its measures to attract greater FDI. According to [Thompson \(2011\)](#), FDI has been seen as a key driving force underlying the robust overall performance in Zambia, appeared as a leading position during the boom of many of the economies of the African area, especially in export sectors, and has been a critical source of overseas capital at some stage in crisis. According to the [IMF \(2011\)](#), inflows of FDI into growing countries grew by a median of 23 according to cent 12 months in the course of 1990 to 2010. [Kraay \(2018\)](#) said that FDI is now the biggest and the maximum solid source of private capital for growing countries and additionally economies in transition, accounting for nearly 50 in keeping with cent of all capital flows.

The FDI flow is clearly inclined by the dimension of a country's market demand as measured by the per capita of GDP. FDI tends to move towards expanding markets where purchasing power is high, since in such markets the firms have the potential to gain higher returns on their investments, hence greater profits. Therefore, it can be shown above that economic growth has been consistent in the last 10 years implying that the government and the policies in place have worked well if not all improved the economy ([Figure 3](#)).



Figure 3. GDP of Zambia from 1988-2018. **Source:** World Bank (2023).

2.2. Zambian Economy

Zambia's economy is a market economic system-orientated industrial USA and growing new and slightly open. Each country in Africa performs a very important role in producing economic improvement. According to [Coady & Gupta \(2012\)](#), Malaysia's economy became the 3rd biggest economy in South East Asia and the twenty-eighth largest economic system in the world via buying strength parity with gross domestic (GDP) for 2008 is \$222 billion with an increase in the price of 5% to 7% in view that 2007 and in 2010, GDP in keeping with capita (PPP) of Malaysia stands at US\$14, seven hundred. Then in 2009, the nominal GDP became US\$383.6 billion and the nominal in line with the capita GDP became US\$ eight, a hundred in 2007. In 2018, Malaysia's actual GDP turned 382,129 million US bucks. Between 1969 and 2018, the actual GDP of Malaysia grew considerably from 19,530 million to 382,129 million US bucks rising at an increasing annual rate that reached a maximum of 11.70% in 1973 after which reduced to 4. Seventy-Four percent in 2018 The Malaysia's economic system is pushed through many sectors which include manufacturing, agriculture and others. Exports also helped develop the national 8 system in areas together with electronics. Malaysia is moving ahead with the coverage of creating a robust know-how base inside the subject of era, research and development. The U.S. GDP is based totally on several main together with foreign direct investment (FDI), unemployment, export and import, inflation fee, and other elements. For instance, the predominant export by Malaysia in 2007 was electronic system, petroleum, and wood merchandise whilst the foremost imports turned into machinery, vehicles, iron and steel merchandise ([Wu, 2010](#)).

2.3. Zambian Funding Policy

The Zambia government is encouraging FDI ordinarily by way of in search of to

consolidate its economic system (Andronova et al., 2022). This is why, for instance, Zambia is seeking to liberalize the expatriate employment machine within the production sector so that you can sell transfer of era and to facilitate the arrival of certified employees in its territory. In order to consolidate strong domestic call for, the authorities have allowed families to gain from decrease earnings taxes and have additionally extensively extended the salaries of civil servants. Fiscal consolidation remains one of the precedence objectives of the government, which goals to gain a balanced price range in 2020, with the introduction of 3.3 million jobs over the identical length. To avoid the trap of ultimately being stuck in the institution of center-earnings countries, the authorities has put in location because 2010 a robust software of monetary transformation. The six principal objectives of this program are: 1) To consolidate internal intake as a driver of increase; 2) To expand the knowledge economic system; 3) To urbanize the United States; 4) To consolidate the public budget; 5) To move the flagship industries upmarket to build international centers of excellence; 6) To beef up the financial weight of SMEs. It is inside the framework of this financial improvement plan that Zambia has additionally included tax incentives to attract overseas funding in strategic sectors of pas-time, consisting of “pioneering fame” for enterprise sectors, agriculture, and tourism, the “Bio nexus label” for the biotechnology zone and for the groups inside the ICT and multimedia sectors. Zambian financial system is already surprisingly well internationalized and is predicated on diversifying and growing exports.

The U.S.A. Has additionally managed to create a wholesale business surroundings, ranked on the twenty fourth position in phrases of ease of doing commercial enterprise (World Bank Doing to FDI by using imposing broadly liberal and obvious investment coverage).

2.4. Three Distributions with the Aid of Quarter and Enterprise

Systematic statistics on FDI inflows by region, industry or us of a of beginning aren't available. On the complete, FDI has been concentrated in the mining area, both in terms of shares and flows, because the mid-1990s. It is expected that the mining region attracted extra than 1/2 the FDI inflows in the course of this period, a time while many big overseas mining agencies entered the United States for the manufacturing and exploration of copper and other minerals along with cobalt. However, this must be positioned into context. These groups are exceptionally small whilst in comparison to zone leaders such BHP Billiton, which has a marketplace capitalization of \$123 billion. The TNCs getting into Zambia included Avmin (Australia, with market capitalization \$563 million), America Mineral (USA, \$241 million), Metorex (South Africa, Investment Policy Review of Zambia (Basu et al., 2013).

The \$405 million, First Quantum (Canada, \$3 billion) and, greater currently, Equinox Minerals (Australia, \$593 million), J&W Investments (Switzerland), which received the closed Ramcoz mine, and Vedanta Resources (United Kingdom, \$eight billion), which obtained Konkola Copper Mines.

Table 2. Zambia's performance compared to that of selected other countries, 1986-2004 (US\$ and Percentage).

Country	ABSOLUTE PERFORMANCE					RELATIVE PERFORMANCE														
	FDI Inflows per Year					FDI Stock					FDI Inflows					FDI Stock				
	Average (1986-1990)	Average (1991-1995)	Average (1996-2000)	Average (2001-2004)	2004	Average (1986-1990)	Average (1991-1995)	Average (1996-2000)	Average (2001-2004)	Dollars	Per Capita (Dollars)	Per \$1000 GDP	As a percentage of GFCF	Per Capita (Dollars)	%GDP					
Zambia	112.5	106.1	161.4	164.9	3019.3	14	11.6	15.8	14.6	35.5	31.9	47.9	35.9	37.4	24.3	23.6	16.1	263	55.8	
Botswana	72.4	-48.2	72.3	225	1382	53.8	-31.6	42.6	127.1	31.1	-13.3	15.4	37.5	15.5	-4.5	6	15.4	781.2	15.1	
Ghana	8.8	101.4	133.4	106	1917.4	0.6	5.9	7	5	1.6	17.3	20.5	15.2	1.3	8.1	9.3	6.6	88.5	21.7	
Lesotho	11.7	19.2	30.1	37.3	478.9	7.5	11.6	17.2	20.7	22.7	23	32.6	37.5	4.9	3.9	6.5	10.4	266.3	31.6	
Mozambique	5	32	178.5	267.9	2165.7	0.4	2.1	10.3	14.3	2.1	14.8	47.8	69.5	0.7	6.7	22.5	35.6	111.5	39	
Namibia	7.3	109	98.2	245.3	1526.8	5.4	70.2	55	124.8	3.2	36	28.5	68	2	18.9	13.8	35	759.9	32.6	
South Africa	-72.7	376.5	1517.3	2212.5	46282.7	-2.1	9.2	34.4	47.8	-0.8	2.6	10.8	18.4	-0.4	1.7	6.6	11.8	980.4	21.7	
Uganda	0.3	46.4	260.4	473.4	5203.3	0	1.5	7.7	12.9	0.1	10.3	31.5	47.4	0.1	4.4	19.8	25.6	138.3	48	
United Republic of Tanzania	-1	54.2	110.7	200.5	1612.9	-0.1	2.7	4.8	7.6	-0.3	11.1	18.3	32.1	-0.2	6.9	9.9	15.4	58	23.6	
SADC	283.2	1174.2	3718.2	6470.9	83484.6	1.9	6.6	18.8	30.3	2.2	6.4	19.7	33	1.2	3.8	10.9	18.7	378.5	28.5	
SADC without South Africa	355.9	797.7	2200.8	4258.5	37201.9	3.1	5.9	14.4	25.4	8.1	17.4	42	67.2	4.8	8.8	18.6	30	214.6	46.6	
LDCs	10702.1	634.2	1586.5	3885.3	71952.5	14.4	1.4	2.8	6	36.3	4.5	9.3	20.1	20.8	2.1	6	10.4	97	24.4	

Source: UNCTAD, World Investment Report (2005).

The second biggest quarter for FDI is the offerings zone, more specially banking, communications and tourism. Six worldwide banks are working in Zambia, along with Barclays, Standard Chartered, Stanbic and Citibank. FDI in telecommunications offerings is extra recent and focused in cellular telephony, with licenses granted to Telecel (which became obtained with the aid of MTN in late 2005) and Celtel, which turned into acquired via Kuwait's MTC Group in 2005 (Table 2). The tourism enterprise has also attracted greater foreign traders in recent years, particularly inside the development of game parks and in websites across the Victoria Falls vicinity. The latter saw the outlet of the Sun International motel in 2001 constructed at an expected cost of forty-five million USD (\$ 45 million) on forty-six hectares. Foreign buyers are also gifted inside the USA's three massive international lodge chains, particularly, Intercontinental, Taj Group of hotels, and Holiday Inn, which were obtained through privatization. In recent years, agriculture has been attracting FDI directed especially at the production of fruit, flora, horticultural products, cotton, maize, tobacco, and sugar. Foreign involvement in this sector ranges from such huge businesses as South African-listed Illovo Sugar and medium-sized overseas organizations like Envirofor (a joint venture with the Netherlands and character farmers from Zimbabwe).

This chapter looks at theories that explain the impact of FDI in countries, as well as studies conducted in various countries on the impact of FDI in Agriculture on the economic growth of those countries. Two general theories are to be considered. Jointly, the theories addressed the effect of investment in a primary commodity-dependent economy. Growth theories such as Harrod (1939), Domar, (1946) model and McQuinn (2007) argued that growth would be influenced by increases in savings and productivity resulting from rises in capital. Romer (1986) maintained increase in human capital accumulation and spillover effects was most desirable and countered the tendency of capital to diminish marginally. Upon these models, arguments on the impact of FDI on economic growth have been formed. In 1960, McDougall presented the costs and benefits of foreign capital. One of the main benefits discussed was know-how, relieving the balance of payment pressure and revenue for the government. One of the key costs was that FDI would crowd out domestic investment. Many debates have arisen since then regarding FDI's potential benefits on one hand and detrimental effects on the other. Early proponents argued that it would lead to considerable technological advancement (Dunning & Sturme, 1958). Yet, with most corporations getting nationalized in the post-colonial era, it became increasingly difficult to make a case for FDI (Ndaba, 2014).

2.5. Theoretical Review

The examination was guided by the neoclassical hypothesis, item life cycle speculation, and the electric cycle hypothesis. There are diverse speculations on monetary development and foreign direct funding; each speculation acknowledges its own version and concept. This investigation largely targeted on monetary im-

provement and overseas direct speculation hypotheses. The following are several such hypotheses that the scientist focused on:

2.6. Neoclassical Theory

The Neoclassical Theory became created by using Neoclassical Economists, at the start it changed into provided by Veblen in 1900. The speculations become additionally created by distinct neoclassical pupils who agree with technology to be straightforwardly diagnosed with propagation. These speculations examine from the factor of view of organized commerce. They general that FDI spikes since a long term in the past run development through such factors as Research and Development (R&D) and Human Capital. The noteworthy things under exam proper now financial improvement and improvement. Neoclassical speculation stipulates that worldwide capital streams with separated paces of go back across international locations lead to capital change, in which capital appears for the maximum noteworthy tempo of go back. It seems at FDI from the point of view of unhindered trade, with components, as an example, price gadget and macroeconomic processes to FDI. [Bajona and Kehoe \(2010\)](#) tested clarifications of global era depending on neoclassical speculations of capital development and exchange in the Heckscher-Ohlin system. They, nonetheless, censure these speculations on the idea that they were mounted within the supposition of presence of properly markets and were on this manner undeserving to offer agreeable explanation of the character and instance of FDI.

2.7. Product Life Cycle Theory

The Product Life Cycle Theory became created by means of Vernon in 1966 reliant on the enjoy of the U.S. Promote it. This speculation clarifies how alternate designs alternate after a while. As consistent with Vernon, the advent cycle incorporates four levels: invention, improvement, maturity and decay. In the major organize; the worldwide enterprise makes new creative gadgets for close by utilization and fare the surplus for the usage of outdoor commercial enterprise sectors. This degree is portrayed by way of little bit of leeway of innovation on worldwide contenders as they undeserving to make the desired merchandise. The subsequent level turned into defined by using the worldwide organization transferring the creation to the developing nation. The third level noticed the building up kingdom's rival send out the products to the MNC's kingdom of beginning. This stamped clean task between the host country and the MNC domestic state, hence named the development arrange in mild of the fact that the building up nation's competitors have balanced out sufficient to fare to the MNC's state. The last stage changed into portrayed by the constructing up kingdom's commercial enterprise sectors staying realistic goal markets for one-of-a-kind MNCs because of the balanced-out economy. The MNC domestic state shows off supposedly diminishes. This hypothesis clarifies each alternate and FDI through illustrating the exceptional duration of a MNC's Foreign Direct Investment and the progressions after

a while. New items are familiar to meet the close by wishes.

2.8. The Electric Paradigm Theory

This is the famous possession, region and internalization (OLI) paradigm, in any other case called the Electric Paradigm principle evolved by means of [Dunning \(1988\)](#). This concept constitutes 3 specific theories of FDI (O-L-I); Ownership, Location and Internalization benefits. Ownership in this situation makes connection with intangible belongings exclusively owned with the aid of the Investing Company and may be transferred amongst MNCs at a tremendously low price. This is possibly to result in higher earning or reduced prices. This might be going to result in better salaries or dwindled prices. In any case, there are greater operational charges seemed with the aid of the global partnership due to activities in diverse international locations. The international companies in this manner want to have sure additives that might surpass the operating expenses they need to manipulate in an out of doors marketplace so one can successfully enter the overseas market. These additives are the options, for instance, assets talents, enterprising aptitudes, advent approach, emblems, and economies of scale, greater prominent get right of entry to money related capital, innovative talent and licenses. Proprietorship specific possibilities allude to the upper palms of the endeavors searching to take part in FDI. The forms of express alternatives incorporate imposing enterprise models, full-size economies and innovation favorable situations. Inferable from the affiliation's restraining infrastructure on its particular blessings, the usage of these blessings in a foreign market brings approximately better negligible benefit or lower peripheral prices than one-of-a-kind rivals inside the outside marketplace ([Dunning, 1973, 1980, 1988](#)). Area focal factors are key determinants of host international locations throughout the MNC's screening method when attempting to find a reasonable location to place assets into. The extra the desk bound, not unusual or made property, which companies want to make use of mutually with their own higher arms, the greater firms will determine to increase or abuse their particular favorable instances via taking element in FDI. The blemished marketplace circumstance empowers overseas corporations abuse have country openings and therefore, competition with the MNC by the host firms demonstrates troublesome because of the superiority of the MNC over the host companies.

2.9. Empirical Reviews

Recent FDI to African countries has been boosted with the help of the acquisitions of current assets via foreign investors below the authorities' privatization program that, as was noted ahead, began in 1992, to start with mercantilism smaller businesses, followed later by suggests that of the larger copper mining agencies. By Apr 2002, 257 kingdom institutions had been privatized from a complete of 284. Of the privatized agencies, sixty-five % had been oversubscribed to Zambian people, twenty-nine share to foreigners while half-dozen % had been tense. though

solely twenty-nine % of privatized businesses had been non heritable with the help of FDI, in fee terms, foreign funding dominated the privatization programme, specially through joint ventures. The overall fee of privatization receipts amounted to spherical \$450 million, consequently indicating the small length of the many homes. Foreign patrons are involved especially in the acquisition of a variety of larger mining, energy, producing, and agro-business organizations (**Table 2**).

The communication is known that past writing found optimistic final results of inner FDI on money improvement. The analysis likewise determined that, at an overall degree, overseas direct investment will take care ought to optimistic outcomes on financial improvement. Be that because it may, at a two-dimensional figure level, the effects of foreign direct speculation on financial improvement vary across segments and no general influences area unit watched. **Colen et al. (2018)** crystal rectifier associate analysis to determine if outside direct speculation may be a driving force of monetary development and human development. This investigation became directed in a very meeting of making international locations.

Tang et al. (2012) surveyed the augmentation of FDI hypothesis to the host nation and empirical investigations of the influences of FDI. They perceive that outside direct hypothesis assumes associate undeniably widespread activity in worldwide money improvement, whereas increasing economic process furthermore gainsays existing FDI hypotheses. They utilize systematic fashions to audit on the far side examinations and empirical proof, significantly in Africa. They situated that the impact of foreign direct speculation on the economic development of the host state, primarily in growing international locations, is as however, associate with uncertain bother. **Sghaier (2013)** examines for joins among foreign direct investments, money-connected development and money improvement in four nations in North Africa: the Democratic and Popular Republic of Algeria, Egypt, Morocco and the Republic of Tunisia. By breaking down one in all a form strides of monetary fund advancement, this examination utilizes a multi-directional at once regression model to research the association among given parts. they found that international locations with properly-created cash associated frameworks have a higher retention ability to take advantage of foreign direct funding. **Kinaro (2006)** inspected the determinants of ADI in African countries. In his read, outside direct speculation not only offers just about necessary investment to African countries for foreign investment, but additionally creates work openings and encourages the exchange of the government's aptitudes and innovation, all of which contribute altogether to economic advancement. He in addition declared that the liberal political form had gotten every day and step by step misplaced the potential to tug in foreign direct speculation. By breaking down the degree of overseas direct hobby recently, his investigation situated that outside direct interest within the country continues to decline. **Nyamwange** from the University of the capital of **Dortort (2018)** processed in his work the RePEc faculty get in the metropolis that doors direct speculation has been decreasing as of delinquent contrasted with

neighboring international locations. within the wake of directive communicating in Malaya, he applied elucidating analysis and discovered that inflows rose forcefully to \$ eighty-two million out in 2003, contrasted with \$ twenty-eight million in 2002, withal the very fact that it became one in all the utmost distended. The economy in African countries is that of the South African district. As indicated through the study, the essential wellsprings of foreign direct interest in African countries, are South Africa, Egypt, Nigeria, and Botswana.

3. Research Methodology

3.1. Specification of the Econometric Model

Ordinary least-squares (OLS) regression is a generalized linear modeling technique that may be used to model a single response variable that has been recorded on at least an interval scale. The technique may be applied to single or multiple explanatory variables and also categorical explanatory variables that have been appropriately coded. The Ordinary Least Square (OLS) model was adopted because of the mixtures of I (0) and I (1) variables and the methodology of OLS was preferred in this study since it is simple to run, easy to understand, and interpret. This model does not violate any of the assumptions of the classical linear regression model (Figure 4). Therefore, it was necessary to confirm the relationship between the dependable variable (economic growth) and inflation rate.

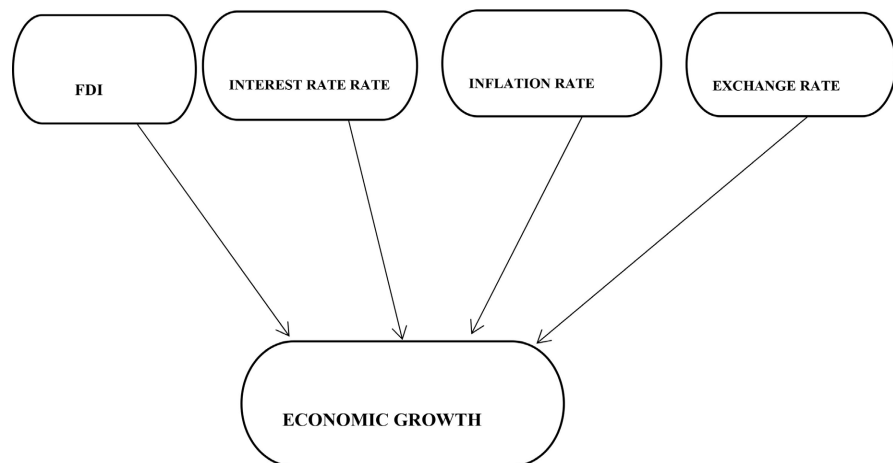


Figure 4. Model analytical framework. Source: Author's own construct.

3.2. Model Specification

Below is the Mathematical form of the model:

$$GDP = F(FDI, INFLR, INTR, EXCHR)$$

where GDP = Gross Domestic Product

FDI = Foreign Direct Investment

NFLR = Inflation Rate

INTR = Interest Rate

EXCH = Exchange Rate

Based on the above formulation the formula can be re-written as

$$GDP = \beta_0 + \beta_1 FDI + \beta_2 INFLR + \beta_3 INTR + \beta_4 EXCHR + \varepsilon_t$$

where

β_0 = the intercept at time t

Coefficients of FDI

GDP = Gross Domestic Product

$\beta_1 FDI$ = Foreign Direct Investment

$\beta_2 INFLR$ = Inflation Rate

$\beta_3 INTR$ = Interest Rate

$\beta_4 EXCHR$ = Exchange Rate

3.3. Data Type and Sources

The study utilized optional information, including auxiliary information, the factual materials that will be acquired from institutional records or distributed materials. The significant sources of information were gathered from the World Bank and the World Development Indicators. The investigation utilized yearly time series information for an example of 32 years (1988-2018).

3.4. Stationarity Test

Stationary time arrangement information is one whose attributes, for example, mean, fluctuation, and covariance don't change after some time. This is significant because econometric examination of nonstationary factors prompts bogus relapse results (Gujarati, 2004). The examination utilized the ADF test to test for stationarity.

The Cointegration Test

Subsequent to building up that factors are nonstationary, it is critical to decide if there is any long-haul connection between the needy and autonomous factors. The examination utilized the cointegration test to test if the involved acquaintance between autonomous factors and ward.

3.5. Post Estimation Diagnostic Test

3.5.1. Test for Normality

The typicality suspicion involves that as the quantity of informational collections keep on expanding, they start to move toward the ordinary circulation. Wooldridge (2001) states that the ordinariness supposition NID $(0, \sigma^2)$ is required so as to lead single or joint theory test about the model parameters. The Jarque-Bera test was utilized to test for ordinariness.

3.5.2. Test for Serial Correlation

The Breusch-Godfrey Serial Correlation LM Test was utilized to test for autocorrelation. No autocorrelation is a suspicion of the traditional straight relapse model indicating that the residuals are free of one another.

3.5.3. Test for Heteroscedasticity

The Breusch-Godfrey-Pagan Test was utilized to test for heteroscedasticity. Heteroscedasticity is another infringement of the suppositions of the old-style direct relapse model. It involves that the fluctuation of the mistake terms contingent on the informative factors is not steady. The change of the blunder term must be homoscedastic or have equivalent fluctuation.

3.5.4. Specification of the Economics Model

Ordinary least-squares (OLS) regression is a generalized linear modelling technique that is used to model one response variable that has been recorded on a minimum of associate degree interval scale. The technique could be applied to single or multiple explanatory variables and also categorical explanatory variables that are suitably coded. the normal Least sq. (OLS) model was adopted attributable to the mixtures of I (0) and I (1) variables, and also the methodology of OLS was most popular during this study since it's straightforward to run, straightforward to know, and interpret. This model doesn't violate any assumption of the classical statistical regression model. During this case, it was best to use this model for this study. Thus, it was necessary to substantiate the link between dependent variables (economic growth) and the independent variables (exchange rate, foreign direct investment, rate of inflation, and real interest rate).

1) The real Interest rate

The **real interest rate** is the rate of interest an investor expects to receive after allowing for inflation. It reflects the true cost of borrowing and the true yield on savings when inflation is taken into account.

The formula to calculate the real interest rate is:

$$\text{Real Interest Rate} = \text{Nominal Interest Rate} - \text{Inflation Rate}$$

where:

1) **Nominal Interest Rate** is the stated interest rate without adjusting for inflation.

2) **Inflation Rate** is the percentage increase in the price level of goods and services over a period.

The real interest rate primarily reflects **lending rates** since it indicates what borrowers effectively pay after considering inflation. However, it can also apply to other rates, such as the yield on bonds or savings accounts, as it shows the real return on investments or savings after inflation.

Gross Domestic Product (GDP) can be measured in two ways:

1) **Nominal GDP**: This measures the value of all finished goods and services produced within a country's borders in a specific time period using current prices, without adjusting for inflation.

2) **Real GDP**: This adjusts nominal GDP for inflation, reflecting the true value of goods and services produced by accounting for changes in price levels over time. Real GDP provides a more accurate representation of an economy's size and how it's growing.

Mathematical articulation and also the economics model

Below is the Mathematical style of the model:

$$GDP = F(FDI, INFLR, INTR, EXCHR)$$

where GDP = Gross Domestic Product

FDI = Foreign Direct Investment

INFLR = Inflation Rate

INTR = Interest Rate

EXCH = Exchange Rate

Based on the higher than formulation the formula will be re-written as

$$GDP = \beta_0 + \beta_1 FDI + \beta_2 INFLR + \beta_3 INTR + \beta_4 EXCHR + \varepsilon_t$$

where

β_0 = the intercept at time t

GDP = Gross Domestic Product

$\beta_1 FDI$ = Foreign Direct Investment

$\beta_2 INFLR$ = Inflation Rate

$\beta_3 INTR$ = Interest Rate

$\beta_4 EXCHR$ = Exchange Rate

3.5.5. Knowledge Kind and Sources

The examination used non-mandatory data; by auxiliary data, I mean the factual materials that can be non-heritable from institutional records or distributed materials. The many wellsprings of knowledge were gathered from the Planet Bank and World Development Indicators. The investigation used yearly time arrangement data for an associate degree example of thirty-two years (1988-2018).

3.5.6. Pre-Estimation Tests

1) Stationary

Stationary time arrangement data is one whose attributes, for instance, mean, fluctuation and variance do not modification once a while. this is often important because economics examination of nonstationary factors prompts phoney relapse results (Gujarati, 2004). The examination used the ADF take a look at to check for stationarity.

2) The Cointegration

Subsequent to increase that factors square measure nonstationary, it's essential to come to a decision if there's any long-haul affiliation between the necessitous and autonomous factors. The examination used the cointegration take a look at to check if the concerned association between autonomous factors and ward.

3.5.7. Post Estimation Assay

1) Test for Normality

The normality suspicion involves that because the amount of information collected carry to increases, they begin to move toward the normal circulation. Wooldridge (2001) states that the quality supposition NID $(0, \sigma^2)$ is needed therefore on lead single or joint theory take a look at concerning the model parameters. The Jarque-Bera take a look at was used to check for quality.

2) Test for Serial Correlation

The Breusch-Godfrey Serial Correlation luminous flux unit take a look at was used to check for autocorrelation. No autocorrelation may be a suspicion of the standard straight regression model indicating that the residuals square measure freed of each other.

3) Take a look at Heteroscedasticity

The Breusch-Godfrey-Pagan takes a look at was used to check for heteroscedasticity. Heteroscedasticity is another infringement of the suppositions of the old-style font direct relapse model. It involves that the fluctuation of the error terms contingent the informative factors aren't steady. The modification of the blunder term should be homoscedastic or have equivalent fluctuation.

4. Data Analysis, Findings, and Interpretation

4.1. Pre-Estimation Results

4.1.1. The Unit Root Test

The Augmented Dickey Fuller Test was undertaken to test for stationarity in the series. The Unit Root Test is shown in **Table 3** below.

Table 3. Stationarity results.

Variable	ADF at level	Critical value	ADF at 1 st difference	Critical value	Order of Integration
	P value	5%	P value	5%	
GDP	0.0073	-2.963972			I(0)
FDI	0.3360	-2.963972	0.0000	-2.967767	I (1)
INFLR	0.0038	-2.998064			I(0)
INTR	0.0021	-2.963972			I(0)
EXCHR	0.9949	-2.963972	0.0039	-2.967767	I(1)

From the table, it may be indicated that GDP, swelling rate, and loan cost were stationary at a level; this is on the grounds that the related p-value was not exactly the 5% levels of significance, while the remote direct speculation and swapping scale were not stationary at a level. Along these lines, one approach to manage stochastic patterns or unit roots is by taking the principal contrast of the factors; consequently, the first differencing of the considerable number of factors, remote direct estimation, and conversion scale were obtained, and the factors were stationary from the start. From the table over, the outcomes acquired show that after the unit root test on the gross local, outside direct venture, expansion rate, interest rate, and exchange rate. At the level and first contrast, we dismiss the invalid theory of the unit pull or nonstationary for the factors above. This is on the grounds that the related p-values are low at all degrees of significance. Further patterns in the factors investigation are in the informative supplement.

4.1.2. Cointegration Test

Table 4. Johansen co-integration test results (trace statistic).

Hypothesized No of CE(S)	Eigenvalue	Trace Statistic	Critical Value (5%)	Prob**
None*	0.659335	62.27533	69.81889	01722
At most 1	0.418259	31.04652	47.85613	0.6640
At most 2	0.240979	15.33637	29.79707	0.7579
At most 3	0.212763	7.340334	15.49471	0.5384
At most 4	0.013793	0.402770	3.841466	0.5257

Trace test indicates 1 cointegrating (s) at the 0.05 level. *denotes rejection of the hypothesis at the 0.05 level. **MacKinnon et al. (1999). p-values.

Table 5. Johansen co-integration test results (max-eigen statistic).

Hypothesized No of CE(S)	Eigenvalue	Max-Eigen Statistic	Critical Value (5%)	Prob**
None*	0.659335	31.22881	33.87687	0.1003
At most 1	0.418259	15.71015	27.58434	0.6902
At most 2	0.240979	7.996039	21.13162	0.9039
At most 3	0.212763	6.937564	14.26460	0.4966
At most 4	0.013793	0.402770	3.841466	0.5257

Max-eigenvalue test indicates 1 cointegrating (s) at the 0.05 level. * denotes rejection of the hypothesis at the 0.05 level. **MacKinnon et al. (1999). p-values.

The Johansen Co-integration check was conducted. **Table 4** and **Table 5** show the Trace data point and therefore the Max-Eigen data point severally. each indicated that there's one co-integrating equation at five-hitter level of significance. The results of the Johansen Co-integration tests powerfully rejected the null hypothesis of no co-integration. This entails that there's a long association between the freelance variables and therefore the dependent variables.

4.2. OLS Model Estimation Results

As the population grows inside the house areas, there's additional demand for valuable products and services. This translates to a large chance for multinationals to come back in and take a look at to fill the gap in the market by providing the essential product as a service. The results conjointly reveal that the rate is statistically insignificant in explaining variation in the economic process, and the modification in the rate results in roughly zero. 435% increase in gross domestic product. This signifies that the rate influences economic processes in an African nation, although it's statistically insignificant. The results conjointly showed that a rise in the rate of inflation causes a decrease in economic growth of roughly by

-0.003%. this suggests that the economic process in African nations is incredibly tuned in to inflation. Its unimportance implies that it's a determinant associated with different variables to see the stability of a setting. Inflation will cause uncertainty regarding the long-run profit of investment comes whether or not from inside or foreign investors, resulting in additional conservative investment methods. this implies that there would be lower levels of investment, therefore a slowed-down economic process. The results conjointly indicate that a rise in real rate of interest causes a rise in economic growth by roughly half-dozen. 3%. This price shows that the economic process is incredibly tuned in to changes in real interest rates; that is, if the rate of interest changes, the economic process changes quite proportionately. The R-squared was higher, which showed that a minimum of sixty-two 04% of the variations within the variable were attributed to variations within the independent variables. All the changes within the variable over the ascertained years within the Asian country economy are explained by the explanatory variables, the remaining thirty-seven.96% variation is explained by different variables outside the model (Table 6).

Table 6. The result of the ordinary least squares.

Variable	Coefficient	Std. Error	T-statistic	Probability
EXCHR	0.435196	0.238098	1.827802	0.0787
FDI	2.450009	1.410009	2.732700	0.0346
INFLR	-0.003302	0.015172	-0.217655	0.0893
RIR	6.300009	5.780009	1.090121	0.0153
Constat	4.346578	2.576434	3.032124	0.0229
R-Squared	0.620374			
Adjust R-Squared	0.522638			

4.3. Post Estimation Test Results

4.3.1. Autocorrelation Test

The Breusch-Godfrey Serial Correlation LM test was utilized for autocorrelation. The invalid theory is that there is no autocorrelation. No autocorrelation implies that there is no connection between the error terms. The outcomes are exhibited in Table 7 below.

With an F-measurement of 14.48715 and a p-estimation of 0.3987, which is over 5% level of centrality, the invalid speculation was acknowledged, and we presumed that there was no sequential relationship in the error terms.

Table 7. Autocorrelation test.

F-statistic	2.894457	Prob. F (1, 11)	0.1462
Obs*R-squared	14.48715	Prob. Chi-Square (1)	0.3987

4.3.2. Heteroscedasticity Test

The proximity of heteroscedasticity recommends that the change isn't consistent. The invalid hypothesis is that there is the presence of Homoscedasticity. The Breusch-Pagan-Godfrey test was used to test for heteroscedasticity, and the results are shown in the table underneath.

Table 8. Heteroscedasticity test.

F-statistics	2.546928	Prob, F (9, 12)	0.149
Obs*R-squared	23.589	Prob. Chi square (9)	0.224
Scaled explained SS	1.256	Prob. Chi square (9)	1.000

Results show (**Table 8**) that the probability Chi-Square is 0.2124, and it is greater than the 5% level of significance. We therefore accept the null hypothesis of homoscedasticity and conclude that there is no heteroscedasticity.

1) Null hypothesis (H0)(H0) (H0): The error terms have constant variance (homoscedasticity).

$$H_0: \text{Var}(\epsilon_i) = \sigma^2 \text{ for all } i$$

2) Alternative hypothesis (H1) (H1) (H1): The error terms do not have constant variance (heteroscedasticity).

$$H_1: \text{Var}(\epsilon_i) \neq \sigma^2$$

4.3.3. Normality Test

The Jarque-Bera test of normality was done in order to determine whether the error terms were normally distributed. **Figure 5** below shows the Normality Test of Std. Dev pick.

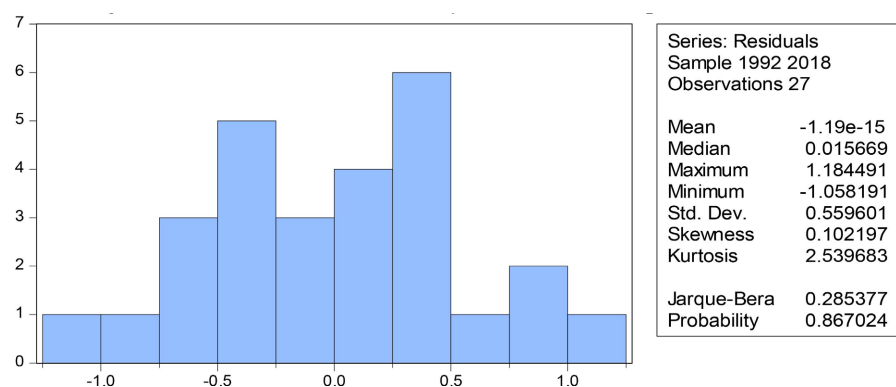


Figure 5. Stability test. Source: Author's own construct.

This examination included the utilization of the CUSUM on the residuals of the model to check for parameter dependability. The figure beneath shows a yield for the CUSUM of squares which was utilized to decide the parameter instability of

the condition utilized in the investigation. From the figure we can see that the tests exist in the 5% importance level significance the parameter of the condition is sufficiently steady to gauge the short-run and since quite a while ago run causality of the investigation.

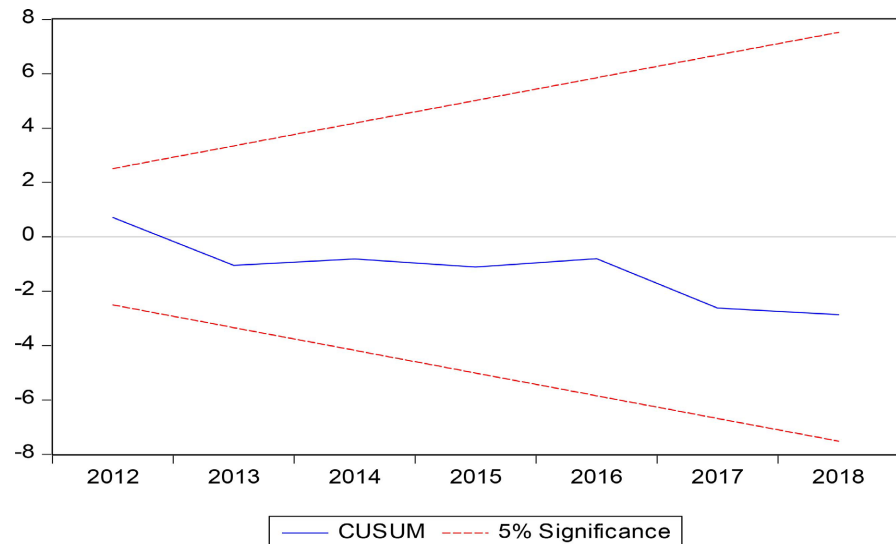


Figure 6. Stability test. Source: Author's own construct.

As can be seen from the graph (**Figure 6**) above, the cumulative sum is between the two red lines (critical lines). This, therefore, implies that the parameters in terms of the intercept are stable.

5. Findings

According to the empirical findings, the Augmented Dickey-Fuller (ADF) unit root test revealed that gross domestic product, interest rate, and inflation rate were stationary at the level, while foreign direct investment was stationary at the first difference. Due to the mixture of the I (0) and I (1) series, the condition to adopt the Johansen co-integration test technique was used to test for the presence of co-integration among the variables, as it suits this study, and the result showed evidence of a long-run relationship among the variables.

The cointegration test explores whether there is a long-run relationship among the variables. The result indicates that foreign direct investment, exchange rate, and real interest rate have a positive effect, while the inflation rate hurts economic growth.

The cointegration testing approach suggests that variables are bound together in the long run. The research findings showed that a relationship exists between the independent variables (foreign direct investment, inflation rates, interest rates, and exchange rates) and the dependent variable (gross domestic product). The research findings showed that a positive relationship exists between foreign direct investment and exchange rates of the economic growth. An increase in foreign

direct investment is an indication of economic growth in a country, which boosts foreign direct investment.

The research findings, however, contradict [Wanjiru \(2013\)](#), who deduced that there is a negative relationship between foreign direct investment and gross domestic product. The research findings agree with [Maingi \(2014\)](#) that a significant direct proportional relationship exists between foreign direct investment and economic growth in Zambia. The findings, however, contradict [Wanjiru \(2013\)](#), that there is a negative relationship between foreign direct investment and gross domestic product in the country, as it was indicated by the research findings. The study also established that exchange rates and interest rates had the greatest positive influence on gross domestic product. The Inflation rates, however, had the highest negative impact on foreign direct investment. [Khaliq and Noy \(2007\)](#) also observed a positive effect of economic growth on foreign direct investment. However, a negative relationship was observed between inflation, with the economic growth. This finding contradicts [Wanjiru \(2013\)](#), who concluded that there is no relationship between economic growth and inflation rates. Diagnostic tests revealed that the model used in this study passed the test of autocorrelation, heteroscedasticity, normality, and model stability test. This signifies that the result from the findings can be used by the researchers and the policy makers for recommendations and forecasting. It can be concluded that foreign direct investment is an ingredient of economic growth.

5.1. Analysis of Long-Term Trends in FDI Inflows

5.1.1. Correlation between GDP Growth and FDI Inflows: The Relationship Between Foreign Direct Investment (FDI) and GDP Growth

Foreign Direct Investment (FDI) inflows often correlate with Gross Domestic Product (GDP) growth, though the strength and nature of this relationship can vary significantly over time ([Figure 7](#)). Understanding these dynamics is crucial for policymakers and investors who aim to navigate the complexities of global investment landscapes.

5.1.2. Periods of Increased FDI

Historically, certain economic booms have been characterized by substantial FDI inflows alongside robust GDP growth. Notably, during the globalization wave of the late 1990s and early 2000s, many countries experienced a surge in FDI. Key factors contributing to this trend included:

- 1) **Favorable Economic Policies:** Governments adopted liberal trade policies that encouraged foreign investments.
- 2) **Improved Infrastructure:** Enhanced transportation and communication networks made countries more attractive to investors.
- 3) **Market Liberalization:** The reduction of barriers to entry for foreign investors facilitated increased capital flows.

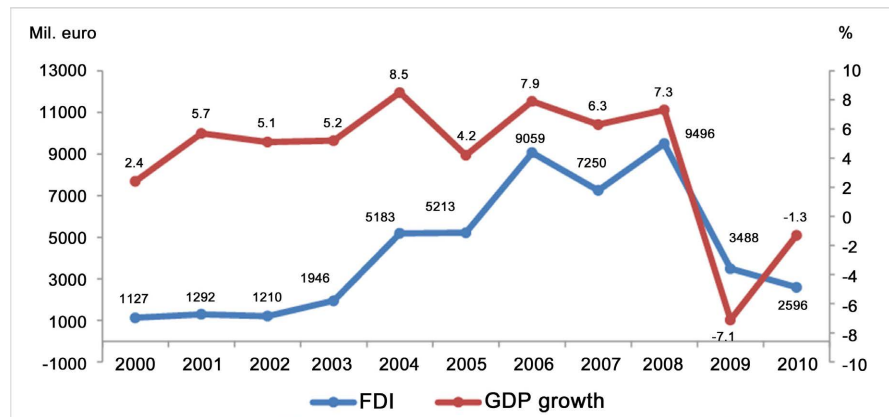


Figure 7. Periods of Increased FDI. **Source:** Nistor (2012).

5.1.3. GDP Stagnation or Decline

Conversely, during periods of economic downturn, such as the 2008 financial crisis, many nations observed a decline in FDI inflows, despite ongoing domestic investments. In uncertain economic climates, investors often become risk-averse, resulting in a pullback of capital. This phenomenon illustrates how external economic conditions can significantly influence investment behavior.

5.1.4. Contributing Factors to FDI Trends

Several factors play a critical role in shaping FDI trends:

1) **Policy Changes:** Liberalization of trade policies and the introduction of investment incentives can attract FDI, while protectionist measures tend to deter it.

2) **Economic Stability:** Countries with stable macroeconomic environments generally attract more FDI, as investors seek secure environments for their capital.

Global Events: Crises or geopolitical tensions can disrupt FDI flows, even in otherwise growing economies, highlighting the interconnected nature of global markets.

5.1.5. Trends in FDI Across Different Sectors

While the mining sector often dominates FDI inflows, other sectors such as agriculture and manufacturing exhibit notable trends.

1) Agriculture

FDI in agriculture has shown fluctuations, often influenced by food security concerns and sustainability initiatives. For example, periods of drought or famine can lead to increased interest in agricultural investments as nations seek to bolster their food production capabilities.

2) Manufacturing

FDI in manufacturing tends to remain stable during economic growth phases. The rise of emerging markets in Asia during the 2000s attracted significant manufacturing FDI, driven by lower labor costs and favorable trade agreements. This sector's resilience during growth periods underscores its importance in the global investment landscape.

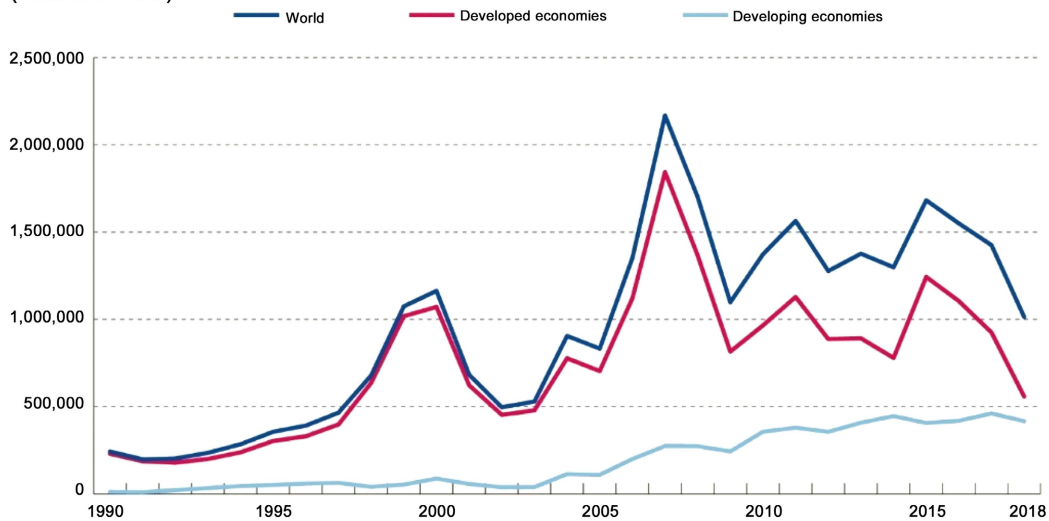
5.1.6. Comparative Analysis

A sectoral breakdown of FDI can reveal shifts in investor confidence and priorities. For instance, if mining FDI declines due to falling commodity prices, sectors like technology or renewable energy may experience increased investments. This adaptability highlights the dynamic nature of global investment patterns and the importance of responding to changing economic conditions.

5.2. The Development of Global FDI Flows in the Last Three Decades

After the collapse of the Iron Curtain in the early 1990s, worldwide foreign direct investment (FDI) saw a decade of gradual yet consistent growth (Figure 8). The 1990s marked a period of increasing globalization and the outsourcing of activities by Western multinational corporations, with FDI in developing nations that offered low labor costs (such as China) being particularly significant. Developed nations mainly controlled global FDI flows, whereas outflows from developing countries were minimal; however, due to outsourcing, their inflows became considerably more significant. After hitting a preliminary peak in 2000, both FDI outflows and inflows experienced a decline due to the collapse of the dotcom bubble in the early 2000s. In the subsequent years, these figures rebounded and reached record levels in 2007, just before the onset of the Global Financial Crisis. Beginning in 2003, developing countries, particularly China, began to take on a more significant role as outward investors, as their companies sought opportunities in global markets by advancing their own internationalization efforts.

FIGURE 1: Global FDI Outflows, 1990-2018.
(Millions of USD)



Source: UNCTAD 2019.

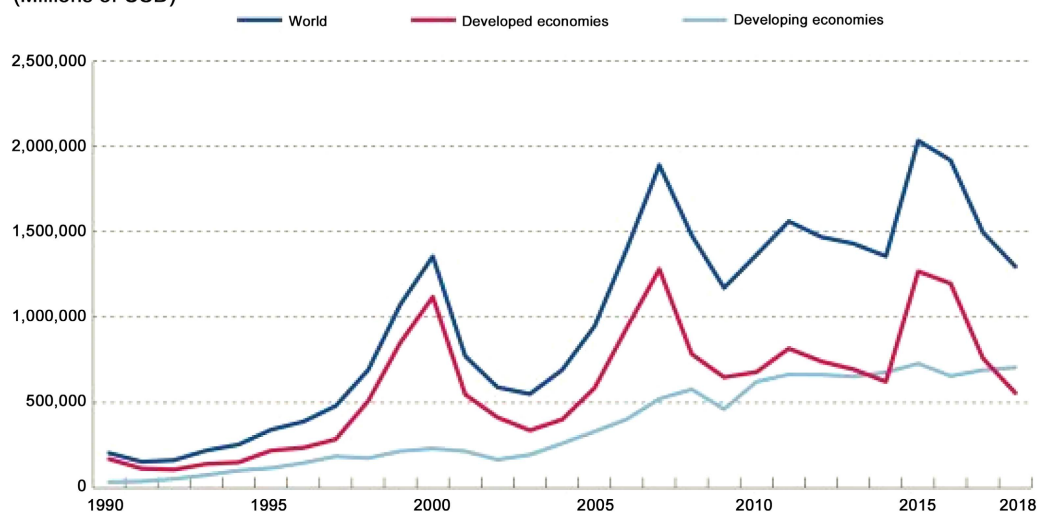
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Figure 8. Global FDI outflows 1990-2018. Source: Casella, 2019.

Following the Global Financial Crisis of 2008/2009 and the subsequent Euro crisis in 2010, foreign direct investment (FDI) inflows and outflows in developed

nations fluctuated more than they had in the previous two decades (Figure 9). In contrast, FDI from developing nations continued to rise. The disparity between inflows into developing countries and those into Emerging economies have been increasing their presence in foreign direct investment (FDI) outflows: In 2009, these outflows made up only 20 percent of the global total, but by 2018, their share exceeded 40 percent, nearing the levels from developed nations in that same year. It's important to note, however, that the significant influence of “the China factor” has driven FDI outflows from developing countries: Over 30 percent of these outflows originated from China in 2018 World Bank Report (2018). This percentage was even greater in the preceding years, while China's portion of global FDI inflows has remained steady at around 20 percent for several consecutive years.

FIGURE2: Global FDI Inflows, 1990-2018.
(Millions of USD)



Source: UNCTAD 2019.

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Figure 9. Global Inflows 1990-2018. Source: Casella, 2019.

The influence of the “Trump factor” on FDI in developed nations seems to mirror the impact of the “China factor” on FDI from developing countries, though in a contrary manner: Since Donald Trump’s presidency began in 2016, both outflows and inflows of foreign direct investment in developed countries have decreased by half. This trend is largely attributed to the United States acting as the primary home and host country for global FDI: In 2018, US FDI outflows were negative, indicating disinvestment, while inflows plummeted by 55 percent compared to 2016.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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