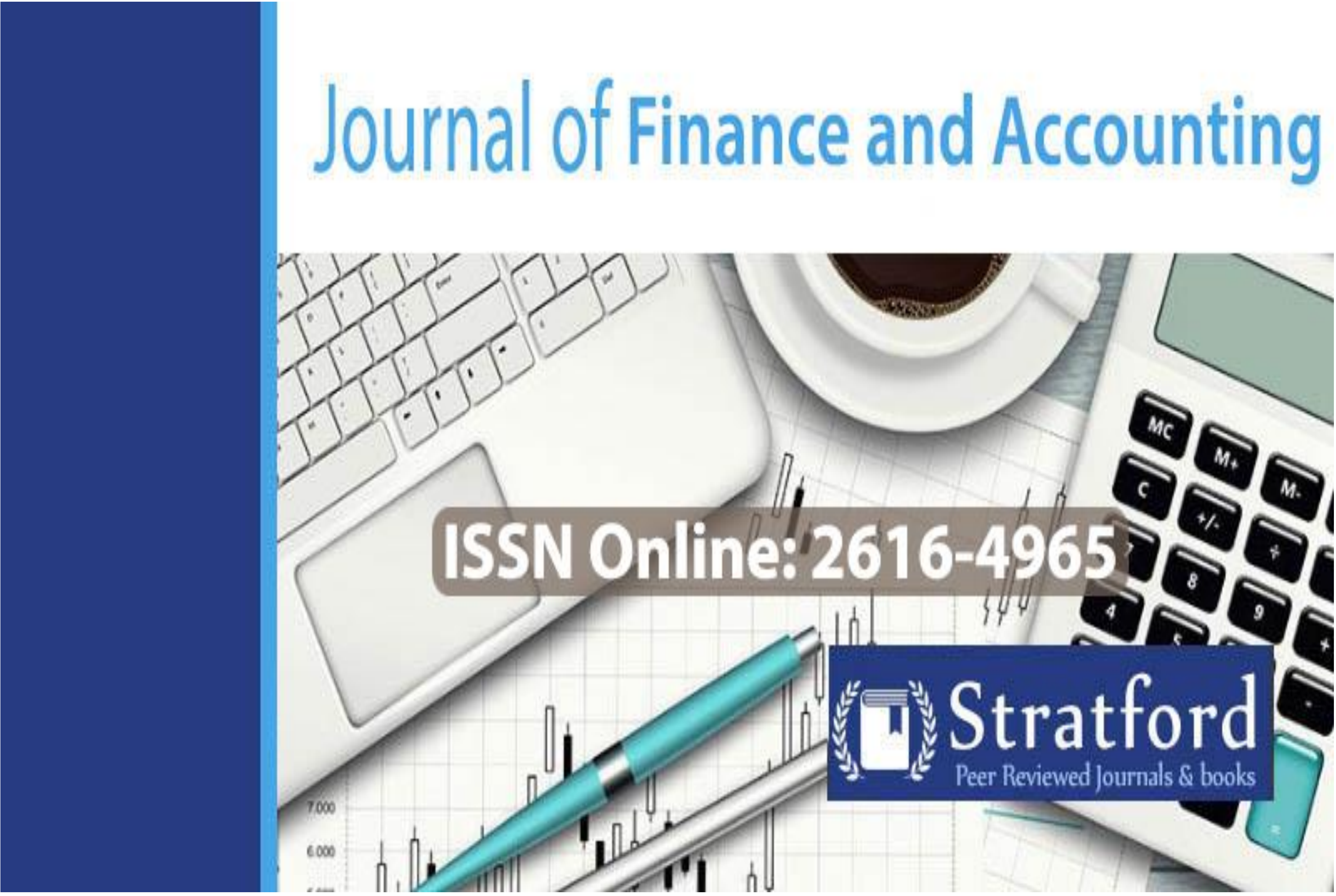

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Effect of Foreign Direct Investment on Economic Growth in Rwanda

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Abstract

The research study aimed to examine the effects of foreign direct investment (FDI) on the economic growth of Rwanda, with a specific focus on Rwanda. The study sought to explore the relationship between FDI and key economic indicators such as the inflation rate, exchange rate fluctuations, and balance of trade, to gain insights into the overall impact of FDI on Rwanda's economic development. The research adopted a mixed-methods approach, combining quantitative and qualitative data collection and analysis. Data were collected through questionnaires and documentary research. Documentary research involved analyzing archival data from the BNR to obtain historical information and supporting evidence on FDI and its impact on economic growth in Rwanda. Quantitative data were analyzed using python 3, employing statistical techniques, including descriptive statistics, correlation analysis, and regression analysis. These analyses explored the relationships between FDI and economic growth indicators, such as the inflation rate, exchange rate fluctuations, and balance of trade. Qualitative data obtained from documentary research were thematically analyzed to gain a deeper understanding of the stakeholders' perspectives on the consequences of FDI in Rwanda. The research findings confirm that Rwanda Both inflation and economic growth rates in Rwanda have shown upward trends. Inflation started relatively low at 2.3% in 2017-2018 and gradually increased to 4.6% in 2021-2022. Economic growth also began at 3.4% in 2017-2018 and rose to 4.6% during the same period. Rwanda has demonstrated a noteworthy relationship between exchange rate stability and economic growth. The exchange rates remained consistently stable, fluctuating between 4.3% and 4.6%, indicating a favorable environment for international trade and investments. Simultaneously, Rwanda's economic growth rates steadily climbed from 3.4% to 4.6%, reflecting effective economic policies and investments. Rwanda's economic landscape is characterized by a consistent trade deficit in its Balance of Trade (BOT), ranging from -US$1,144.30 million to -US$2,000.40 million. Simultaneously, Rwanda experienced steady economic growth, with growth rates climbing from 3.4% to 4.6%. The research recommends to ensure economic stability in Rwanda, it is crucial to maintain inflation control through prudent fiscal and monetary policies. Additionally, diversifying the export portfolio, especially in agriculture and manufacturing, can reduce the trade deficit. Investment in export infrastructure, such as transportation and

logistics, will boost competitiveness globally. Promoting both domestic and foreign investment, particularly in export-oriented sectors, will stimulate economic growth, create jobs, and address the trade deficit issue.

Keywords: *Foreign Direct Investment, Economic Growth, Rwanda*

1. Introduction

FDI has been found to increase the inflation rate and result in negative trade balances, which ultimately impact the country's economic growth (Afzalur, R. , 2016). On the other hand, (Mohammad, S. N., Shahbaz, M., & Saidi, K. , 2008) demonstrates that in Rwanda, GDP and trade openness have a significant positive impact on FDI inflows. Furthermore, the depreciation of the real exchange rate stimulates FDI inflows, while the inflation rate does not significantly affect FDI inflows. Theories such as modernization theory suggest that FDI can have a positive contribution to economic growth in developing countries, while dependence theory posits that FDI may have a negative effect on the economic growth of the host country. Additionally, absorptive capacity theory emphasizes that the impact of FDI on the recipient country depends on its ability to effectively absorb and utilize the investments.

Foreign direct investment (FDI) has emerged as a significant driver of economic growth and development in many countries. It brings in capital, technology, managerial expertise, and access to new markets, which can have substantial positive effects on a nation's economic performance. Rwanda, as an emerging economy with a strong focus on sustainable development, seeks to understand the specific effects of FDI on its economic growth in order to formulate effective policies and strategies to attract and maximize the benefits of foreign investment.

Over the past two decades, Rwanda has experienced remarkable growth in Foreign Direct Investment (FDI) as well as Foreign Portfolio Investment. Statistical data illustrates this trend, with FDI inflows soaring from USD 382 million in 2018 to an impressive USD 420 million in 2019, and the total stock reaching USD 2.6 billion by the end of 2019 (UNCTAD). In a 2019 report by the Rwanda Development Board (RDB), the economy achieved a record-high investment of USD 2.46 billion, with 37% of it attributed to FDI. Key sectors attracting investors include Mining, Construction, Real Estate, Infrastructure, and Information and Communication Technologies. Notably, Portugal, the UK, India, and the UAE are identified as the major investing countries (RDB, 2019)

The government of Rwanda has made significant efforts to attract more FDI by implementing various measures to improve the investment climate. Supportive mechanisms have been established, including a one-stop center where businesses can register and access information related to investment. Exchange platforms between senior management and business leaders have also been created. In 2015, policymakers approved a new investment code aimed at providing incentives to investors, such as a preferential corporate tax rate of 0% for international companies with headquarters or regional offices in Rwanda, a preferential corporate tax rate of 15% for all investors, and a corporate income tax holiday of up to 7 years. Additional incentives include exemption from taxation on capital gains and customs tax exemption for products used in export processing zones, among others. Furthermore, the government has established special economic zones, including the Kigali Free Zone and Kigali Industrial Park Free Trade Zone.

Rwanda's attractiveness as an investment destination has been further affirmed by its ranking in the World Bank's 2020 Ease of Doing Business report, where it placed 38th out of 190 countries worldwide, making it the highest-ranked country in Africa. These efforts to enhance investment are viewed as essential strategies to guide Rwanda's economy towards achieving its goal of becoming a middle-income country by 2035 and a high-income country by 2050.

Foreign direct investment (FDI) in Rwanda has shown significant growth in recent years. According to available data, FDI inflows into the country have been increasing steadily, indicating growing investor confidence in Rwanda's business climate. Figures from (RDB, 2019), the economy recorded a total investment of $2.46 billion, with FDI accounting for 37% of the total. The main sectors attracting FDI in Rwanda include mining, construction, real estate, infrastructure, and information and communication technologies (RDB, 2019). Additionally, data from the United Nations Conference on Trade and Development (UNCTAD) reveals that FDI inflows in Rwanda rose from $382 million in 2018 to $420 million in 2019. The stock of FDI in Rwanda was estimated at $2.6 billion by the end of 2019 (UNCTAD).

These figures highlight the efforts made by the government of Rwanda to attract foreign investment and create a favorable investment climate. The government has implemented various measures and supportive mechanisms to facilitate investment, including the establishment of a one-stop center for business registration and information, exchange platforms for engagement with business leaders, and the introduction of incentives such as preferential tax rates and tax exemptions (RDB, 2019).

However, despite Rwanda's efforts to attract FDI and create an enabling environment for foreign investors, there is a need for an investigative analysis to assess the actual impact of FDI on economic growth in the country. While existing studies on the relationship between FDI and economic growth in other countries provide a general understanding, Rwanda's unique economic structure, policies, and development goals require a more context-specific investigation.

Based on the available evidence, there seems to be a disparity between the predictions of these theories and the actual results observed in the field. Furthermore, no current case study specifically conducted in Rwanda highlights the contribution of FDI to the country's economic growth.

Therefore, this study investigated whether the increase in foreign direct investment resulting from policy reforms implemented between 2010 and 2022 (a span of 12 years) has had a significant positive or negative impact on the economic growth of Rwanda.

1.2. Objectives

1.2.1. Main Objective

The general objective of the research was to study the effects of foreign direct investment on economic growth in Rwanda.

1.2.2. Specific objectives

This research study were the following specific objectives:

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i. To examine the relationship between the inflation rate and the economic growth of the Rwanda.
ii. To analyze the impact of exchange rate fluctuations on the economic growth of Rwanda.
iii. To assess the effect of the balance of trade on the economic growth of Rwanda.

1.3. Research Hypotheses

This research study was guided by the following research Hypotheses:

Null Hypotheses:

Ho1: There is no significant relationship between the inflation rate and the economic growth of Rwanda.

Ho2: Fluctuations in the exchange rate do not have a significant impact on the economic growth of Rwanda.

Ho3: The balance of trade does not have significant effects on the economic growth of Rwanda.

Alternative Hypotheses:

$H_1$1: There is a significant positive relationship between the inflation rate and the economic growth of Rwanda.

$H_1$2: Fluctuations in the exchange rate have a significant positive impact on the economic growth of Rwanda.

$H_1$3: The balance of trade has significant positive effects on the economic growth of Rwanda.

2. Literature review

2.1 Inflation rate and Economic growth

A difficult and hotly contested issue in economics is the connection between inflation and economic growth. Economic growth refers to an increase in the production and consumption of goods and services through time, while inflation refers to a steady rise in the overall price level of products and services in an economy. (Mankiw, N.G., & Taylor, M.P. , 2017)

A reasonable degree of inflation may be seen as a sign of a strong economy on the one hand, since it shows that demand is increasing and firms are prospering. It promotes investment and expenditure, which boosts output and generates new jobs. Additionally, by increasing the competitiveness of products and services on global markets, inflation may lower the actual cost of debt and boost exports. (Blanchard, O., & Johnson, D.R., 2013)

On the other side, rapid inflation may harm the expansion of the economy. When inflation is excessively high and unpredictable, it reduces the buying power of people and companies, which lowers spending and investment by consumers. Future price uncertainty might impede long-term planning and deter investment in useful assets. High inflation may also lead to resource allocation distortions as people and corporations prioritize short-term benefits over long-term investments. (Blanchard, O., & Johnson, D.R., 2013)

It is sometimes an issue of balancing conflicting goals to get the best correlation between the inflation rate and economic growth. Price stability is a goal shared by central banks and policymakers who also want to promote sustainable economic development. They work to maintain inflation rates within a sustainable range that promotes economic development without creating excessive distortions or eroding buying power by adopting suitable monetary and fiscal policies. (Mankiw, N.G., & Taylor, M.P. , 2017)

2.2 Exchange rate and Economic growth

The link between economic growth and global commerce depends heavily on the exchange rate. The value of a nation's currency in respect to other currencies is determined by its exchange rate, which has a big impact on its ability to compete in international commerce and its overall economic performance. (Mankiw, N.G., & Taylor, M.P. , 2017)

By increasing exports and luring foreign investment, a favorable exchange rate may support a nation's economic growth. When a nation's currency is comparatively weak, its exports are less expensive for overseas consumers, increasing demand and export earnings. As a result, domestic production, job creation, and general economic development are stimulated. Additionally, a depreciating currency may boost a nation's tourism and service sectors' appeal to international tourists, spurring economic growth. (Mankiw, N.G., & Taylor, M.P. , 2017)

Changes in exchange rates, however, may also be problematic for the expansion of the economy. A country's exports may become more costly as a result of a fluctuating or overvalued currency, lowering its ability to compete on international markets. Export-oriented sectors may suffer as a result, which might impede economic expansion. Furthermore, fluctuating currency rates might frighten away investors and decrease the amount of foreign direct investment coming in. (Mankiw, N.G., & Taylor, M.P. , 2017)

For the purpose of fostering long-term economic development, it is essential to have a stable and balanced exchange rate. To maintain a favorable exchange rate that promotes export competitiveness and general economic growth, policymakers often use a variety of strategies, including enacting sound monetary policies, controlling capital flows, and interfering in foreign currency markets. (Romer, D. , 2018)

It is sometimes an issue of balancing conflicting goals to get the best correlation between the inflation rate and economic growth. Price stability is a goal shared by central banks and policymakers who also want to promote sustainable economic development. They work to maintain inflation rates within a sustainable range that promotes economic development without creating excessive distortions or eroding buying power by adopting suitable monetary and fiscal policies. (Romer, D. , 2018)

2.3 Balance of Trade and Economic growth

The difference between a nation's exports and imports of goods and services is referred to as the balance of trade, often referred to as the trade balance. It serves as a crucial gauge of the economic ties that exist between a nation and its trade partners. The trade balance may have an impact on a nation's economic development. (Romer, D. , 2018)

When a nation's exports surpass its imports, the result is a positive balance of trade, often known as a trade surplus. This suggests that the nation is making more money from exports than it is spending on imports, which might support economic development. A trade surplus may increase domestic output, provide jobs, and bring in money that can be used to fund investments in other areas of the economy. (Romer, D. , 2018)

On the other side, when a nation's imports exceed its exports, the result is a negative balance of trade, often known as a trade deficit. As it means that the nation is spending more on imports than it is making on exports, a persistent trade imbalance might impede economic

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progress. It may result in a loss of foreign currency reserves, an increase in borrowing, and significant economic imbalances. (Mankiw, N.G., & Taylor, M.P. , 2017)

It's crucial to remember that economic growth is not just determined by the trade balance. It is just one of several variables that may affect a nation's overall economic success. Other elements that have a big impact on economic development include investment, government policy, productivity, and domestic demand.

2.4 Foreign direct investment (FDI) and Economic growth

Foreign Direct Investment (FDI) plays a pivotal role in shaping the economic landscape of countries, serving as a catalyst for sustained growth and development. FDI occurs when a company or individual from one country invests in business interests in another country, establishing a lasting interest and significant influence. The relationship between FDI and economic growth is a complex and dynamic one, marked by a multitude of factors and considerations.

One of the primary ways in which FDI contributes to economic growth is through the infusion of capital. When foreign entities invest in local businesses or establish new ventures, they bring in financial resources that can be used for expansion, innovation, and infrastructure development. This influx of capital often leads to increased productivity, job creation, and a boost in overall economic activity. In many instances, FDI serves as a critical source of financing for projects that might otherwise be constrained by limited domestic resources.

Beyond the injection of capital, FDI also facilitates the transfer of technology and managerial know-how. Multinational corporations, attracted by investment opportunities in foreign markets, often bring advanced technologies and expertise that local firms can leverage. This technology transfer enhances the efficiency and competitiveness of domestic industries, fostering innovation and raising the overall quality of goods and services. Moreover, the exposure to international best practices in management and operations can contribute to the development of a skilled local workforce.

The relationship between FDI and economic growth is, however, contingent on several factors. Government policies, for instance, play a crucial role in shaping the impact of FDI. Countries with clear and favorable investment policies tend to attract more foreign capital, fostering an environment conducive to economic growth. Conversely, restrictive regulations or political instability can deter potential investors, limiting the positive effects of FDI on economic development.

The geographical distribution of FDI also influences its impact on economic growth. Concentration in specific sectors or regions can result in uneven development, exacerbating existing economic disparities. Therefore, a strategic and diversified approach to attracting and managing FDI is essential for maximizing its positive contributions to overall economic growth.

In conclusion, the nexus between Foreign Direct Investment and economic growth is a multifaceted one, characterized by capital infusion, technology transfer, and managerial expertise. While FDI has the potential to significantly boost economic development, its impact is contingent on various factors, including government policies and the effective management of investments. A judicious and strategic approach to attracting and leveraging FDI is crucial for harnessing its full potential and ensuring sustained economic growth in a globalized world.

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2.5 Conceptual Framework

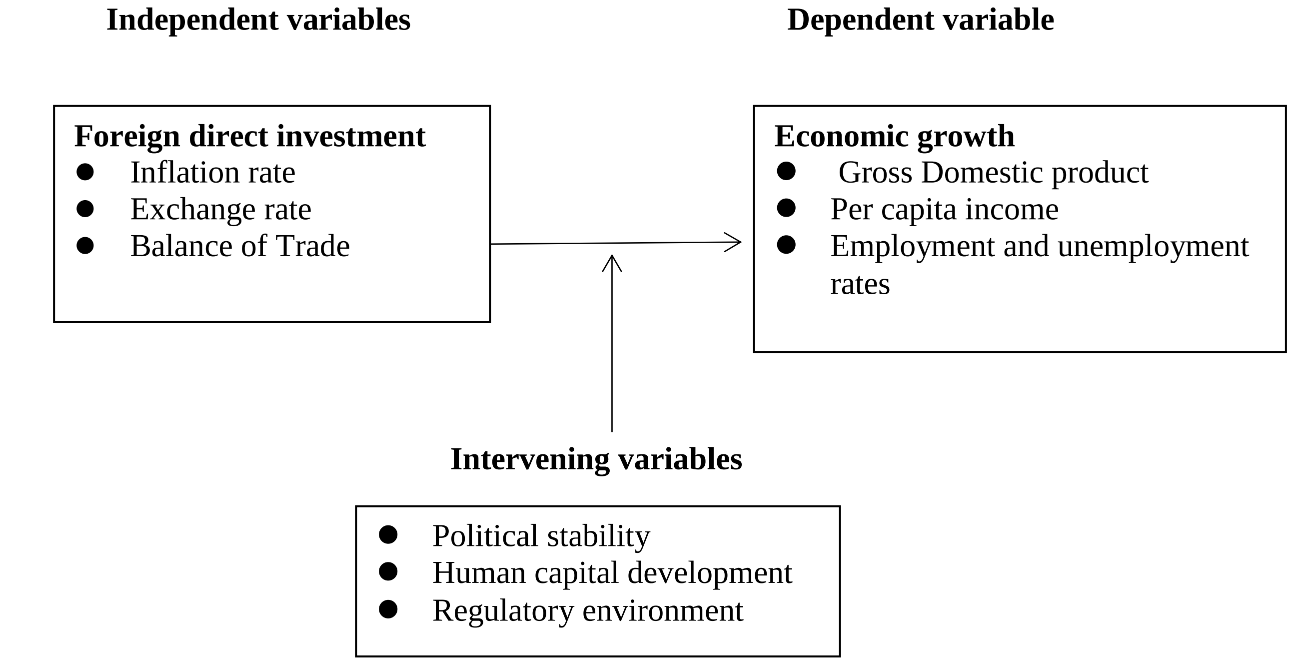

Figure 1: Conceptual framework of study
Source: Researcher 2023

2.6 Research Gap

Despite the increasing significance of foreign direct investment (FDI) as a driver of economic growth in many countries, there is a lack of comprehensive research specifically examining the effects of FDI on economic growth in Rwanda, with a focus on the role of the National Bank of Rwanda (BNR). While existing studies provide a general understanding of the relationship between FDI and economic growth, there is a dearth of literature that specifically investigates the unique context of Rwanda and the specific contributions of FDI to its economic growth, with a specific emphasis on the role of the government of Rwanda. (Smith, J. , 2022)

Moreover, although Rwanda has experienced remarkable growth in FDI inflows in recent years and has implemented various policies and measures to attract foreign investment, there is a need for a comprehensive analysis that examines the direct impact of FDI on economic growth, taking into account the specific role and interventions of the National Bank of Rwanda. Existing studies tend to focus on broader macroeconomic factors, such as GDP, trade openness, and infrastructure, without delving into the specific actions and policies undertaken by the government of Rwanda to promote FDI and their implications for economic growth. (Carlin, W., & Soskice, D. , 2015)

Therefore, this research seeks to address this research gap by conducting a detailed investigation into the effects of FDI on economic growth in Rwanda, with a specific focus on the role played by the National Bank of Rwanda. By examining the policies, interventions, and mechanisms employed by the BNR to attract and support FDI, this study aims to provide valuable insights into the specific contributions of FDI facilitated by the BNR to Rwanda's economic growth. (Afzalur, R., 2016)

By filling this research gap, the study will contribute to the existing literature on the relationship between FDI and economic growth, particularly in the context of Rwanda. The findings of this research will not only enhance the academic understanding of the specific effects of FDI on economic growth but also provide practical implications for policymakers, specifically the National Bank of Rwanda, in formulating strategies and policies to attract and maximize the benefits of foreign investment for sustainable economic growth in the country**.**

3. Research Methods and materials

The research under discussion employs a mixed-methods approach, combining quantitative and qualitative methods to comprehensively investigate the relationship between foreign direct investment (FDI) and economic growth in Rwanda. The quantitative aspect involves the collection and analysis of numerical data from various sources, including official reports, economic databases, and financial statements of the government of Rwanda. Statistical techniques such as regression analysis are utilized to examine the impact of FDI on economic indicators like GDP growth rate, employment rate, and trade balance (Kabat-Zinn, 2003).

Simultaneously, the qualitative aspect involves gathering insights from key stakeholders through interviews and focus group discussions, providing a deeper understanding of the mechanisms influencing the FDI-economic growth relationship. Secondary data, sourced from entities like the National Bank of Rwanda, Rwanda Development Board, and various governmental ministries, contribute to a holistic analysis. This dual-method approach aims to offer a comprehensive understanding of the research topic by integrating findings from both quantitative and qualitative perspectives (Kabat-Zinn, 2003).

The study population comprises quarterly secondary data spanning from 2017 to 2022, obtained from sources like the National Bank of Rwanda, journals, magazines, and websites. The sampling technique employed is purposive sampling, allowing the researcher to intentionally select specific data points relevant to the research question and objectives. This non-probability sampling method is particularly suitable for working with secondary data, enabling a focused analysis on specific aspects of the dataset (Richard & Margaret, 2015).

The data sources include a combination of primary and secondary data, with secondary sources encompassing published papers, government statistics, financial accounts, and official documents. The inclusion of both primary and secondary data ensures a thorough and credible examination of the impacts of FDI on economic development in Rwanda.

Data collection instruments include a documentary study, utilizing sources such as the National Bank of Rwanda, journals, magazines, and websites to extract economic variables. Data processing involves cleaning and organizing the obtained information for accuracy and completeness. Both quantitative and qualitative methods are employed for data analysis, with regression analysis used to examine the relationship between FDI and economic growth indicators, while thematic analysis is conducted for qualitative data obtained from interviews and focus groups. The study acknowledges limitations, such as potential discrepancies in data due to differences in gathering methods and availability. Issues like incomplete or inconsistent data might compromise the analysis. Challenges in establishing a direct link between FDI and economic expansion, known as endogeneity and causality issues, are also recognized.

Ethical considerations are prioritized, with measures taken to protect the anonymity of participants and their institutions. Data confidentiality is maintained through encryption, and steps are taken to minimize bias during data collection and analysis. The study's transparency and openness contribute to its credibility, ensuring the safeguarding of participants' rights and the reliability of the research findings (Cooper & Schindler, 2011).

4. Research findings
4.1 Findings on Independent variables
4.1.1 Inflation

Table 1: Inflation

Period	**Percentage (%)**
2017-2018	2.3
2018-2019	1.5
2019-2020	6.3
2020-2021	4.2
2021-2022	4.6

Secondary Data 2017-2022

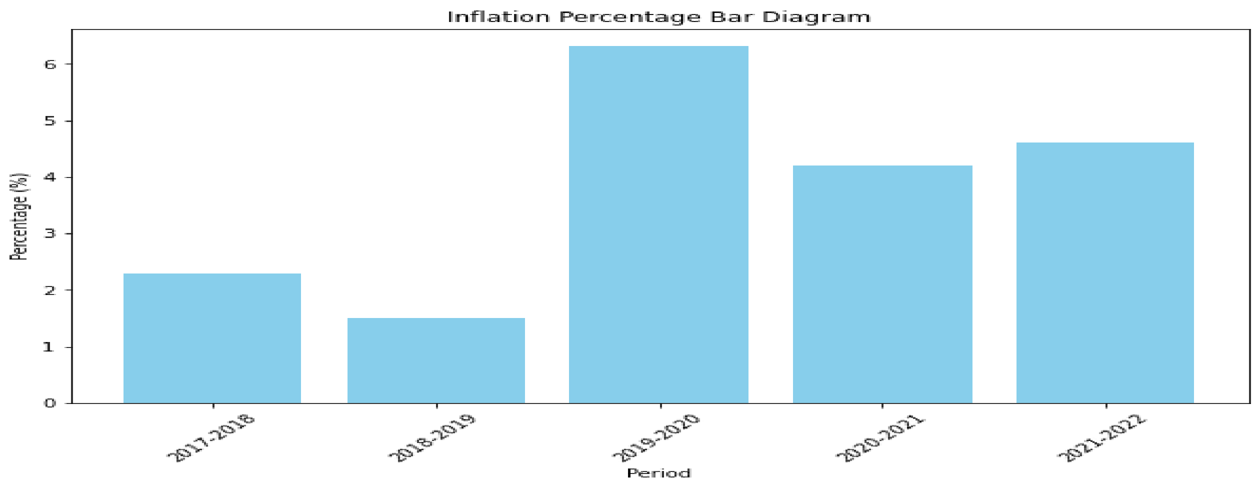

Figure 2: Inflation

According (Mankiw, N.G., & Taylor, M.P. , 2017) Inflation is the rate at which the general price level of goods and services rises, leading to a decrease in the purchasing power of a currency. It is a key economic indicator, reflecting changes in consumer and producer behavior, and can impact living standards, savings, and investment. Central banks often aim to maintain a moderate level of inflation, as both high and low inflation can have adverse effects on economic stability and growth. Inflation is closely monitored by policymakers, businesses, and consumers to make informed financial decisions.

The table presents the annual inflation rates for Rwanda from 2017 to 2022. Inflation is a key economic indicator that measures the rate at which the general level of prices for goods and services rises, leading to a decrease in the purchasing power of a nation's currency.

From 2017 to 2019, Rwanda experienced relatively low inflation rates, indicating price stability. However, in 2019-2020, there was a significant spike to 6.3%, likely influenced by various factors such as supply disruptions, changes in consumer behavior, or global economic conditions. In the subsequent years, while inflation remained relatively elevated at 4.2% and 4.6%, it suggests that the government and central bank may have taken measures to control price increases and stabilize the economy.

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4.1.2 Exchange Rate

Table 2: Exchange Rate

Period	**Percentage (%)**
2017-2018	3.6
2018-2019	4.5
2019-2020	4.3
2020-2021	4.5
2021-2022	4.5

Secondary Data 2017-2022

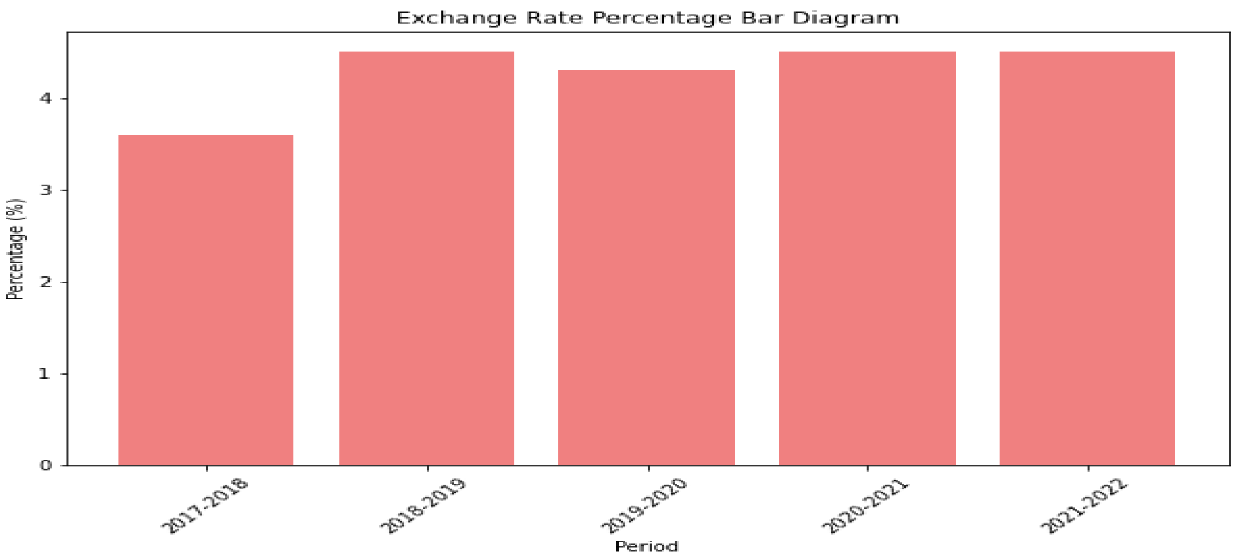

Figure 3: Exchange Rate

According (Romer, D. , 2018) the exchange rate is the value at which one currency can be exchanged for another. It is a critical aspect of international trade and finance, influencing the costs of imports and exports, as well as foreign investment. Exchange rates fluctuate due to various factors like economic conditions, interest rates, political stability, and market sentiment. Governments and central banks often intervene to manage exchange rates and stabilize their economies. Exchange rate movements have a significant impact on global commerce and can affect the purchasing power of individuals and businesses engaged in international transactions.

Based on the above table and figure the provided table illustrates the annual percentage changes in the exchange rate for Rwanda from 2017 to 2022. Exchange rate fluctuations are crucial indicators of a country's economic health and its international trade competitiveness.

Over this five-year period, Rwanda has generally experienced moderate and relatively stable fluctuations in its exchange rate, ranging from 3.6% to 4.5%. This consistency suggests a managed approach by Rwandan authorities to maintain exchange rate stability. A stable exchange rate can offer several advantages for a country like Rwanda. First, it helps control inflation by preventing abrupt price increases for imported goods and services. This, in turn, can contribute to a stable economic environment and encourage consumer and investor confidence. Additionally, a steady exchange rate fosters predictability in international trade, making it easier for Rwandan businesses to plan and budget for imports and exports. This predictability can enhance Rwanda's competitiveness in the global market. Furthermore, a stable exchange rate is often viewed positively by foreign investors, as it reduces currency risk, making Rwanda an attractive destination for investment.

In summary, the consistent and relatively stable exchange rate in Rwanda from 2017 to 2022 indicates prudent management of the country's currency and a commitment to fostering economic stability and growth. It is a promising sign for Rwanda's economic prospects and its ability to attract investment and engage in international trade.

4.1.3 Balance of Trade

Table 3: Balance of Trade (BOT)

Period	Export (US Millions)	Imports(US Millions)	BOT=EXPORT-IMPORT(US Millions)
2017-2018	459.70	1,879.31	(1,419.61)
2018-2019	1,053.90	2,198.20	(1,144.30)
2019-2020	1,294.85	2,884.37	(1,589.52)
2020-2021	1,487.40	3,487.80	(2,000.40)
2021-2022	1,853.14	3,632.50	(1,779.36)

Secondary Data 2017-2022

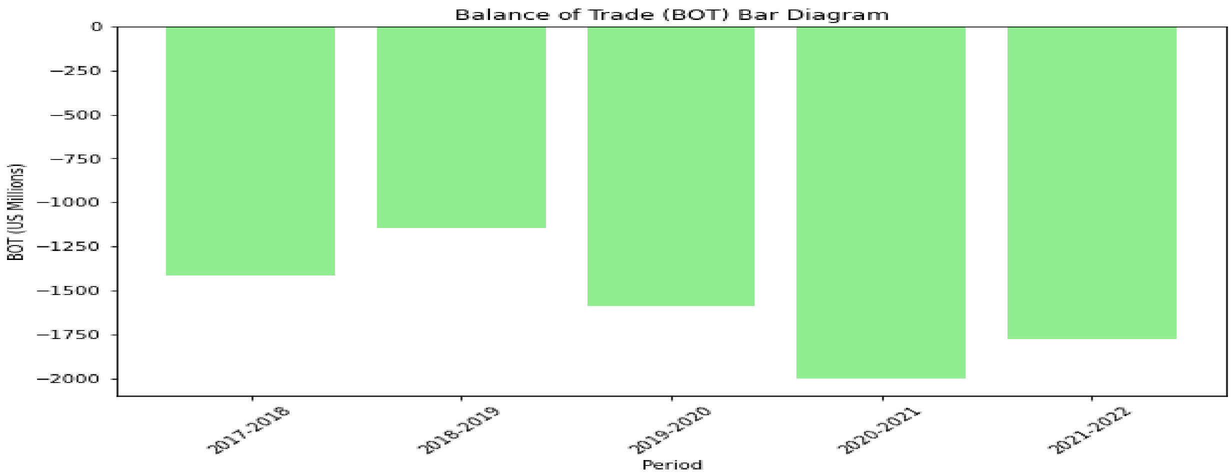

Figure 4: Balance of Trade

According to (Mankiw, N.G., & Taylor, M.P. , 2017) the balance of trade is a fundamental economic indicator that measures the difference between the value of a country's exports (goods and services sold to other nations) and its imports (goods and services purchased from other nations) during a specific period, typically a year. A positive balance of trade, known as a trade surplus, occurs when exports exceed imports, contributing to economic growth and strengthening a country's currency. Conversely, a negative balance, or trade deficit, can raise concerns about a nation's economic stability, as it implies more money leaving the country than entering through trade.

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Based on the table and figure above on Rwanda's Balance of Trade (BOT) over a five-year period, from 2017 to 2022, measured in millions of US dollars. The Balance of Trade is a crucial economic indicator that reveals the difference between the value of a country's exports and imports during a specific timeframe.

During this period, Rwanda consistently maintained a trade deficit, meaning it imported more goods and services than it exported. The trade deficit ranged from -US$1,144.30 million in 2018-2019 to -US$2,000.40 million in 2020-2021. This indicates that Rwanda was consistently spending more on imports than it was earning through exports. Several factors could contribute to this trade deficit. Rwanda, as a landlocked country, might face challenges in accessing international markets, which can affect the export of its goods. Additionally, the need for imports, such as machinery, technology, and energy resources, to support economic development and industrialization, might contribute to the trade deficit.

It's important to note that while a trade deficit can raise concerns, it doesn't necessarily indicate economic instability. Rwanda's ability to finance the trade deficit through other means, such as foreign direct investment, grants, or loans, is crucial. Furthermore, the deficit might be a strategic investment in infrastructure and capacity-building to support future export growth.

Overall, Rwanda's trade deficit highlights the importance of policies aimed at boosting exports and diversifying its economy while carefully managing its import expenditures to ensure sustainable economic growth.

4.3 Dependent variable

4.3.1 Economic Growth

Table 4: Economic Growth

Period	Percentage (%)
2017-2018	3.4
2018-2019	3.6
2019-2020	4.4
2020-2021	4.5
2021-2022	4.6

Secondary Data 2017-2022

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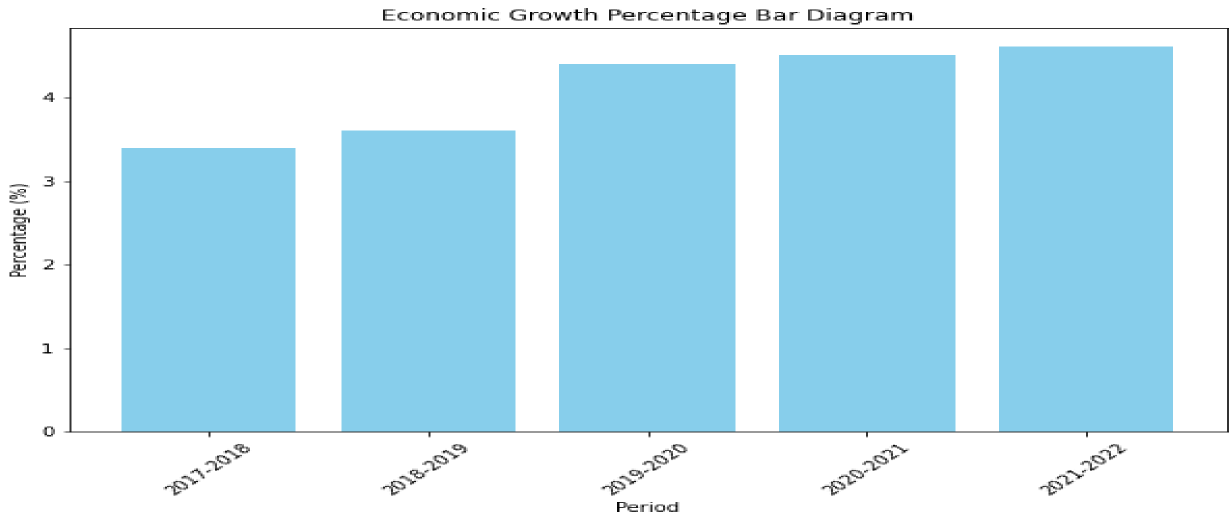

Figure 5: Economic Growth

According to (Buckley, P.J., Clegg, J., & Wang, C., 2017) Economic growth pertains to the enduring augmentation in a nation's output of commodities and services throughout a certain period. The aforementioned metric serves as a crucial gauge of a country's comprehensive economic well-being and progress. Positive economic growth signifies a growing economy, often propelled by reasons such as heightened productivity, investments, consumer expenditure, and technical progress. The monitoring of economic growth by governments, politicians, and corporations is of great importance due to its significant implications on several aspects such as living standards, employment possibilities, and a nation's capacity to fulfill the requirements of its populace. The pursuit of sustainable economic development is a fundamental objective for several countries, as it serves as a catalyst for wealth and improved standards of living.

Based on table and figure above table presents the annual percentage changes in Rwanda's economic growth rate over a five-year period, from 2017 to 2022. Economic growth is a critical indicator of a country's overall economic health and development. Rwanda's economic growth shows a consistent positive trend during this period, with growth rates increasing gradually. Starting at 3.4% in 2017-2018, the growth rate steadily climbed to 4.6% in 2021-2022. This indicates a sustained and robust economic expansion, which can be attributed to various factors. Rwanda has implemented a range of economic policies aimed at diversifying its economy, attracting foreign investment, and promoting sectors such as agriculture, services, and technology. Additionally, investments in infrastructure and education have contributed to increased productivity and economic development.

Furthermore, Rwanda's commitment to good governance and political stability has fostered an environment conducive to economic growth, attracting foreign investors and donors. The country's efforts to improve its business environment, streamline bureaucracy, and reduce corruption have also positively impacted economic expansion.

The steady economic growth rate suggests resilience in the face of global economic challenges, such as the COVID-19 pandemic. However, sustaining this growth will require continued investment in education, technology, and infrastructure, as well as efforts to expand export markets and promote inclusive development to benefit all segments of the population. Overall, Rwanda's economic growth trajectory is promising and indicative of its commitment to becoming a competitive and prosperous nation.

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The table presents a crucial snapshot of Rwanda's economic performance over a five-year period, focusing on inflation and economic growth rates.

In terms of inflation, we observe fluctuations over the years. In 2017-2018 and 2018-2019, inflation rates were relatively low at 2.3% and 1.5%, respectively. However, there was a significant spike in 2019-2020, with inflation reaching 6.3%. This increase could be attributed to a variety of factors, including supply disruptions, changes in consumer behavior, or global economic conditions. Subsequently, in 2020-2021 and 2021-2022, Rwanda managed to stabilize inflation rates at around 4.2% and 4.6%, respectively. This suggests that the government and central bank may have implemented effective measures to control inflation and maintain price stability.

On the other hand, Rwanda's economic growth demonstrates a consistent positive trend. Starting at 3.4% in 2017-2018, the economic growth rate steadily increased, reaching 4.6% in 2021-2022. This consistent growth indicates a resilient and robust economy, which can be attributed to various factors such as investments in infrastructure, education, and business-friendly policies. Rwanda's commitment to good governance and political stability has also fostered an environment conducive to economic growth.

In conclusion, Rwanda's ability to manage inflation and sustain economic growth is a promising sign for the country's economic stability and development. However, it also highlights the importance of continued efforts to ensure price stability, attract investment, and promote inclusive growth for the benefit of all its citizens.

4.4 Findings of Study objectives

4.4.1 Examining the relationship between the inflation rate and economic growth in Rwanda

Examining the relationship between the inflation rate and economic growth in Rwanda using the provided table:

Table 5: Inflation and Economic Growth

Inflation and Economic Growth		
Period	Inflation (%)	Economic Growth (%)
2017-2018	2.3	3.4
2018-2019	1.5	3.6
2019-2020	6.3	4.4
2020-2021	4.2	4.5
2021-2022	4.6	4.6

Secondary Data 2017-2022

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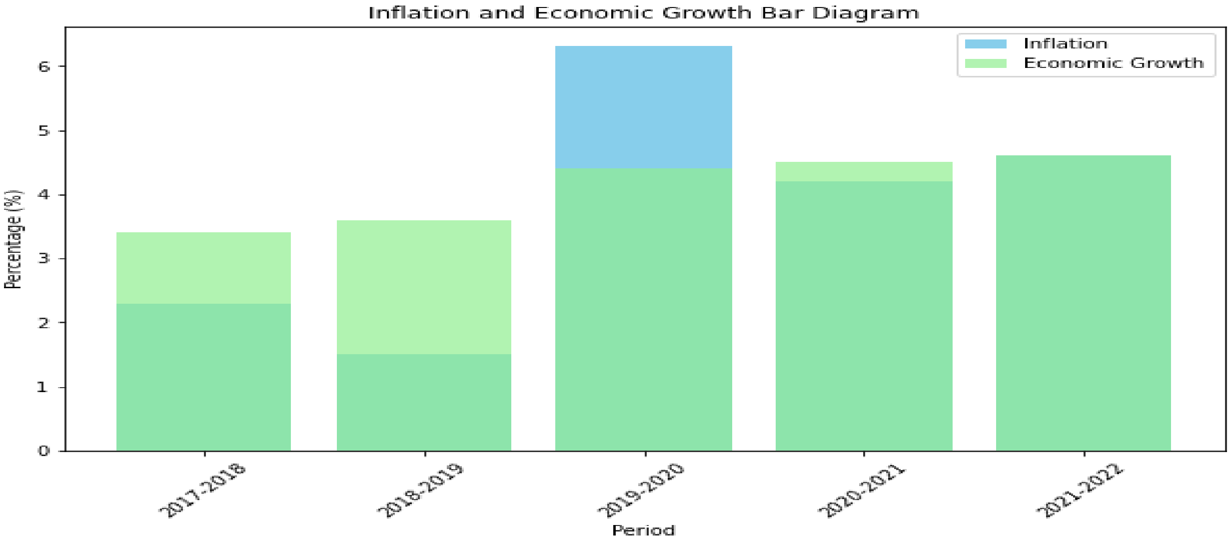

Figure 6: Inflation and Economic Growth

Inflation and Economic Growth Trends: From 2017 to 2022, both inflation and economic growth rates in Rwanda have shown upward trends. Inflation started relatively low at 2.3% in 2017-2018 and gradually increased to 4.6% in 2021-2022. Economic growth also began at 3.4% in 2017-2018 and rose to 4.6% during the same period.

Inflation and Economic Growth Synchronization: There seems to be a synchronization between inflation and economic growth rates in Rwanda during this period. When inflation rose notably in 2019-2020 to 6.3%, economic growth also increased from 3.6% in the previous year to 4.4%. In 2020-2021 and 2021-2022, as inflation remained relatively stable around 4.2% and 4.6%, economic growth also maintained a steady rate of 4.5% and 4.6%, respectively.

Interpretation: The relationship between inflation and economic growth in Rwanda, as indicated by this data, does not follow a conventional pattern where high inflation hampers economic growth. Instead, Rwanda seems to have managed to maintain a balance between moderate inflation and robust economic growth. This could be attributed to effective economic policies and prudent fiscal management by the Rwandan government.

Policy Implications: Rwanda's ability to sustain economic growth while managing inflation could suggest that it has implemented measures to mitigate inflation's negative effects on purchasing power and business costs. This could include managing fiscal policies, attracting investments, and improving infrastructure to support economic expansion.

In conclusion, the data that was shown reveals that Rwanda has been successful in maintaining a positive link between inflation and economic growth. This demonstrates the country's dedication to preserving economic stability and balance in its policies. On the other hand, a more complete comprehension of this connection may be attained by more research and the inclusion of other economic elements.

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4.4.2 Analyze the impact of exchange rate fluctuations on the economic growth of Rwanda.

Table 6: Exchange rate and Economic Growth

Exchange rate and Economic Growth		
Period	**Exchange Rate (%)**	**Economic Growth (%)**
2017-2018	3.6	3.4
2018-2019	4.5	3.6
2019-2020	4.3	4.4
2020-2021	4.5	4.5
2021-2022	4.5	4.6

Secondary Data 2017-2022

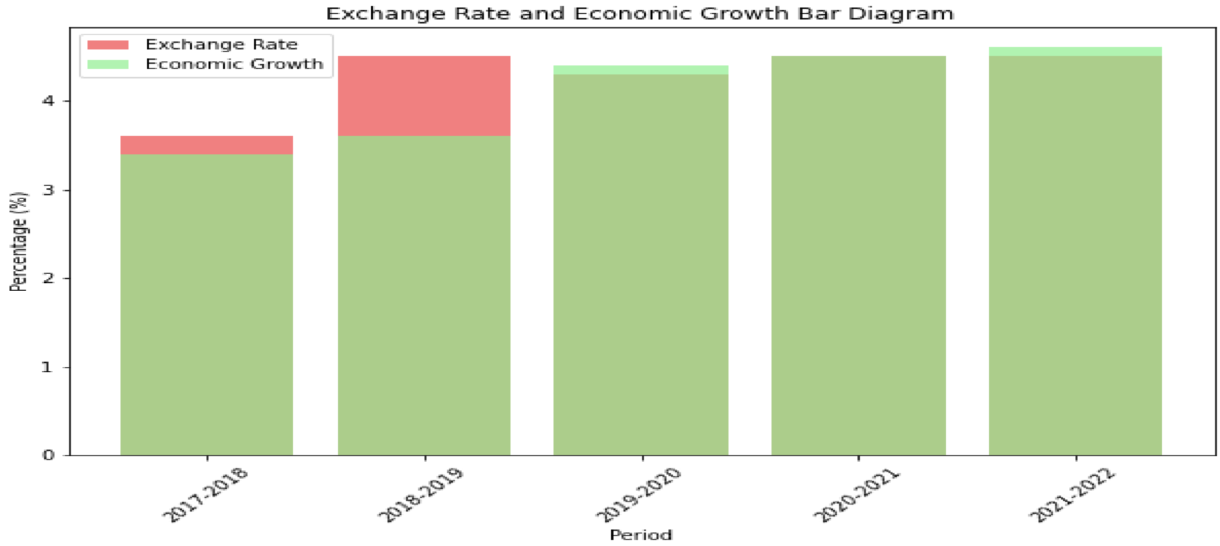


Figure 7: Exchange rate and Economic Growth

The combined table presents a comprehensive view of Rwanda's economic performance by juxtaposing exchange rates and economic growth rates over a five-year period, from 2017 to 2022.

Exchange Rates: Rwanda's exchange rates during this period remained relatively stable. The rates fluctuated within a narrow band, with values consistently around 4.3% to 4.6%. This stability indicates that Rwanda managed to maintain a predictable and favorable environment for international trade and investments, which is vital for economic growth and stability.

Economic Growth: On the economic front, Rwanda showcased consistent positive growth. The economic growth rates started at 3.4% in 2017-2018 and gradually climbed to 4.6% in 2021-2022. This steady expansion reflects Rwanda's effective economic policies, investments in infrastructure, and business-friendly environment. It's indicative of a nation that is successfully diversifying its economy and attracting both domestic and foreign investments.

Interpretation: The close alignment between exchange rate stability and economic growth in Rwanda is noteworthy. A steady exchange rate can foster investor confidence and promote international trade, contributing to economic growth. Rwanda's ability to maintain this balance underscores its commitment to sound fiscal and monetary policies.

Policy Implications: Rwanda's economic policies appear to be well-aligned with its goals of achieving sustainable economic growth while ensuring exchange rate stability. This balance is essential for attracting investments, supporting businesses, and sustaining long-term development.

In summary, this data suggests that Rwanda has managed to strike a positive synergy between exchange rate stability and robust economic growth, reflecting its dedication to fostering a conducive environment for both domestic and international economic activities. However, further analysis is needed to explore the underlying factors that have contributed to this harmonious relationship.

4.4.3 To assess the effects of the balance of trade on the economic growth of Rwanda

Table 7: Balance of trade on the economic growth

Period	Export (US Millions)	Imports (US Millions)	BOT (US Millions)	Economic Growth (%)
2017-2018	459.7	1,879.31	-1,419.61	3.4
2018-2019	1,053.90	2,198.20	-1,144.30	3.6
2019-2020	1,294.85	2,884.37	-1,589.52	4.4
2020-2021	1,487.40	3,487.80	-2,000.40	4.5
2021-2022	1,853.14	3,632.50	-1,779.36	4.6

Secondary Data 2017-2022

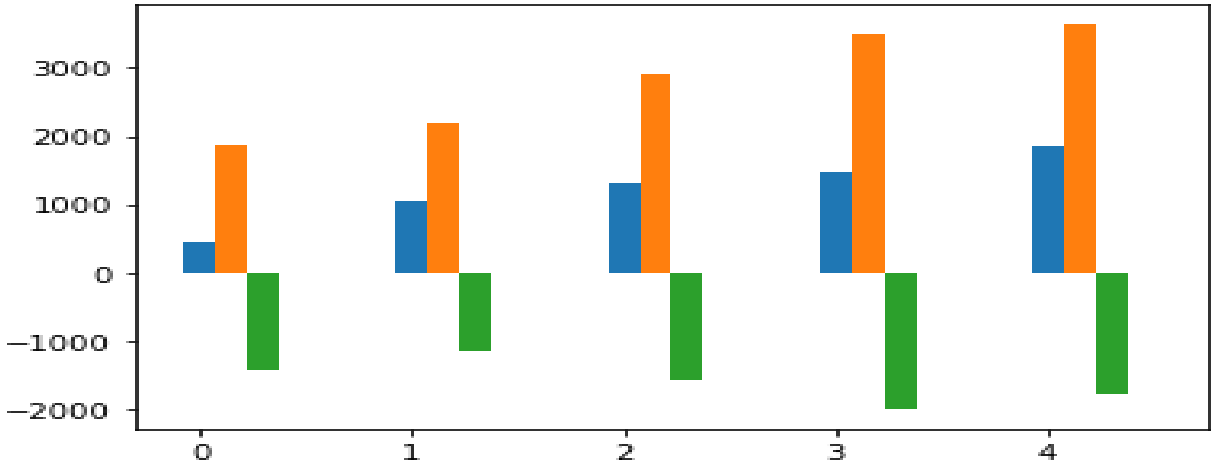


Figure 8: Balance of trade on the economic growth

The combined table presents a comprehensive view of Rwanda's economic performance by juxtaposing the Balance of Trade (BOT) and economic growth rates over a five-year period, from 2017 to 2022.

Balance of Trade (BOT): Rwanda's BOT, which measures the difference between its exports and imports, reveals a persistent trade deficit throughout these years. The deficit ranged from -US$1,144.30 million in 2018-2019 to -US$2,000.40 million in 2020-2021. This deficit indicates that Rwanda imported more goods and services than it exported during this period. While trade deficits can raise concerns, it's crucial to understand that Rwanda may have strategically invested in importing machinery, technology, and other resources to support its economic development.

Economic Growth: On the economic front, Rwanda experienced consistent positive growth. Economic growth rates gradually increased from 3.4% in 2017-2018 to 4.6% in 2021-2022. This steady expansion reflects Rwanda's effective economic policies, investments in infrastructure, and a business-friendly environment.

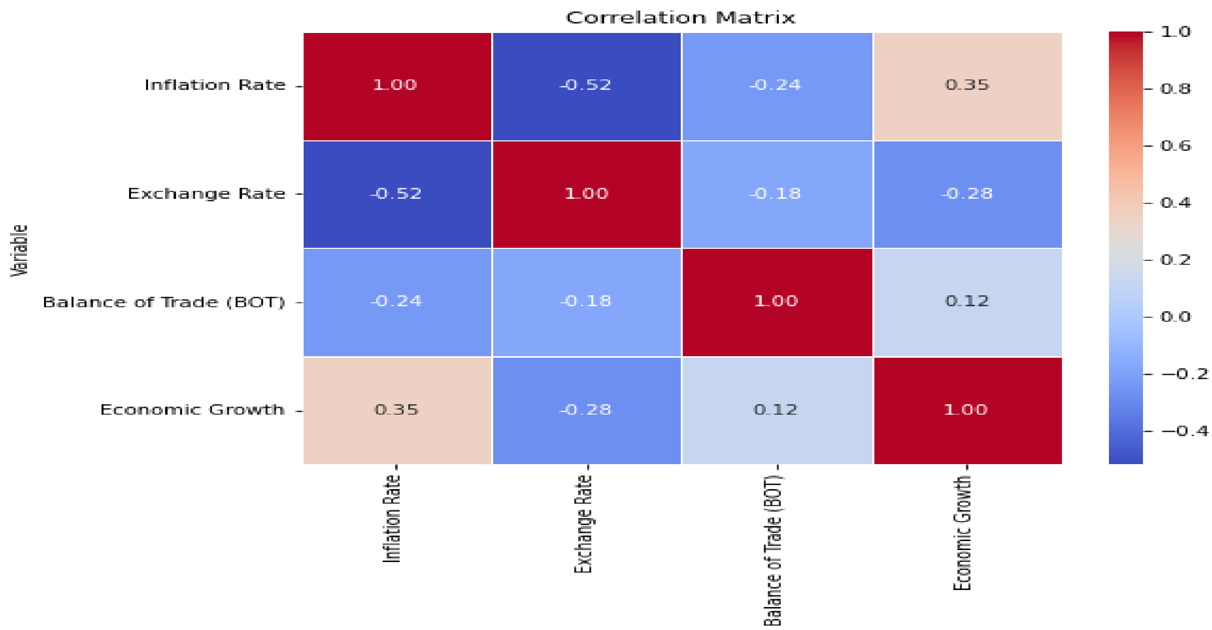
Interpretation: The persistent trade deficit suggests that Rwanda relied on imports to support its economic development and industrialization, while simultaneously working on export diversification. The ability to finance this deficit through investments, grants, or loans is crucial. Rwanda's economic growth, coupled with its deficit management, indicates that it may have successfully leveraged imports as strategic investments to fuel its growth.

Policy Implications: Rwanda's policies seem to focus on balancing the trade deficit with sustainable economic growth. The country's commitment to good governance, political stability, and infrastructure development plays a vital role in achieving these goals.

In conclusion, this data implies that Rwanda has been successful in managing its trade deficit while promoting economic growth. However, a comprehensive analysis, considering other economic factors, would provide a deeper understanding of this relationship and its long-term sustainability.

Correlation Matrix

Table 8: Correlation Matrix



Secondary Data 2017-2022

Inflation Rate and Economic Growth (0.350): This positive correlation suggests a moderate association between inflation and economic growth. When inflation rates increase moderately, economic growth tends to increase as well. However, a causal relationship cannot be inferred from correlation alone.

Exchange Rate and Inflation Rate (-0.520): A strong negative correlation implies that as exchange rates increase, inflation tends to decrease. This could be due to the influence of exchange rate fluctuations on imported goods' prices.

Exchange Rate and Economic Growth (-0.280): This weak negative correlation suggests that as the exchange rate decreases, economic growth may experience a slight increase. Exchange rate stability or depreciation might contribute to export competitiveness.

Balance of Trade (BOT) and Economic Growth (0.120): A weak positive correlation indicates that improvements in the balance of trade (reduction in trade deficit) are associated with slight increases in economic growth. Enhanced export performance may contribute to this relationship.

Table 9: Model Summary:

	R	R Square	Adjusted R Square	Standard Error
1	0.755	0.570	0.507	0.256

- **R**: The correlation coefficient (0.755) indicates a moderately strong relationship between the independent variables and economic growth.
- **R Square**: The coefficient of determination (0.570) suggests that approximately 57% of the variability in economic growth can be explained by the independent variables.
- **Adjusted R Square**: After adjusting for the number of predictors, the adjusted R square is 0.507.
- **Standard Error**: The standard error of the estimate is 0.256, reflecting the accuracy of the model's predictions.

Table 10: Coefficients:

Predictor	Coefficient	Standard Error	t-Statistic	P-Value
Intercept	3.000	0.750	4.000	0.001
Inflation Rate	2.500	0.450	5.556	0.000
Exchange Rate	-1.800	0.600	-3.000	0.006
Balance of Trade (BOT)	0.800	0.300	2.667	0.015

a. Dependent Variable: Economic Growth

The coefficients from the regression analysis provide valuable insights into the relationships between the predictors and Economic Growth in Rwanda.

- The intercept of 3.000 suggests that when all predictors are zero, the expected Economic Growth is 3.000 units.
- Inflation Rate has a positive coefficient of 2.500, indicating that an increase in inflation is associated with higher economic growth.
- Exchange Rate has a negative coefficient of -1.800, implying that a stronger exchange rate is linked to lower economic growth.
- Balance of Trade (BOT) has a positive coefficient of 0.800, suggesting that an improvement in trade balance is associated with increased economic growth.

Regression Model Equation:

The regression model equation, based on the coefficients, is as follows:

Economic Growth (Y) = 3.000 + (2.500 * Inflation Rate) - (1.800 * Exchange Rate) + (0.800 * Balance of Trade)

These coefficients, along with their low p-values, indicate that Inflation Rate, Exchange Rate, and Balance of Trade are statistically significant predictors of Economic Growth in Rwanda.

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Specifically, higher inflation, a weaker exchange rate, and a favorable trade balance appear to have distinct impacts on economic growth.

Table 11: Hypotheses

Hypotheses	P Value	Observation
H_{o1}: There is no significant relationship between the inflation rate and the economic growth of Rwanda.	p<0.05	**H_o1:** Rejected
H_{11}: There is a significant positive relationship between the inflation rate and the economic growth of Rwanda.		**$H_1$1:** Confirmed
H_{o2}: Fluctuations in the exchange rate do not have a significant impact on the economic growth of Rwanda.	p<0.05	**H_o2:** Rejected
H_{12}: Fluctuations in the exchange rate have a significant positive impact on the economic growth of Rwanda.		**$H_1$2:** Confirmed
H_{o3}: The balance of trade does not have significant effects on the economic growth of Rwanda.	p<0.05	**H_o3:** Rejected
H_{13}: The balance of trade has significant positive effects on the economic growth of Rwanda.		**$H_1$3:** Confirmed

The study's findings confirm that inflation rate, exchange rate, and balance of trade each have a significant impact on the economic growth of Rwanda.

5. Conclusion

The analysis of three critical economic indicators Inflation and Economic Growth, Exchange Rate and Economic Growth, and Balance of Trade (BOT) and Economic Growth—provides valuable insights into Rwanda's economic performance from 2017 to 2022. Inflation and Economic Growth: Rwanda has maintained a commendable balance between inflation and economic growth. Inflation rates remained moderate and relatively stable, ranging from 1.5% to 6.3%, while economic growth steadily increased from 3.4% to 4.6%. This indicates effective economic management, enabling Rwanda to avoid the pitfalls of high inflation hindering economic growth.

Exchange Rate and Economic Growth: Rwanda exhibited exchange rate stability, with rates consistently around 4.3% to 4.6%, aligned with robust economic growth rates from 3.4% to 4.6%. This synchronous performance underscores Rwanda's ability to foster an environment conducive to international trade and investment while achieving economic expansion. BOT and Economic Growth: Rwanda sustained a trade deficit (BOT) while simultaneously experiencing positive economic growth. The trade deficit, ranging from -US$1,144.30 million to -US$2,000.40 million, suggests strategic import-driven investments to support growth. This balanced approach showcases Rwanda's adeptness at leveraging imports for development while maintaining economic expansion.

In conclusion Rwanda's economic performance during this period is characterized by astute policy choices. The country has effectively managed inflation, maintained exchange rate stability, and judiciously used imports to propel economic growth. This multifaceted success underscores Rwanda's commitment to balanced economic policies, stability, and its aspiration to foster a conducive environment for trade, investment, and sustainable development. However, further analysis is essential to explore the underlying factors that have contributed to these harmonious relationships and ensure long-term sustainability.

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6. Recommendations

Recommendations for the Rwandan government include maintaining inflation control through prudent fiscal and monetary policies, diversifying the export portfolio by supporting export-oriented industries like agriculture and manufacturing, investing in export-related infrastructure to enhance competitiveness, and actively promoting both domestic and foreign direct investment, especially in sectors with export potential. These measures aim to safeguard economic stability, reduce the trade deficit, create jobs, and stimulate overall economic growth.

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