1

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Assessing the impact of Rwanda trade integration on inclusive growth

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ABSTRACT

This paper analysed the impact of trade integration on inclusive growth in Rwanda using time series data from 1992 up to 2022. This study used the Fully Modified Least Squares approach to internalise the problem of endogeneity due to omitted variables and feedback effect. This study revealed evidence of deep connection between the five independent variables (trade integration, Import duties, foreign direct investment, Exchange rate, CPI inflation) and the inclusive growth of the Rwandan economy. Besides, these results indicated that an increase in trade integration is expected to increase inclusive growth in the economy of Rwanda.

Keywords: inclusive growth; poverty; income inequality and trade integration

1. INTRODUCTION

Recent decades have been characterized by the foundation of various regional blocks around the world. This is because regional integration has been stressed as the best tool for inclusive growth and the eradication of poverty. Currently, 1 out of 3 countries participates in the regional trade agreements where they are located. Various trade policies and governance decisions have been taken through regional agreements. This is due to the fact that regional integration has been emphasized as the best tool to achieve inclusive growth. Evidently, regional integration has highlighted various benefits that have attracted attention to individuals' states. Clearly, globalization has made the world a village where interdependence and sharing of resources and opportunities have been crucial for countries to development. Consequently, states have realized that without interdependence, development could become difficult. Similarly, integration has extended beyond trade and commerce. It has gone beyond that, and now countries have been integrating in other spheres of development like governance, security, ecosystem protection, and judicial integration (Grieco, 2000).

The roots of African regionalization in Africa are the early formations of the Organization of African Unity by heads of state and government. The general idea was to create an organization that could help Africa have development after decolonization as well as create African unity for all states in Africa. The Lagos plan of action that was formed in 1990 revised the agenda. According to it, Europeans believe that African poverty should be highlighted. African failure of governance was not true; African poverty should be seen as a result of the dependence of African states on western states as well as African dependence on international institutions. Honestly, the Lagos plan of action is the root of the African Union of today and many RECS in Africa. Those include: EAC (Eastern African Community), SADC (South African Development Coordination), ECOWAS (Economic Community of West African States), Maghreb Union, and others. Despite the formation of the African Union and various ARECs around the continents, the results have been as low as expected. This is caused by the fact that many RECs are driven by political motives rather than inclusive development motives. This has led to the failure of some RECs and the total collapse of others (Grobbelaar & Meyer, 2017: 73).

To achieve inclusive growth, countries should give room to the poor in different domains of their lives, like their ability to get resources. Similarly, minority groups abused on sex, age, and place, and the poor and minority groups in society should play no limited role in a nation's development, and they should be included in government policies and development processes

(Rauniyar and Kanbur, 2009, p. 455). According to Huang and Quibria (2013), individual governments should design and implement policies that are related to women's empowerment, youth development policies, rural poverty eradication policies, and poverty eradication-related policies, as well as include minority groups in all policies that aim to lift up society, hence sustainable development. At the global level, inclusive development should aim to lift up the countries that are coming from conflicts, less developed countries, and international policies and programs should aim to support the middle-income countries and reduce the inequalities between and among themselves.

Problem Statement

The regional trade agreements have been stressed as the best ways to boost trade and stimulate inclusive growth. In addition to that, the adoption of regional trade agreements and mutual trade agreements has fostered the economies of many countries and led to plenty of results. For instance, regional trade agreements have helped countries improve their export bases, extend markets, access raw materials, and develop industries. Sincerely, trade liberalization is a tool for countries to increase their GDP and the standards of living of their citizens (Lawrence, 1995; de Melo and Panagariya, 1992). According to McCarthy (1994, Hazelwood (1979), even though regional trade has been stressed as the best tool for development, its outcomes have been positive and negative. Less developed countries with a low economy have gained less than more developed countries with a strong economy. Practically, the gains from regional integration are less in the short run and enormous in the long run.

The World Bank (2023) highlights that Rwanda is the only sub-Saharan country to have fully achieved its Millennium Development Goals in health. Indeed, the Rwandan government established various policies that eradicated poverty, health issues, and other development hurdles. The statistics show that the government has also done well in other sectors of the economy. For instance, school enrollment has increased. Evidently, it has grown enormously. While it was 73% in 2000, it is now 98.5% in 2019. Moreover, Rwanda attained impressive results in inclusive growth and women's empowerment. Gender policies have been designed and implemented in all organs of government as well as in the private sector. A country has also registered various policies for social protection, social inclusion, and poverty, and they have led to enormous results. Those policies include gender equality policies, VUP, Vision 2020, NST1, community-based health insurance, and others. Existing research indicates that income and consumption inequality increased in Rwanda in the periods of 2000 and 2005/2006; it also dropped later in the years of 2005/06 to 2013/14. Even if Rwanda has achieved impressive results in income inequality and inclusive growth, it has the greatest level of inequality in East Africa, according to a variety of measures (Gini coefficient, Palma ratios). Rwanda's economic performance over the last decade has been largely acknowledged.

The research will thus analyse and record the impact of Rwanda's trade integration on inclusive growth, as well as give recommendations for successful regional integration in Africa

Specifically, the paper addresses the following research questions:

1. How has trade integration impacted inclusive growth in Rwanda?
2. What impact has import duty had on inclusive growth in Rwanda?

2. LITERATURE REVIEW

Theoretical Review

Neo Functionalism

Neofunctionalism has its roots in a pretty basic premise that many theories in the social sciences share: the effects of certain behaviours may account for their occurrence and evolution. For whatever reason (whether it is physiological, mechanical, ideological, or ethical), people prefer to solve problems by carrying out certain tasks, or "functions," which usually require teamwork. If the tasks are finished well, the partnership will carry on and could even institutionalize. The theory's original functionalist formulation (Mitrany 1966) placed a strong emphasis on the process of learning from experience in order to adapt the technique to new issue areas, the role of experts in recognizing the problem and the methods to solve it, and the incremental sequence of attempts to do this. Later formulations took into account the ability of persons within to exert autonomous influence.

Spill over

Spill is the most well-known notion of neo-functionalism, and it is frequently employed by both social scientists and practitioners. According to Lindberg (1963:10), a condition known as "spill over" occurs when political collaboration between nations in the same region gives rise to new laws that readily aid in achieving the main objective. This implies that political collaboration is expanded over time in ways that were not necessarily intended when it was first formed.

Spill-over processes are classified as functional (or technical), political, or cultural (Nye 1971; Tranholm-Mikkelsen 1991; Rose 2005; Moravcsik 2005; Niemann 2006). One instance of functional spill over, or how progress in one process functionally influences another, is the single market. Political spill over occurs when national political elites or interest groups believe that supranational cooperation is necessary to address certain issues and there is a more intentional political process. National interest groups are becoming increasingly allied with supranational organizations and are more focused on Europe than on domestic solutions. Interest groups understand that their prospects of success are higher when they embrace European solutions rather than national ones.

The term "cultivated spill over" describes situations where supranational actors, in this case the European Commission, mediate disputes between member states in order to promote political union (Tranholm-Mikkelsen, 1999; Niemann, 2006). For instance, the Commission During the negotiation process, for example, the Commission may solely pay attention to arguments pointing to more political integration (or "more" Europe) while dismissing arguments based largely on national interests.

Supranational institutions may exploit special interests to propel the integration process ahead. Package agreements, which entail treating seemingly tangible concerns as a single (composite) item and therefore enabling players (or the majority of actors) to defend their interests, may be used to further these particular

interests (Lindberg and Scheingold 1970:116). For instance, a country may have a strong desire to expand its agricultural sector and lower the cost of products and services, while another may be searching for markets for the production of agricultural commodities. In this way, the two nations may agree to cooperate and trade goods and services.

Criticisms

Neofunctionalism is criticized by intergovernmentalists for upholding the primacy of the national state and national interests. Additionally, they emphasize that the state continues to be the primary facilitator of international cooperation and partnerships. Cini argues that national civil authorities must be appointed in each state and that each state must have representation (2004, p. 89). Numerous studies on regional integration highlight the challenges that arise when the function of spill over continues from the initial stages of integration to the later stages. Furthermore, some integration research asserts that neo-functionalism overemphasizes and emphasizes integration modifications more than other integration areas.

Neo-functionalism, according to intergovernmentalists, ignores the broader meaning of integration and fails to take into account its global context. Neo-functionalism does not provide a general theory of regional integration in all circumstances and sources, claim Wiener and Diez (2004, p. 51). It adheres to the democratic and developed member nations' model. In the end, this model is useless for explaining and researching various kinds of collaboration in other fields. Eilstrup-Sangiovanni claims that neo-functionalism likewise rejects the notion that a variety of domestic ideologies may influence political evolution. In his views, he highlights that those groups don't have similar political agendas as other elites in other states and national elites (2006). Finally, neo-functionalism has been criticized for being small, and it can't be applied to other parts of the world except in Europe.

Custom Union Theory

Viner critiqued Keynes for what he saw as a simplistic theory of aggregate demand in his theoretical research on liquidity preference. One of the greatest pieces of writing ever produced on the subject of market prices and the relationships that exist between supply and demand curves in the short and long terms is Viner's work, which has influenced modern economics. A key source for Viner's theory is The Customs Union Issue (1950). Viner's conception of a customs union, according to Oslinghton (2013), is the most effective instrument for advancing regional commerce and improving the welfare of member nations. According to him, complete integration of the customs union occurs when nations concur to share trade tariffs and harmonize tariffs and non-tariff obstacles.

In his study, Viner (1950) put out the concepts of "trade creation" and "trade diversion," which were essential instruments for studying and understanding the effects of economic integration. In general, trade diversion may be characterized as switching from lower-priced to higher-priced consumption of products and services, as Viner (1931) put it. The definition of trade creation is the shift in consumer spending from costly to less expensive goods. In conclusion, there is a higher chance of trade creation than trade diversion.

The amount of commerce that is created in a nation that wishes to join a customs union increases with the elasticity of supply and demand. There is greater trade creation and gain when two competing economies unite. Trade diversion will decrease when the external tariff imposed by the new customs union on third nations is low. The less likely trade diversion—which is defined as the importation of expensive goods when previously they were less expensive—the larger the custom union's purview. Consequently, trade creation improves global resource allocation, whereas trade diversion impairs allocation. Generally speaking, trade diversification hinders trade and inhibits inclusive growth, but customs unions are crucial for trade development and inclusive growth because they encourage growth, industrial development, and the movement of production elements.

Many academics believe that trade diversification can really benefit developing economies. For instance, integration can create new markets for goods and services as well as enhance the share of raw materials, technology, infrastructure, and innovation. The promotion of fictitious investment and growth is a result of customs and trade integration, which pushes member nations to spend more on capital investment, currency development, and imports (Linder, 1966; Sakamoto, 1969). Additionally, trade diversion increases consumers' savings by enabling them to buy imported goods at reduced prices following the removal of tariffs. States should ensure that they can generate enough cash to support the development of their inhabitants in order to do this (Elkan, 1975, p. 59). This is particularly important for emerging nations. This is because customs receipts provide the primary source of income for the economies of the majority of developing nations. The term "effective trade diversion" was coined by Linder and Sakamoto. Trade diversion should not be considered a total loss to the member states. This is due to the fact that the country will start production substitutions that can lead to innovation, creation, and employment.

Definition of key concepts

Inclusive growth

According to Lanchovinchina and Gable (2011), inclusive growth is the process of boosting economic growth while also increasing the size of the economy, giving citizens access to enough jobs, enhancing their quality of life, lowering inequality, and providing social protection. According to Harberger (2008), creating jobs for the impoverished can increase their earnings, assets, and other social advantages, in addition to increasing economic competitiveness and overall growth.

Building on ul Haq's concept and his work with the United Nations Development Programme (UNDP), Amartya Sen (1999) and Martha Nussbaum (2000) expanded the definition of inclusive growth and connected it to human development by stressing that it also encompasses the development of human capabilities and freedoms (information, knowledge, and skills). This point of view, referred to as the "capability approach," defines human development from an individualistic perspective, that is, what a person can become or achieve.

In 1990, economist Mahbub ul Haq (UNDP) first used the term "human development," describing it as the process of improving people's chances and freedoms as well as their overall well-being. Human development depends on people's ability to

freely select who they are, what they do, and how they live. Hence, the concept of choice is crucial to human growth since it delineates freedoms. People have more alternatives when they are able to meet their fundamental needs and have long, healthy lives. They are also adaptable enough to pick up new skills and impart what they know.

Trade integration

The word trade integration has a relationship with economic integration; according to Mutharika (1972), the term economic integration can be defined as the process of merging together all trade policies by member states with the ultimate goal of achieving a single economic goal. This requires the surrender of some trade sovereignties by the member states to the supranational body so as to stimulate the growth of the member states.

Haas (1971) adds that economic integration refers to the process where individual states mix and merge their trade policies, tariffs, and no tariff barriers so as to stimulate the economy and achieve inclusive growth by the members' states. By merging their trade policies, the barriers to trade are either eliminated or reduced to the business, resulting in smooth movements of goods and services and hence the development.

Empirical review

The study that was conducted by Park and Claveria (2019), entitled Assessing the Impacts of Regional Integration on Inclusive Growth in Africa, revealed that integration in various dimensions of regional integration has led to recognizable outcomes. By using the multidimensional index, the study revealed that those dimensions, like finance, trade, infrastructure, security, and others, can lead to inclusive growth. Honestly, landlocked countries with fewer resources and fewer markets for goods and services suffer less growth. Through integration, states gain through gaining markets, opportunities, resources, raw materials, sharing policies, culture, technology, and other innovative programs. Regional integration has been emphasized as the best tool to reduce inequality and diminish poverty. Through regional integration, countries share opportunities, resources, policies, and outcomes. Less developed countries can get opportunities to learn from more developed countries, hence development. Regional integration can also reduce poverty and inequality through exchanging goods and services, financing regional development projects, effective exploitation of resources, and the creation of employment opportunities in various spheres of economies, hence inclusive development. Nonetheless, the country's achievements in terms of growth and the eradication of poverty should not be ignored. The countries to gain from trade integration should have strong governance, security, infrastructure, and strengths in industrial development.

In their work, Berg, A., and Jonathan Ostry, D. (2011a), entitled "Inequality and Unsustainable Growth: Two Sides of the Same Coin?" They stressed that the growth of the country should be inclusive as a way of making it sustainable. To achieve inclusive growth, no one should be left behind, and development policies should aim to improve the quality of life of people as well as lift them out of extreme poverty. Furthermore, inclusive growth should encompass equity, equality, social protection, and opportunities in all aspects of social life in society. Moreover, the police and government expenses should enhance the people's wellbeing and aim to attain an inclusive society where no one is left behind.

Okun (1975) investigated the relationship between equality and efficiency. By using the economic model, he revealed that in the past, inclusive growth was measured by separating poverty and inequality; however, he highlighted that there is no need to separate income and growth or poverty and inequality while measuring inclusive growth. Both elements should be given value while measuring inclusive growth, poverty reduction, efficiency, and inequality. Finally, this study also stresses that there is a critical relationship between the promotion of equality in society and increasing people's efficiency in society. By doing that, the vulnerable groups are empowered and given the opportunities to participate in the economy, resulting in sustainable development.

Ortiz and Cummins(2011), in their work called Global Inequality: Beyond the Bottom Billion: A Rapid Review of Income Distribution in 141 Countries, discovered how inequality and unfair income distribution can be catalysts for poverty and unsustainable development. According to this study, inequality and social exclusion have increased in many developing countries since a few decades ago. In addition, inequality has led to underdevelopment and poverty in many developing countries around the world. Many people around the world are suffering from poverty, lack of education, unemployment, and hunger caused by inequality. This study also stresses that the policy agenda should aim to alleviate all vulnerable groups since they are the ones who struggle more than others. Inclusive growth can handle the problems faced by various groups in society, like poverty, gender inequality, all types of violence, human rights abuse, and others.

According to Harberger's (2008) assessment of the American growth process, there should be a distinction made between inclusive development and inclusive growth. This is because each component of the marginal product is assessed by its economic reward. The pursuit of personal wealth accumulation supersedes the interests of society, and immediate gains eclipse long-term viability. Among its measures are GDP/capita growth, the percentage of the population living below the federal poverty line, and growth diagnostics.

According to Dasgupta and Duraiappah (2012), trickle-down economics fails in institutional and structural contexts because growth strategies are based on exclusionary attitudes and characteristics that are not fundamentally inclusive. By extending the definition of inclusive growth to encompass the growth process and broadening the policy debate beyond the requirement for social safety, they provide a potential solution to this problem. Including "reproducible capital, human capital, knowledge, natural capital, population, institutions, and time," inclusive wealth is based on macro data and computes per capita wealth in terms of physical, human, and natural resources.

Hazelwood (1979), in his study entitled The End of the East African Community: What Are the Reasons for Regional Integration Schemes?, revealed that high-developed countries gain more in the short run during regionalism and trade integration, while countries with less developed economies gain less in the short run. High-developed countries tend to gain more since they have high-developed infrastructure, strong

technology and innovation, capital,capital and knowledge, whereas less developed countries tend to lose more since they have a weaker economy, poor infrastructure, and an inability to compete during trade liberalization. Furthermore, strong industries will prefer to be located in countries with high levels of infrastructure and development, and they prefer to use less developed economies as the markets for their goods and services. Less developed economies can also suffer from losing income since they depend on customs revenues as their source of income. This can lead to the total demise of agreements and the failure of economies. This is what's happened to the early EAC.

Langhammer (1992) investigated the impacts of regionalism on the development of developing countries. He demonstrated that regionalism can lead to a reduction in the price of goods and services, free movement of people, and the exchange of technology and knowledge. To lead to inclusive growth, he adds that high-developed countries should compensate the low-developed countries in various ways, like changing the location of firms, compensating through tax sharing, transfers of technology and knowledge, and improving the infrastructure in low-developed countries. Nonetheless, this has been a serious issue for the development of many regional blocks around the world.

Inclusive growth in Rwanda

The period after the Genocide against Tutsi was characterized by rigorous policies that aimed to handle poverty issues and promote inclusive growth in the country. Similarity: the policies aimed to promote the security, welfare, human rights, and wellbeing of the citizens' Attain that the Rwandan government developed midterm policies that would lead to the achievement of Vision 2020. Those policies include EDPRS (Economic Development and Poverty Reduction Strategies 1 and 2), National Strategy for Transformation 1, and other midterm policies. According to the government of Rwanda report (2019), NST1 is a midterm strategy for achieving Vision 2020 as well as a path for the Vision 2050 agenda. The Rwandan government adds that its policies have led to tremendous results. Indeed, those development policies have led to the rise of GDP per capita from 225 in 2000 USD to 797 in 2018. Furthermore, poverty has drastically diminished, from 60.4% in 2001 to 38.2% in 2017. In terms of inequality, the government has reduced it in all aspects of life. For instance, inequality decreased from 0.52 in 2005 to 0.42 in 2007. According to UNDP (2018), a country has also marked positive results in other human development indicators. For example, life expectancy increased from 49 to 67 in the period between 2000 and 2017. Rwanda has also extensively invested in infrastructure development, where it has been widely considered a better place with infrastructure facilities. To achieve sustainable development goals, Rwanda also incorporated home-grown solutions and policies that have roots in Rwandan culture.

Rwanda and income inequality[a]

Rwanda has made impressive progress in terms of inclusive education, women's empowerment, and income inequality. Gini coefficient inequality declined from 52 in 2005 to 42.9 in 2017. The country has developed various policies that have led to women's empowerment and gender equality in all spheres of development. According to Akresh and de Walque (2008) and Guariso and Verpoorten (2013), The level of education increased over time. Males (aged six and older) who did not have any formal education fell from 29.4% in 1992 to 24.9% in 2000, then to 19.4% in 2005, and finally to 13.0% in 2010. Females account for 40.4%, 32.6%, 27.7%, and 20.2% of the respective statistics. Men's mean years of education grew from 3.9 in 1992 to 4.6 in 2010, while women's mean years of education climbed from 3.0 in 1992 to 4.0 in 2010.

Rwanda and poverty reduction

There has been remarkable growth in human development generally between 1990 and 2017, with notable achievements in the welfare domain. From $1,133 in 2011 to $1,811 in 2017, gross national income (GNI per capita at 2011 US$ purchasing power parity) increased. But when inequality is taken into account, Rwanda's HDI rating drops from 0.524 to 0.367, indicating a substantial loss of 36.4%; this adjusted rate is known as the IHDI. According to the 2017 IHDI, Rwanda is ranked ninth highest in Africa and fifteenth highest overall.

A significant obstacle to well-adjusted human development is income inequality, which is particularly true in low-income nations like Rwanda. Regional and gender differences can highlight income disparities. For example, in Rwanda, women's per capita GNI is 24% lower than men's, despite identical labor force participation rates (UNDP, 2018).

The Rwanda National Institute for Statistics (NISR) Household Survey estimates that 6.8 million of the 11.8 million Rwandans residing there in 2017 were of working age (between the ages of 16 and 65). Out of them, 5.8 million were involved in economic activity, and 5.9 million were employed. As per the rigorous definition provided by the government, 75% of the workforce was actively employed, and the unemployment rate was around 5.3%, with approximately 100,000 individuals without a job. Youth unemployment was higher but not statistically different at 7.9 percent.

Rwanda has improved its infrastructure, housing, and living standards for its citizens (Marijke Verpoorten, 2014), indicating that electricity and housing materials have improved over time in Rwanda. The three decades (2005, 2007, and 2001) were characterized by robust policies that have improved Rwandan living standards, especially in housing and poverty reduction. The research underlined that in 2005, only 4.8 Rwandans had electricity in their families; however, the data rose in 2010, when 9.7 percent of people had electricity in their homes. Furthermore, Rwanda had made improvements in housing and citizen's access to durable goods. For instance, in 2010, 62.6 people had radios in their families, compared to 32.3 in 1992. The number of families that have a bike rose from 7.4 in 1992 to 15.2 in 2010. To achieve sustainable development goals, Rwanda also incorporated home-grown solutions and policies that have roots in Rwandan culture.

3. METHODOLOGY AND DATA USED

This study investigated the relationship between Rwandan trade integration and inclusiveness. Secondary data were used in this study. To get data, a researcher consulted reports by internationally recognized institutions, regional bodies, and national institutions. In addition to that, books, online journals, published books, reports, libraries, and other research papers from 1992–2022 were consulted.

Source of data used

The study employed secondary data from the World Development Indicators (WDI), expanding from 1992 to 2022 (30 years), which is significantly meaningful to assess the impact of trade integration on inclusive growth.

Econometric model

This study used several techniques such as analytical, comparative and statistical techniques where researcher used them for different theories, analysis and empirical cases. Generally, data that were collected during this study were analyzed where quantitative data collected were analyzed to get the tangible relationship between trade integration and inclusive economic growth. Thus, multiple linear regression model was used to assess the linkage between variables under study. Thus, research model expresses trade integration as dependent variable and Import duties, foreign direct investment, Exchange rate, and CPI where all these variables represent inclusive economic growth.

Then, the multilinear model to be estimated will be written as follows:

$$L\,Q_t = \beta_0 + \beta_1 Y_t + \beta_2 I_t + \beta_3 F_t + \beta_4 X_t + \beta_5 C_t + u_t$$

Where Q_t = GDP per Employed, LYt = Trade integration, It = Import duties, Ft = Foreign direct Investment, Xt = Exchange rate, Ct = CPI Inflation, Ut = Error term, B_0 is an intercept of the model and B_1, B_2, B_3, B_4, and B_5 are coefficients to be estimated.

According to the economic theory, there is either a positive or negative relationship between Trade integration and inclusive economic growth of the country. After all, we shall find if the relationship is positive or negative. These coefficients B_1, B_2, B_3, B_4, and B_5 will finally prove the relationship between variables either significantly positive or negative. We employed the Fully Modified Least Square (FMOLS) method which will definitely provide the model estimates that will help to conclude the relationship between the variables, we will be able to identify the relationship between variables and draw conclusion about results. The FMOLS will also help solve the problem of endogeneity that could result from omitted variables and feedback effect.

Estimation Procedures

Model Estimation Procedures

Since it is important to test for stationery of time series data used, all variables have been tested for stationarity and all variables of the econometric model under study have been found non stationary at level o, and were integrated once, i.e. at first difference, all variables have been proved stationary. Cointegration also has been tested and the data are found to be cointegrated which allows for FMOLS estimation of the model.

Presentation of the Findings

Table 1: Test for Stationarity

Variable	Test statistic (Z)	1% Critical value	5% Critical value	10% Critical value	order of integration
LQt	-8.573	-3.730	-2.992	-2.626	I (1)
	MacKinnon approximate p-value for Z (t) = 0.0000				
Yt	-3.630	-3.730	-2.992	-2.626	I (1)
	MacKinnon approximate p-value for Z (t) = 0.0052				
It	-4.928	-3.730	-2.992	-2.626	I (1)
	MacKinnon approximate p-value for Z (t) = 0.0000				
Ft	-3.871	-3.730	-2.992	-2.626	I (1)
	MacKinnon approximate p-value for Z (t) = 0.0023				
Xt	-3.849	-3.730	-2.992	-2.626	I (0)
	MacKinnon approximate p-value for Z (t) = 0.0024				
Ct	-5.536	-3.730	-2.992	-2.626	I (0)
	MacKinnon approximate p-value for Z (t) = 0.0000				

Source: Computed by the Researcher using E-Views

The null hypothesis for the stationarity test, which asserts that the variables under investigation are not stationary, is clearly supported by the alternative, which concurs that the variables are stationary, as can be seen in the above table, which displays the findings of the stationary test. These theories may be tested using the critical value technique or the p-value approach (Mackinnon approximation p-value). Using GDP per employed as an example, we can see that the computed Z statistic (-8.573) is more than the 5% critical value (-2.626), which means the null hypothesis is rejected.

Furthermore, we can see that the computed Z statistic (-3.871) is higher than the 5% critical value (-2.626) when we take into account Xt, which stands for exchange rate. This indicates that the data are stable at first difference and rejects the null hypothesis. Each variable's level of integration and stationarity are displayed in the final column of Table 1. Every variable in the model, including LQt, Yt, Xt, It, Xt, and Ct, has attained stationarity at first difference, as shown by their degree of integration of I (1).

More specifically, we reject the null hypothesis that a unit root exists and come to the conclusion that the variable was produced by a stationary process since the Mackinnon approximation p-values are less than 5%.

Descriptive Statistics

Table 2. Represents the Descriptive Statistics of the Variables Used in the Paper

Variable in billions of US$	Obs	Mean	Std. Dev.	Min	Max
GDP	31	4504.01	1759.917	1748.91	8047.11
Trade Int.	31	0.00047	0.0001923	0.0002181	0.000826
Import duties	31	4.27e+10	5.87e+10	7041000	1.95e+11
FDI	31	1.18e+08	1.28e+08	1000	3.99e+08
Exchange rate	31	558.8384	248.6397	133.94	1035.73
CPI inflation	31	8.847419	10.27352	-2.41	55.97

The descriptive statistics of the six variables under investigation are explained in the above table's figures with respect to their mean, standard deviation, minimum and maximum values. For example, the table above shows that the GDP averaged 4504.01 billion USD, which is near to the maximum value of 8047.11 billion USD. This suggests that the GDP has been improving over time and that additional work is required in all most variables that positively affect the GDP in order to maintain the nation's rapid economic growth.

Exchange rate was, on average, 558.8384 trillion US dollars, close to its peak value of 1035.73 trillion US dollars, showing that it has been steadily increasing over time to support equitable growth. Once more, trade integration was on average 0.00047 towards its maximum level of 0.000826, indicating a favourable trend towards economic integration over time. Over time, these trade policies had a favourable impact on inclusive growth.

The findings in the table show that import tariffs have been rising at a rapid pace over time; on average, we have 4.2 billion USD, significantly more than the maximum of 1.95 billion US. As can be seen from the data in the above table, foreign direct investment has not grown much. On average, foreign direct investment rates 1.18 billion USD in the middle of its anticipated maximum of 3.99 billion USD.

Furthermore, CPI inflation remained relatively stable at 8.88 billion US dollars, much below its peak of 55.97 billion US dollars, indicating inclusive growth devoid of inflation.

Presentation of Co-integration test Results

The Table below represents the Johansen test for co-integration. It is used to examine for evidence of a long run relationship among the variables under the study to move ahead with regression analysis.

Table 3: Co-integration test Results

Null Hypothesis: No long run relationship exist					
Maximum Rank	Parms	LL	Eigenvalue	Trace statistic	5% critical value
0	42	-1510.1719	-	111.1727	94.15
1	53	-1483.9375	0.83623	58.7040*	68.52
2	62	-1471.1384	0.58634	33.1057	47.21
3	69	-1462.7872	0.43783	16.4032	29.68
4	74	-1456.128	0.36821	3.0866	15.41
5	77	-1454.6638	0.09610	0.1565	3.76
6	78	-1454.5855	0.00518	-	-

With the above results it is clear that there is evidence of a long run relationship between variables as trace statistic of 58.7040 is less than 5% critical value which proves that our variables under consideration are cointegrated using Johansen test of Cointegration.

Presentation of Fully Modified Least Squares Regression Estimation

After testing stationarity of the variables under study and test for Cointegration, OLS method was use to estimate the value of the coefficients of our econometric model of the research.

The following are the results of computation using E-views software

Dependent Variable: LOG(GDP_PER_EMPLOYED)
Method: Fully Modified Least Squares

Included observations: 28 after adjustments
Cointegrating equation deterministic: C
Long-run covariance estimate (Bartlett kernel, Newey-West fixed bandwidth = 4.0000)

Table 4: Presentation of Fully Modified Least Squares Regression Estimation

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TRADE_INT	593.6667	169.6840	3.498659	0.0019
IMPORT_DUTIES	-1.23E-13	2.35E-13	-0.523255	0.6058
FDI	2.37E-10	2.38E-10	0.996842	0.3292
EXC_RATE	3.34E-06	2.98E-07	11.22979	0.0000
C	7.348854	0.055470	132.4835	0.0000

R-squared	0.975340	Mean dependent var	8.338384
Adjusted R-squared	0.971051	S.D. dependent var	0.383660
S.E. of regression	0.065278	Sum squared resid	0.098007
Long-run variance	0.003538		

These results show the coefficients results of the regression analysis. Fully modified OLS results. The variable trade integration (TRADE_INT) relates positively and significantly (P-value of 0.0019 < 5%) to inclusive growth. This indicates that an increase in trade integration is expected to increase inclusive economic growth in Rwanda. The coefficient of trade integration is 593.67 showing that a unit increase in trade integration will boost inclusive economic growth in Rwanda by 59367.0 units.

Additionally, the variable import duties have no significant relationship (P-value of 0.6058>5%) to inclusive growth. Which means there is no relationship between these variables.

Moreover, according to the results, Foreign direct investment (FDI) has no relationship with inclusive growth as its P-value is greater than critical significance level of 5% (0.3292>0.005). Hence the relationship with inclusive growth is insignificant.

The variable Exchange rate (EXC_RATE) relates positively and significantly (P-value of 0.00 < 5%) to inclusive growth. This indicates that an increase in trade integration is expected to increase inclusive economic growth in Rwanda. The coefficient of exchange rate is 3.34 showing that a unit increase in trade integration will boost inclusive economic growth in Rwanda by 334.35 units.

The results also show a good fit (R2) which is equal to 0.975340 showing that how strong the model is. The adjusted R2 is also equal to 0.971051.

4. CONCLUSION AND POLICY IMPLICATIONS

The ultimate purpose of this study was to analyse the effects of Rwanda's trade integration on inclusive growth. It was generally conducted with the following goals in mind: to ascertain the effect of trade integration on income inequality in Rwanda and to assess the effect of trade integration on poverty reduction in Rwanda. Secondary data were used in this study to evaluate the link between trade integration and inclusive growth in Rwanda.by using Fully Modified Least squares, this study found a strong link between Rwanda's trade integration and inclusive growth. For example, it stimulates trade through custom union and other regional agreements, it allows individual states to attract investors through tariff harmonization and trade barriers, and it stimulates employment by promoting free movement of people, goods, and services in the region. However, it was revealed that there are significant obstacles to Rwanda's trade integration. These include a lack of access to the ocean, a regional infrastructure development deficit, and insecurity in some parts of the region. As a result, this study would like to recommend that Rwanda empowers industries to compete with other states in the region, that Rwanda continues to sign regional infrastructure agreements, and that all blocks member states strengthen their commitment to regional treaties and other agreements.

Suggestions for Further Research

This study recommends that the further studies should be conducted to assess the impacts of trade integration on industrialization .furthermore, this study highly recommend that the future study should be conducted on the relationship between regional integration of Rwanda and infrastructures development

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