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Regional integration and Economic Development: The Case of Southern Africa

By

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In the

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At the

TSHWANE UNIVERSITY OF TECHNOLOGY

Under the supervision of

Dr. Esther Makhetha

Declaration

I, Tjatji Jappie, hereby certify that this master's dissertation is original to me and has never been turned in. Every single source of material utilized in the research has been cited using the Harvard style and where a source's content was reproduced verbatim, quote marks, a page number, and an intext citation were provided.

Signature

Acknowledgements

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Dedication

To my mother, Dinah Marungwane Tjatji, I dedicate this piece. She has always stood by my side.

Abstract

The remarkable success of trans-boundary cooperation that occurred in Europe after World War Two served as an inspiration for the emergence of regional integration into the world (Asiwaju, 2007: 97). The 1960s represent the earliest evidence of regional integration in Africa (Uzodike, 2009:26). Regional integration in Africa is widely accepted as a key instrument for economic advancement (a phrase that is used in place of the concept of economic development throughout the dissertation) (Aworaro, 2015:6). The research project had three objectives. Investigating empirically how regional integration influences the economic advancement of the Southern African Development Community (SADC) SADC member nations was the main objective. Testing the hypothesis that regional integration has a beneficial influence on the economic advancement of SADC member nations was the secondary objective. Finding the major hurdles that render regional integration under SADC ineffective towards economic advancement was the study's final objective. The limitation of the study is that it has a small sample size. This study adds to the body of literature on regional integration by investigating the connection between regional integration and economic growth, and more especially the impact of regional integration on economic advancement in SADC. The economic integration theory is the theory that provided guidance in this study, in which analyses made in the research were based on this theory of regional integration. The research methodology used a quantitative research approach, a positivist philosophical paradigm, a longitudinal research design (specifically a time series analysis), and quantitative secondary data (which was analysed using E-views 12). The study's hypothesis was that SADC member nation's economic advancement is positively influenced by regional integration. Using the Wald test, the study found this hypothesis to be true. Based on the findings that regional integration leads to economic advancement, the study recommends that SADC member countries need to address blocks to effective regional integration (such as Surrendering sovereignty) in order for SADC member countries to economically benefit from regional integration. This can be accomplished for example, by implementing measures to encourage ceding of sovereignty to a supranational body.

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CHAPTER ONE: INTRODUCTION

There are five segments in this chapter. The introduction and background of regional integration in Southern Africa are covered in the first segment. The problem statement of the research project is the subject of the second segment. Research questions and objectives are the main topics of the third segment. The research project's limitations are the subject of the fourth segment, and the significance of the research project is the subject of the last segment.

1.1 Introduction and background of Southern Africa's regional integration

1.1.1 Regional integration as an instrument for economic advancement

Since the late 1960s, when the continent experienced an economic downturn, many people have viewed regional integration as an essential instrument for achieving both economic recovery and prosperity in Africa (Aworaro, 2015:6). The leaders of African states in the late 1960s believed that achieving economic progress would be difficult without any kind of synchronization and coordination of economic and political policies (Mlambo, 2020:24). Following the liberation of African countries, African leaders realized that integration on a regional scale would be a reliable means for the continent to jointly pursue and accomplish economic advancement (Aboyade, 2018:2). After independence many (or some?) African countries were in an economically disadvantaged condition, which meant African leaders needed to revive their national economies (Uzodike, 2009:26). African leaders firmly believed that regional integration had tremendous potential to support robust and equitable economic growth and to reduce unemployment and poverty in the continent (Mugerwa, Anyanwu, and Conceição, 2014).

As a result, Africa's response to the economic problems facing the continent has been the overwhelming support of regional integration (Uzodike, 2009:26). African leaders thought that greater regional integration would be the only effective approach to address the developmental issues facing the continent (such as poverty, unemployment, and inequality) (Mugerwa, Anyanwu, and Conceição, 2014:2). It should not come as a surprise that the post-independence era has been characterized by numerous measures to strengthen regional integration in Africa (such as the approval of the Lagos Plan of Action, the Abuja Treaty, the reinforcement and founding of multiple Regional Economic Communities) (Uzodike,

2009:27). According to Mapuva and Mapuva (2014:23) regional integration is now consistently and widely acknowledged as an essential approach for promoting economic advancement.

For instance, the engine driving African advancement is economic cooperation and integration, while regional economic communities serve as the cornerstones of continental development, according to Ginkel et al (2003) and Chingono and Steve Nakana (2008:396). Many researchers argue that regional integration should be perceived as a tool for developing countries to accomplish economic advancement. Proponents of regional integration as a viable instrument for attaining the economic advancement of African countries have offered several arguments. Firstly, according to Mapuva and Mapuva (2014:23) regional integration makes it possible for nations to address the economic growth of a region as a whole. It provides various nations within a specific trade block with a chance to address economic issues that they are unable to handle on their own (Mapuva and Mapuva, 2014:23). Secondly, regional integration, according to Mugerwa, Anyanwu, and Conceição (2014:2), is necessary for boosting productivity and raising living standards over the long run. The authors argue that regional integration is essential for economic growth because it provides entry to regional marketplaces for African producers and connects them with enhanced regional value chains, both of which will boost demand for their exports and gross domestic product (Mugerwa, Anyanwu and Conceição, 2014:2). Lastly, the African Union (2019:2) argues that regional integration is vital for attaining economic advancement as it offers a route for accomplishing structural reform of the economies of African countries. Numerous programmes (such as the Abuja treaty, the Lagos Plan of Action and the African Economic Community) for regional integration have been developed over the past forty years due to regional integration in Africa being widely accepted as a key instrument for economic advancement (Aworaro, 2015:6). These regional integration programs are primarily intended to address the continent's developmental issues, improve people's quality of life, preserve economic stability, and speedup economic growth and development (Aworaro, 2015:6).

1.1.2 Southern Africa's regional integration

The research project concentrates solely on the Southern African Development Community's regional integration arrangement (SADC).

1.1.2.1 Mulugushi Club

Southern Africa's regional integration effort may be credited as having been launched by the Mulugushi Club (Mlambo, 2020:24). Southern Africa's liberation was the main objective of the Mulugushi Club (Mlambo, 2020:24). It was established in 1970 and is the predecessor of what became known as the "frontline" states (Mlambo, 2020:24).

1.1.2.2 Frontline states

Southern Africa's regional integration was sparked by the fight against colonialism and apartheid, which significantly damaged the economy and displaced people there (Chingono and Nakana, 2009:396). Exploiting the natural riches and minerals of African nations was a primary goal of the racially exclusive political and economic systems known as colonialism and apartheid (Enaifoghe, 2019:86). The group of countries, known as the frontline states were created as a result of the fight against colonialism and apartheid in the 1970s (Cilliers, 1999:40). Tanzania, Angola, Zambia and Botswana are the founding members of frontline states (Cilliers, 1999:40). Political, economic, and military instability in Southern Africa throughout the 1980s was mostly caused by South Africa's apartheid regime (Chingono and Nakana 2009:396). As a result, opposing and combating South Africa's hegemony and destabilization efforts was one of the frontline states' key goals (Chingono and Nakana 2009:396). The frontline states provided vital assistance to help Southern African nations to achieve political freedom from colonial rule and the apartheid regime (Guilherme, 2015:4). Application of political and economic pressures was the main instrument used by front line states for achieving the independence of Southern African countries (Enaifoghe, 2019:86).

1.1.2.3 The Southern African Development Coordination Conference

The Southern African Development Coordination Conference (SADCC) was founded by nine autonomous frontline countries in 1980, namely Angola, Botswana, Lesotho, Malawi, Mozambique, Swaziland, Zambia and Zimbabwe (Lee, 1999:31). The organisation was founded following the 1979 Arusha Conference in Tanzania where there was a general consensus to introduce SADCC (Guilherme, 2015:4). The Arusha Conference was attended by the mentioned nine independent countries (Guilherme, 2015:4). In order to lessen

Southern Africa's economic dependence on South Africa, the main goal of SADCC was to coordinate development programmes (Guilherme, 2015:4). Reliance was mainly economic and making ports accessible for the purpose of conducting global trade (Guilherme, 2015:4). By means of utilizing resources for the sake of advancing interstate and regional policies, SADCC sought to not only lessen economic reliance on South Africa but also to create economic connections in order to establish an authentic and equitable regional integration arrangement (Mapuva and Mapuva, 2014:24). Through coordinated efforts, dependence on South Africa in some areas was reduced after a number of years (Guilherme, 2015:7).

Emancipating nations that were under colonial rule (such as Angola and Mozambique) and apartheid rule (such as Namibia and South Africa) was the secondary goal of SADCC (Guilherme, 2015:7). Lee (1999:31) argues that SADCC was established in reaction to the apartheid regime's increasing military and hegemonic aspirations. Due to the apartheid regime's exclusion from SADCC, the member nations of SADCC became victims and endured the effects of an increased regional destabilization strategy of the apartheid system (Lee, 1999:32). This apartheid destabilization strategy was intended to spread the idea that without South Africa's participation, Southern Africa will not be able to succeed in regional integration (Lee, 1999:32). Subsequent to the majority of the Southern African nations attaining political freedom and having reduced dependence on South Africa, SADCC member countries decided to look at another objective by putting a greater emphasis on economic matters (especially eradicating poverty in Southern Africa) (Mapuva and Mapuva, 2014; Guilherme, 2015). It is against this background that a decision was made on the 17th of August 1992 to convert SADCC into the Southern African Development Community (SADC) (Guilherme, 2015:7).

1.1.2.4 South African Development Community

When the SADC Declaration was adopted in 1992, SADCC was converted to SADC (African Union, 2019:3). The heads of states agreed to a treaty in Windhoek in 1992 that renamed SADCC as SADC and changed the basis for member states cooperation from a loose alliance to a formal agreement (African Union, 2019:3). The objective of the SADCC to SADC conversion was to advance greater regional integration throughout Southern Africa in order to tackle the majority of the issues that hampered economic advancement of Southern African countries (Mkapa, 2005:2). The signatories of the SADC treaty had come

to a consensus that the only way to successfully combat underdevelopment, economic exploitation, deprivation and sluggish economic performance in Southern Africa was through deeper regional economic cooperation and integration (Guilherme, 2015:4).

This consensus was based on the recognition that following the liberation of Southern African countries from the rule by colonists and the apartheid government, the majority of these nations experienced high occurrences of poverty and sluggish economic performances (Mkapa, 2005:3). Post-independence the next logical step was to pursue economic and social advancement through engaging in deeper regional integration for the sake of tackling social and economic challenges (Mkapa, 2005:4). As a result, the primary goal of SADC is to foster the economic and social advancement of Southern African countries by means of regional integration (Mapuva and Mapuva, 2014:24). On the basis of member states interdependence and collective self-reliance, SADC also seeks to advance self-sufficient growth (Guilherme, 2015:4).

1.2 Problem statement

According to Geda and Kibret (2002:10) the success or failure of a regional integration community should be judged on (amongst other things) the goals it set for itself. "SADC is established with the objectives of, among others: promoting sustainable and equitable economic growth and socioeconomic development, enhancing the standard and quality of life of the people of Southern Africa and supporting the socially disadvantaged through regional integration" (Hailu, 2014: 318). "The SADC also aims at alleviating poverty through regional integration as regional integration increases economies of scale and makes more resources available which will ultimately provide a more favourable environment to address persisting social inequality and poverty" (Hailu, 2014 :318). Judged against these objectives, Southern African regional integration in the form of SADC has failed. To a large extent, Southern Africa's economic performance has been disappointing over the past few decades (Lorrah, 2019:70).

The incidence of extreme poverty and high unemployment in Southern African countries is increasing over time (Lorrah, 2019:71). The disparity between wealth and poverty (captured and summarized by inequality) is also increasing over time (Lorrah, 2019:72). The bulk of the countries in Southern Africa have low per capita incomes (Lorrah, 2019:75). Poverty and

unemployment have been on the rise over the years, making the realization of economic advancement and improved standard of living of Southern African countries unreachable (Lorrah, 2019:78). Thus, regional integration in Southern Africa under SADC has been ineffective towards economic advancement. Most of the least developed countries in Africa are located in Southern Africa, which has remained on a slow development trajectory (Jiboku, 2018:19). Even now, Southern Africa is regarded as one of Africa's least developed areas (Aworaro, 2015:6). The plain truth is that Southern Africa has not yet reaped the full benefits of regional integration (Jiboku, 2018:19).

1.3 Research objectives and questions

The research project had three objectives. Investigating empirically how regional integration influences the economic advancement of the Southern African Development Community (SADC) SADC member nations was the main objective. Testing the hypothesis (a word that is used in place of the term hypothesis throughout the dissertation) that regional integration has a beneficial influence on the economic advancement of SADC member nations was the secondary objective. Finding the major hurdles that render regional integration under SADC ineffective towards economic advancement was the study's final objective.

Research questions addressed by the study were as follows:

- ✓ What are the empirical impacts of regional integration on economic advancement of SADC countries?
- ✓ Is the hypothesis of regional integration having a beneficial effect on economic advancement of SADC countries true?
- ✓ What causes regional integration under SADC to be ineffective towards economic advancement?

1.4 Delimitation of the study

The study's sample size is what limits it. The maximum possible sample size of the study is significantly low as it is 15. The population size of the study is 16 (taking into consideration that SADC is made up of 16 countries). Consequently, it is impossible for the study to have a sample size of more than 15 countries as a sample is a subset of a population. A small size of the potential sample presents two challenges. Firstly, a small sample size exposes

the study to sampling error (Wooldridge, 2016:30). The discrepancy between a sample parameter and a population parameter is known as sampling error (Wooldridge, 2016:30). The smaller the sample size, the larger the sampling error (Wooldridge, 2016:30). Secondly, a study that has got a small sample size loses out on the benefits of the central limit theorem (Wooldridge, 2016:31). The central limit theorem states that if a large enough number of observations are incorporated in a study, then regardless of how the total population the from which the sample was selected is dispersed, it will be the case that the sampling allocation of the sample mean will be roughly normally distributed (Wooldridge, 2016:31). For a sample size to be regarded as sufficiently enough for this normal approximation rule to be applicable, a study must have a sample size of a minimum of 30 (Wooldridge, 2016:31).

1.5 Significance of the study

Despite widespread recognition, there doesn't appear to be any empirical analysis of how regional integration influences economic advancement in Southern Africa. The majority of research on SADC's regional integration has primarily concentrated on the obstacles to regional integration that the region faces. There have been no studies precisely examining how regional integration influences SADC's economic advancement. As far as the study's is aware, no empirical research has examined how regional integration affects SADC's economic advancement. By investigating the connection between regional integration and economic advancement, and more especially the influence of regional integration on economic advancement of SADC member states, this research project adds to the body of literature on regional integration.

Chapter summary

The arrival of regional integration into the world was inspired by Europe's remarkable success in trans-boundary cooperation that occurred post World War Two (Asiwaju, 2007: 97). The 1960s represented the earliest evidence of the idea of regional integration in Africa (Uzodike, 2009:26). Due to the continent's economic recession in the late 1960's, regional integration in Africa has since this time period been regarded as an essential tool for economic recovery and growth (Aworaro, 2015:6). Regional integration in Africa is widely accepted as a key instrument for economic advancement (Aworaro, 2015:6). Southern

Africa's regional integration project was started by the Mulugushi Club (Mlambo, 2020:24). SADCC was created by the frontline states in 1980 (Lee, 1999:31). Following the majority of the Southern African nations attaining political freedom and having reduced dependence on South Africa, SADCC member countries decided to look at another objective by putting a greater emphasis on economic matters (especially eradicating poverty in Southern Africa) (Mapuva and Mapuva, 2014; Guilherme, 2015). This led to the transformation of SADCC into SADC (Guilherme, 2015:7). The research project had three objectives. Investigating empirically how regional integration influences the economic advancement of the Southern African Development Community (SADC) SADC member nations was the main objective. Testing the hypothesis (a word that is used in place of the term hypothesis throughout the dissertation) that regional integration has a beneficial influence on the economic advancement of SADC member nations was the secondary objective. Finding the major hurdles that render regional integration under SADC ineffective towards economic advancement was the study's final objective. Southern Africa's regional integration in the form of SADC has failed and Southern Africa's economic performance has been disappointing to a large extent over the past few decades (Lorrah, 2019:70). Thus, regional integration in Southern Africa under SADC has been ineffective in supporting economic advancement of the region. Southern Africa has not yet reaped the full benefits of regional integration (Jiboku, 2018:19). The limitation of the study is that it has a small sample size. By investigating the relation between regional integration and economic growth, and more especially the influence of regional integration on economic advancement in SADC, this study adds to the body of literature on regional integration.

CHAPTER TWO: LITERATURE REVIEW

The literature review chapter is made up of two segments. The first segment focuses on the theoretical framework and the last segment focuses on the empirical literature

2.1 Theoretical framework

The Economic Integration Theory

This theory that provided guidance in the research project, in which analyses made in the research were based on this theory of regional integration. Market Integration Theory, another name for Economic Integration Theory, was formerly regarded as Customs Union Theory (Lee, 1998: 31). The process of removing various trade barriers between nations is referred to as economic integration (Lee, 1998:32). Economic integration refers to the process of the elimination of different types of trade obstacles between countries. Schiff and Winters (2003: 6) define a trade barrier as the act setting up a trade discrimination against other countries. The word integration in economic integration refers to the aggregation of separate individual economies of countries within a specific geographical region into a bigger economic region (Aboyade 2018). Trade barrier elimination is accomplished by the advancement of several sequential and linear phases (Lorrah, 2019: 43). These stages denote the different degree of economic integration in which the first stage has the lowest level of economic integration (Balassa, 1961:174). The progression to higher stages requires a higher degree of removal of trade barriers and demands a substantial amount of political agreement (Balassa, 1961; Bolanos 2016). The stages of economic integration are as follows:

I. Preferential trade agreement

Preferential trade agreement is the lowest and the first stage of economic integration (De Lange and Seymore, 2009:34). Marinov (2015:26) defines a preferential trade agreement as an arrangement between countries whereby goods that are produced outside the trade agreement are exposed to higher trade barriers compared to the ones produced within the trade agreement.

II. Free trade area

The second phase of economic integration is the free trade area (De Lange and Seymore, 2009:35). A preferential trade agreement in which participating nations are exempt from tariffs or quotas is known as a free trade area (Balassa, 1961: 174). Still, each country upholds individual tariffs and quotas when trading with non-member countries (Balassa, 1961: 174).

III. Customs union

The third phase of economic integration is the customs union (De Lange and Seymore, 2009: 35). A customs union is a free trade region in which participating nations impose regular exterior tariffs on goods imported from other nations (Marinov, 2015:26). While the basic exterior tariff may differ for different items, it remains constant for all union partners (Marinov, 2015).

IV. Common market

The fourth phase of economic integration is the common market (De Lange and Seymore, 2009: 35). A common market is a customs union in which non-tariff trade obstacles and restrictions on the movement of production components among members are eliminated (usually, capital and labour are free to move among members) (Balassa, 1961: 174). The European Union is one instance of a common market (Vander Merwe et al., 2014: 345).

V. Economic union

The fifth phase of economic integration is the common market (De Lange and Seymore, 2009: 35). A common market where member nations either use identical fiscal and monetary policies or synchronize their policies is referred to as an economic union (Vander Merwe et al., 2014: 345). An example of an economic union was Benelux (Vander Merwe et al, 2014: 345).

VI. Economic and monetary union

The sixth phase of economic integration is the common market (De Lange and Seymore, 2009: 35). An economic union whose member nations adopt a single currency that is recognized as legal tender in a particular geographic area is known as an economic and

monetary union (Marinov, 2015: 26). A good example of an economic and monetary union is the Eurozone (Marinov, 2015: 26).

VII. Total economic integration

Total economic integration is proposed by Balassa (1961: 174) as the seventh and last phase of economic integration. A monetary and economic union with coordinated monetary, fiscal, social, and countercyclical policies is known as total economic integration (1961: 174). Furthermore, decisions made by a supranational authority have binding effect on member states (Balassa, 1961: 175).

2.2 Empirical literature review

There have been conflicting findings from the empirical research on the connection between regional integration and economic advancement. To start with, there are empirical studies that indicate that economic integration promotes economic growth and advancement. The foundation of all work concerning regional integration is generally provided by the efforts of Balassa (1961). To be precise, his book written in 1961, titled: "The Theory of Economic Integration", has paved the way for many empirical work on regional integration and it has also been reviewed by numerous authors that include Allen (1963), Havens (1962), and Ingram (1962) in highly regarded journals around the world (Hosny, 2013). Allen (1963: 449-454), called the book a crucial contribution to a thorough grasp of regional integration. This can also be seen in the reviews by Havens (1962, p.47-48) and Ingram's (1962: 612-614), in which the authors contend that the book is an important guideline for understanding regional integration.

Balassa (1961) was among the first researchers to present empirical evidence of the positive effects of trade on economic growth. Using the sectoral analysis, the author showed how regional integration promotes economic growth through increased competition and technology, decreased uncertainty, and the development of an environment more conducive to business activity and economies of scale. According to Pasara (2019), empirical research on regional integration commenced in the 1970s. During that time period, countries were struggling economically as they were facing economic recessions together with the oil price shock of 1973, and this led to an interest in empirically examining the justification of protectionist policies that were adopted then (Pasara, 2019). This prompted academics and researchers to carry out empirical investigations on the effects of trade openness on

economic growth. Among others such studies include Michaely (1977), Balassa (1978), and Frankel and Romer (1999). To ascertain whether a rise in the growth rate of exports and a rise in the growth rate of GDP are related, Michaely (1977) used simple rank correlations on 41 nations (such as Costa Rica, Switzerland and Peru) between 1950 and 1973. Rank correlation is a way for determining how closely two variables are related (Kerby, 2015). It assesses how closely two rankings are correlated (Kerby, 2015). To get around the problem of spurious regression, Michealy (1977) deployed the rate of export expansion as a proportion of GDP.

The author concluded that export promotion is correlated with economic growth. Balassa (1978) reached the same conclusion when he deployed a rank correlation methodology on eleven countries (among others; Argentina, Brazil, Chile, and India) between 1960 and 1973 to investigate the empirical relationship between export growth and output growth. Frankel and Romer (1999) used the instrumental variable technique on 1985 data to investigate the impact of trade liberation on GDP per capita. The instrumental variable technique refers to a statistical tool that is deployed when the assumptions needed to draw unbiased conclusions are not met such as normal-distribution (Pokropek, 2016). The technique enables a researcher to estimate casual effects on non-experimental observable data (Pokropek, 2016). The study concluded that trade liberation between countries is positively correlated with higher levels of GDP per capita. Bong and Premaratne (2018:1) investigated if regional integration affects South Asia's economic growth. They used panel data gathered from 1970 to 2013 and a cross country growth model. Panel data is a data set that has been collected from multiple observations during different time periods (Wooldridge, 2016). Their findings indicated that regional integration significantly positively influences economic growth. In his investigation of the relationship between regional trade integration and income convergence in Africa and its main Regional Economic Communities, Gammadigbe (2021: 2) reached a similar finding using panel data spanning the years 1979 to 2018. According to the study's findings (which were based on the instrumental and panel fixed effects analysis) regional trade integration fosters economic growth in Africa.

In contrast to the above-mentioned empirical works, other studies have shown that regional integration either has no influence on economic growth or has a detrimental effect on it. In these studies, there was little to no statistical evidence to infer that regional integration leads to economic growth and advancement. For instance, Tumwebaze and Ijjo (2015: 68)

investigated how the Common Market for Eastern and Southern Africa affected the region's economic growth. Panel data from 1980 to 2010 was used by the authors. Their study concluded that there is not sufficient empirical evidence that supports the notion that regional integration positively correlates with economic growth. According to the study's conclusions, regional integration hinders economic growth. Ogbuabor et al (2019:1) applied the same research methodology to examine the impact of economic growth on the West African Economic and Monetary Union (WAEMU). There was no empirical indication that regional integration had a favourable influence on the economies of WAEMU, hence the authors were unable to support the widely held belief that regional integration fosters economic growth in participating nations. The same conclusion that regional integration has no influence on economic growth was also found by Golit and Adamu (2014: 111). The authors used the granger-causality test to examine the relationship between economic growth and regional integration and they concluded that regional integration does not cause economic growth.

Chapter summary

Mixed findings have come from empirical research looking at the connection between regional integration and economic growth. To begin with, there are empirical studies that indicate that economic integration promotes economic growth and advancement. These include; Balassa (1961); Michaely (1977); Frankel and Romer (1999); Bong and Premaratne (2018). In contrast, some studies have contradicted the findings of the above-mentioned empirical works by demonstrating that regional integration either has no influence on economic growth or has a detrimental influence on economic growth. In these studies, there was little to no statistical evidence to infer that regional integration leads to economic growth and economic advancement. These studies include; Tumwebaze and Ijjo (2015: 68); Ogbuabor et al (2019:1) and Golit and Adamu (2014: 111). The research project was informed by economic integration theory. The study was guided by this theory and the analysis made in the research was based on this theory of regional integration.

CHAPTER THREE: RESEARCH METHODOLOGY

There are seven segments in Chapter 3, which describes the research methodology deployed by the research project. The segments are as follows; research approach, research philosophy, research design, data, hypothesis, analytical framework, measures to ensure scientific accountability, as well as the conclusion of the chapter.

3.1 Research approach

The study made use of a quantitative research approach. The study was interested in measurable and quantifiable data. As a result, a quantitative research approach had to be used to analyse and interpret numerical data (Trochim, 2000:2).

3.2 Research philosophy

The study adopted a positivist philosophical paradigm. Positivism research philosophy was chosen for the following reasons. First, it promotes the usage of natural science approaches to examine and comprehend social reality (Bryman et al, 2014: 12). Second, it highlights the significance of applying natural scientific approaches and it justifies the usage of the natural sciences to study the social sciences (Bryman et al, 2014: 12). Third, positivism enables the researcher to investigate the cause-and-effect association among the variables involved in the study (Creswell, 2017: 3). Finally, it offers instructions to the researcher for determining how the independent variable influences the dependent variable (Creswell, 2017: 3).

3.3 Research design

The study deployed a longitudinal research design, specifically a time series analysis. The interpretation of time series data is known as time series analysis (Jose, 2022:4). The decision to make use of this research design was made in light of the following advantages of time series analysis research design. First, time series analysis (unlike cross-sectional analysis) enables researchers to track changes over time and it also allows researchers to measure changes in variables over time (Wooldridge, 2016: 53). Second, time series analysis (through finite distributed lag models) allows the independent variable to influence the dependent variable with a time lag (Wooldridge, 2016: 53). Last, through static models

it allows us to model a contemporaneous relationship between the independent and the dependent variable (Wooldridge, 2016: 53).

3.4 Data

The study made use of quantitative data. In this study, secondary data were utilized, meaning that no new data were collected directly by the researchers. Instead, the research relied on pre-existing data sourced from various reputable online databases and reports.

To obtain secondary data, the researchers accessed multiple online sources. Specifically, data for Gross National Income (GNI) per capita were sourced from the World Bank's extensive database, which is a well-regarded repository of global economic and development indicators. This ensured the reliability and accuracy of the economic data used in the analysis. Furthermore, data for several integration indices were obtained from the Africa Regional Integration Index Report of 2019. This report provided comprehensive data on various aspects of regional integration within Africa, including the Trade Integration Index, the Productive Integration Index, the Macroeconomic Integration Index, the Infrastructural Integration Index, and the Free Movement of People Index. These indices are crucial for understanding the extent and impact of regional integration efforts across different dimensions. The study's data set focused on a ten-year time period that runs from 2012 to 2022. The data was quantitatively analysed using E-views 12. To ensure data consistency, the dissertation employed several strategies. One key method was data cleaning (which involves handling missing data by replacing missing values, removing incomplete records, identifying and eliminating duplicate entries to prevent skewing results and correcting data entry errors). The second method deployed was standardization in which all measurements were converted to a common unit in order to ensure consistency. Lastly, the dissertation regularly audited and monitored data for inconsistencies, errors and anomalies to ensure consistency.

3.5 Hypothesis

Ho: $\beta=0$

H1: $\beta>0$

The null hypothesis stated that regional integration does not have an influence on the economic advancement of SADC member nations. The contrasting hypothesis (a phrase that is used in place of the notion of alternative hypothesis throughout the dissertation) stated that regional integration has a positive influence on the economic advancement of SADC member nations. The purpose of testing a hypothesis was to determine whether there was sufficient statistical evidence to allow us to accept a hypothesis to be correct (Varner, 2011: 5). A hypothesis was proven to be true when a null hypothesis was rejected (Varner, 2011:5). In order to decide whether or not to reject a null hypothesis or not, a contingency value (a phrase that is used in place of the concept of probability value throughout the dissertation) was compared against a degree of statistical importance (a phrase used in place of the concept of significance level throughout the dissertation) (Varner, 2011:6). The contingency value is a measure of the amount of statistical evidence supporting the contrasting hypothesis (Wooldridge, 2016:21). Whenever the research project was unable to reject the null hypothesis, there was insufficient statistical proof available to conclude that the contrasting hypothesis is correct (Varner, 2011:15). In contrast, whenever the research project was able to reject the null hypothesis, there was sufficient statistical proof available to conclude that the contrasting hypothesis is correct (Varner, 2011:15). The research project was unable to reject the null hypothesis when the contingency value surpasses the degree of statistical importance, but it was successful when the contingency value was surpassed by the degree of statistical importance.

3.6 Analytical framework

The study used the following model for modelling the relationship between economic advancement and regional integration: $Y_{it} = \beta_{0i} + \beta_1 TII_{it} + \beta_2 PII_{it} + \beta_3 MII_{it} + \beta_4 III_{it} + \beta_5 FMPI_{it} + U_{it}$

Y is GNI per capita (a measure of economic advancement), TII is the Trade integration index, PII is the Productive Integration Index, MII is the Macroeconomic Integration Index, III is the Infrastructural Integration index, FMPI is the Free Movement of People Index, i denotes a country and t denotes a year, and U is the error term. The Trade Integration Index, the Productive Integration Index, the Macroeconomic Integration Index, the Infrastructural Integration Index, and the Free Movement of People Index together as a whole measure regional integration. In the above model, GNI per capita is a dependent variable. The Trade Integration Index, the Productive Integration Index, the Macroeconomic Integration Index, the Infrastructural Integration Index, and the Free Movement of People Index are independent variables. They captured the influence of regional integration on the economic advancement of a country. The Error term captured all other independent variables that affect GNI per capita besides the ones mentioned in the above multiple regression model.

3.7 Measures to ensure scientific accountability

The validity of the measures and their reliability are what matters most in quantitative research (Bryman et al, 2014:36). A concept's validity is determined by whether or not an indicator created to measure it does so. The consistency of a concept's measurement determines its reliability (Bryman et al, 2014:36). When the measurement of a concept is consistently able to measure a concept, then that measurement is declared to be reliable (Bryman et al, 2014:36). Moreover, quantitative studies must be reproducible (Bryman et al, 2014:40). The capability of quantitative researchers to replicate each other's research studies is most often seen as a crucial factor in determining the validity of their research findings (Bryman et al, 2014: 40). To ensure scientific accountability the study did the following; a) in order to account for validity, the study choose variables that properly capture the influence of regional integration on economic advancement; b) in order to account for reliability, the study choose variables that were deployed by most of the past researchers who did empirical research on the influence of regional integration on economic

advancement; c) in order to ensure replication of the research results, all the research methodologies and data deployed in the study were clearly spelled out.

Chapter summary

The study's research methodology was made of the following; a quantitative research approach, a positivist philosophical paradigm, a longitudinal research design and quantitative secondary data. The data was quantitatively analysed using E-views 12. The study used multiple regression analysis in order to model the association between regional integration and economic advancement. The research project made a hypothesis of regional integration positively influencing the economic advancement of SADC member nations. To ensure scientific accountability the study did the following; a) in order to account for validity, the study choose variables that properly capture the influence of regional integration on economic advancement; b) in order to account for reliability, the study choose variables that were deployed by most of the past researchers who did empirical research on the influence of regional integration on economic advancement; c) in order to ensure replication of the research results, all the research methodologies and data deployed in the study were clearly spelled out

CHAPTER FOUR: EMPIRICAL ANALYSIS

Chapter four provides findings of the study. The findings are the result of using empirical analysis on a subset of six out of the fifteen SADC nations. Botswana, South Africa, Angola, the Democratic Republic of Congo, Lesotho, and Eswatini. The chapter contains three segments. Stationarity (a word that is used in place of the concept of unit root throughout the research project) testing (using the Augmented Dickey Fuller test) is the main topic of the first segment. Estimating a multiple regression model (using the least squares method) is the main topic of the second segment. Testing hypothesis (using the Wald test) is the main topic of the last segment.

4.1 Stationarity test

The research project performed stationarity testing prior to estimating regression models. This was done in an attempt to eliminate the issue of spurious regression. Spurious regression should be avoided because it shows a false relationship between variables (Wooldridge, 2016). In particular when spurious regression is present, a relationship between variables exists not because there is causality between them, but because these variables are trending together (Wooldridge, 2016). Thus, spurious regression makes unrelated variables seem as if they have a relationship (Wooldridge, 2016).

4.1.1 Augmented Dickey Fuller test

Botswana, South Africa, Angola, the Democratic Republic of Congo, Lesotho, and Eswatini were the six nations to which the stationarity test was applied. The GNI per capita, Trade Integration Index (TII), Productive Integration Index (PII), Macroeconomic Integration Index (MII), Infrastructural Integration Index (III), and the Free Movement of People Index (FMPI) were the six variables for each country that were subjected to the Augmented Dickey Fuller (ADF) stationarity test.

4.1.1.1 Angola

Table1: Stationarity tests on Angola

Variable	GNI per capita			Trade Integration Index	Productive Integration Index			Macroeconomic Integration Index	Infrastructural Integration Index			Free Movement of People Index	
	levels	1 st diff	2 nd diff	Levels	Level	1 st diff	2 nd diff	Levels	Levels	1 st diff	2 nd diff	Levels	1 st diff
The Probability value	0.1675	0.0933	0.0440	0.0500	0.1470	0.0852	0.0408	0.0001	0.6076	0.1723	0.0396	0.2545	0.0002
The ADF test critical value at 5% level	-4.11	-4.25	-4.77	-3.21	-4.11	-4.25	-4.450	-1.988	-4.008	-3.065	-4.25	-1.98	-2.00
ADF test statistic	-3.09	-0.639	-5.122	-3.513	-3.200	-2.830	-4.847	-314.225	-1.850	-3.06	-4.25	-1.022	-5.609

Table 1 presents selected output of the ADF test on GNI per capita, trade integration index, productive integration index, macroeconomic integration index, infrastructural index and free movement of people index of Angola. For each variable the hypothesis can be written as follows:

H₀: Variable is not stationary

H₁: Variable is stationary

$\alpha = 0, 05$

For example, when conducting stationarity testing for GNI per capita the hypothesis would be written as follows:

H₀: GNI per capita is not stationary

H₁: GNI per capita stationary

$\alpha = 0, 05$

To test whether a variable is stationary or not the study compared the contingency value (a phrase that is used in place of the notion of the probability value throughout the dissertation) against the degree of statistical importance (a phrase that is used in place of the notion of the level of significance throughout the dissertation). When the contingency value is greater than the degree of statistical importance, the null hypothesis that a variable is not stationary will not be rejected. For example, in table 1 the contingency value (0,1675) of GNI per capita is greater than the degree of statistical importance (0,05) and the null hypothesis that GNI per capita is not stationary was not rejected. The null hypothesis is rejected when the contingency value is less than (or equal) to the statistical value. For example, the study rejected the null hypothesis that trade integration index is not stationary because the contingency value (0,0500) is equal to the degree of statistical importance (0,05).

In table 1 GNI per capita is stationary, Productive integration index and infrastructural integration index are all variables that are stationary after second difference. GNI per capita is stationary at second difference because the null hypothesis that GNI per capita is not stationary is only rejected when the stationarity test is conducted at second difference in which the contingency value (0.0440) is less than the degree of statistical importance (0,05). The same thing can be said about Productive integration, as the contingency value (0.0408) is less than the degree of statistical importance (0,05) at second difference. Similarly, Infrastructural Integration Index is stationary at second difference as the contingency value (0.0396) is less than the degree of statistical importance (0,05) at second difference. Free Movement of People Index is stationary at 1st difference. This is because the null hypothesis that Free Movement of People is not stationary is rejected when the test stationarity is conducted at 1st difference in which the contingency value (0.0002) is less than the degree of statistical importance (0,05). The Trade Integration Index and the Macroeconomic Integration Index are both stationary at levels as these variable are stationary when we conduct stationarity test at levels.

4.3.1.2 Botswana

Table 2: Stationarity tests on Botswana

Variable	GNI per capita			Trade Integrati on Index	Productive Integration Index			Macroecono mic Integration Index	Infra struc tural Inte grati on Inde x	Free Movement of People			
	Level s	1 st diff	2 nd diff	Levels	Level s	1 st diff	2 nd diff	Levels	l e v e l s	1 st diff	2 nd diff		
The Probabili ty value	0.2212	0.0780	0.0170	0.0046	0.1233	0.2417	0.0248	0.0001	0.059	0.011	0.015	0.2057	0.0005
The ADF test critical value at 5% level	-3.212	-3.321	-3.322	-4.108	-4.208	-4.2465	-4.450	-1.9882	-4.088	-4.010	-4.005	-1.9823	-1.996
ADF test statistic	-2.190	-2.985	-4.157	-6.329	-3.349	-2.800	-5.800	-8.812	-2.666	-3.002	-3.254	-1.166	-4.730

Table 2 presents selected output of the ADF test on GNI per capita, trade integration index, productive integration index, macroeconomic integration index, infrastructural index and free movement of people index of Botswana. GNI per capita, Productive Integration Index and the Infrastructural Integration Index are variables that are stationary after second difference. For all of these variables, the null hypothesis that the variable is not stationary is rejected when we test for stationarity at second difference. This is because each of these variables's

contingency value (0.0170 for GNI per capita, 0.0248 for the productive integration index and 0,0415 for infrastructural integration index) is less than the degree of statistical importance (0,05) only at second difference. The Free Movement of People index is stationary at first difference as it is at first difference that the null hypothesis that Free Movement of People index is not stationary is rejected. Trade Integration Index and the Macroeconomic Integration Index are variables that are stationary at levels as these variable are stationary when we conduct stationarity test at levels.

4.1.1.3 The Democratic Republic of Congo

Table3: Stationarity tests on Democratic Republic of Congo

Variable	GNI per capita			Trade integration index	Productive Integration Index			Macroeconomic Integration Index	Infrastructural Integration Index			Free Movement of People Index	
	levels	1 st diff	2 nd diff	Levels	Levels	1 st diff	2 nd diff	levels	levels	1 st diff	2 nd diff	levels	1 st diff
The Probability value	0.8949	0.1284	0.0389	0.0450	0.1031	0.0890	0.08110	0.0001	0.6165	0.1377	0.0183	0.2445	0.0002
The ADF test critical value at 5% level	-4.108	-4.250	-4.773	-3.213	-4.008	-4.2465	-4.645	-1.988	-4.008	-4.108	-4.450	-1.98	-1.9958
ADF test statistic	-0.944	-3.381	-5.576	-3.283	-3.403	-2.616	-5.738	-307.921	-1.831	-3.254	-7.518	-1.050	-5.3865

Table 3 presents selected output of the ADF test on GNI per capita, trade integration index, productive integration index, macroeconomic integration index, infrastructural index and free movement of people index of Democratic Republic of Congo. GNI per capita, Productive Integration Index and the Infrastructural Integration Index are variables that are stationary after second difference. For all of these variables, the null hypothesis that the variable is not stationary is rejected when we test for stationarity at second difference. This is because

each of these variables's contingency value (0.0389 for GNI per capita, 0.0110 for the productive integration index and 0.0183 for infrastructural integration index) is less than the degree of statistical importance (0,05) only at second difference. The Free Movement of People index is stationary at first difference as it is at first difference that the null hypothesis that Free Movement of People index is not stationary is rejected. Trade Integration Index and the Macroeconomic Integration Index are variables that are stationary at levels.

4.1.1.4 Eswatini

Table 4: Stationarity tests on Eswatini

Variable	GNI per capita			Trade Integrati on Index	Producti ve Integrati on Index	Macroecono mic Integration Index	Infrastructur al Integration Index		Free Moveme nt of People Index
	Level	1 st diff	2 nd diff	Levels	Levels	Levels	level s	1 st diff	1 st diff
The Probabil ity value	0.1033	0.5844	0.0481	0.0071	0.0421	0.0010	0.6119	0.0169	0.0453
The ADF test critical value at 5% level	-4.1078	-4.2465	-4.773	-4.1078	-8.0082	-1.99	-4.008	-4.108	-4.108
ADF test statistic	-3.5150	-1.8677	-6.02	-5.8710	-13.98	-301.8036	-1.84	-8.08	-61.08

Table 4 presents selected output of the ADF test on GNI per capita, trade integration index, productive integration index, macroeconomic integration index, infrastructural index and free movement of people index of Eswatini. Trade Integration Index, Productive Integration index, the Macroeconomic Integration Index and the Free Movement of People Index are I(0) variables. I(0) variables are variables that are stationary at levels. Infrastructural Integration Index is an I(1). An I(1) variable is a variable that is stationary after difference. Productive Integration Index is an I(2) variable. An I (2) variable is a variable that is stationary after second difference.

4.1.1.5 Lesotho

Table 5: Stationarity tests on Lesotho

Variable	GNI per capita			Trade Integration Index	Productive Integration Index	Macroeconomic Integration Index	Infrastructural Integration Index			Free Movement of People Index	
	Levels	1 st diff	2 nd diff	Levels	Levels	Levels	levels	1 st diff	2 nd diff	level	1 st diff
The Probability value	0.7846	0.2368	0.0244	0.0046	0.0453	0.0030	0.6192	0.1507	0.0324	0.2710	0.0101
The ADF test critical value at 5% level	-3.321	-3.403	-3.695	-4.108	-4.008	-1.988	-4.008	-4.1078	-4.2465	-1.9823	-1.996
ADF test statistic	-0.722	-2.140	-4.50	-6.324	-4.091	-299.93	-3.461	-3.181	-4.6740	-0.977	-6.006

Table 5 presents selected output of the ADF test on GNI per capita, trade integration index, productive integration index, macroeconomic integration index, infrastructural index and free movement of people index of Lesotho. Infrastructural Integration Index and the GNI per capita can be classified as I(2) variables. The Free Movement of People Index can be classified as a I(1) variable. The Trade Integration Index, the Productive Integration Index and the Macroeconomic Integration Index can all be classified as I(0) variables.

4.1.1.6 South Africa

Table 6: Stationarity test on South Africa

Variable	GNI per capita	Trade Integration Index	Productive Integration Index			Macroeconomic Integration Index	Infrastructural Integration Index		Free Movement of People Index	
	Levels	level	level	1 st diff	2 nd diff	levels	levels	1 st diff	levels	1 st diff
The Probability value	0.0140	0.0023	0.2571	0,0933	0,0273	0,0059	0,0901	0,0107	0,2057	0,0005
The ADF test critical value at 5% level	-3.212	-4.1078	-4.0081	-4.108	-4.450	-1.988	-3.212	-3.26	-1.98	-2.00
ADF test statistic	-4.0684	-7.0345	-2.702	-3.801	-9.125	-265.3245	-2.8175	-4.3681	-1.166	-4.730

Table 6 presents selected output of the ADF test on GNI per capita, trade integration index, productive integration index, macroeconomic integration index, infrastructural index and free movement of people index of Lesotho. The Free Movement of People Index and the Infrastructural Integration Index can be regarded as a I(1) variables. I(1) stands for first order of integration. GNI per capita, the Trade Integration Index and the Macroeconomic Integration Index can all be classified as I(0) variables. I(0) stands for zero order of integration. The Productive Integration Index can be regarded as an I(2) variable. I(2) stands for second order of integration.

4.2 Regression analysis

In chapter three the study formulated the following model in order to model the relationship between economic advancement and regional integration:

$$Y_{it} = \beta_{0i} + \beta_1 TII_{it} + \beta_2 PII_{it} + \beta_3 MII_{it} + \beta_4 III_{it} + \beta_5 FMPI_{it} + U_{it}$$

Y is GNI per capita (a measure of economic advancement), TII is the Trade integration index, PII is the Productive Integration Index, MII is the Macroeconomic Integration Index, III is the Infrastructural Integration index, FMPI is the Free Movement of People Index, i denotes a country and t denotes a year, and U is the error term. Subsequent to the formulation of the above-mentioned model, the study applied regression analysis (using the method of the

least squares) to forecast the above-mentioned model. Angola, Botswana, the Democratic Republic of Congo, Eswatini, Lesotho and South Africa and are the six nations to which the above multiple regression model was forecasted.

Angola

Table 7: Selected out of the least squares method

Variable	Coefficient
C	5618.704
TII	2173.563
PII	751.4307
MII	5.91
III	5549.459
FMPI	919.3914

$$Gni\ per\ capit = 5618,704 + 2173,56TII + 751,4307PII + 5,91MII + 5549,46III + 919,39FMPI$$

Table 7 presents the selected output of the least squares method using the data for Angola and this output was created through the utilization of E-views 12. In the above model TTI is the Trade Integration Index, PPI is the Productive Integration Index, MII is the Macroeconomic Integration Index and FMPI is the Free Movement of People index. This is a mutiple regression model in which TTI, PII, MII and FMP are independent variables and GNI per capita is a dependent variable. When the independent variables (TTI, PII, MII, III and FMPI) have zero values, the value of GNI per capita will be 5618,704. When TTI increases by a single unit GNI per capita increases by 2173,56 holding other independent variables (PII, MII, III and FMPI) constant. The value of GNI per capita increases by 751,43 when PII increases by a single unit, holding other independent variables (TTI, MII, III and FMPI) constant. When MII increases by a single unit, GNI per capita increases by 5,91 holding other independent variables (TTI, PII, III and FMPI) constant. The value of GNI per capita increases by 5549,56 units when III increases by a single unit, holding other independent variables (TTI, PIII, MII and FMPI) constant. When FMPI increases by a single unit, GNI per capita increases by 919.3914 holding other independent variables (TTI, PII, MII and III)

constant. All of the independent variables have a positive influence on GNI per capita. This shows that raising any of the independent variables (holding other factors constant) raises GNI per capita. Since the independent variables capture the influence of regional integration on GNI per capita and an increase in any of these variables (other factors remaining unchanged) leads to a rise in GNI per capita, the research project concludes that in the case of Angola there is a positive relation between regional integration and economic advancement in which an increase in regional integration leads to an improvement in economic advancement.

Botswana

Table 8: Selected output of the least squares method

Variable	Coefficient
C	15442.37
TII	1118.088
PII	3298.893
MII	12.200
III	2376
FMPI	1496.001

$$Gni\ per\ capit = 15442,37 + 1118,09TII + 3298,89PII + 12,200MII + 2376,78III + 1496FMPI$$

Table 8 presents the selected output of the least squares method using the data for Botswana and this output was created through the utilization of E-views 12. When the independent variables (TII, PII, MII, III and FMPI) have zero values, the value of Gni per capita will be 15442,37. When TTI increases by a single unit GNI per capita increases by 1118,09 holding other independent variables (PII, MII, III and FMPI) constant. The value of GNI per capita increases by 3298,89 when PII increases by a single unit, holding other independent variables (TTI, MII, III and FMPI) constant. When MII increases by a single unit, GNI per capita increases by 12,200 holding other independent variables (TTI, PII, III and FMPI) constant. The value of GNI per capita increases by 2376,78 units when III

increases by a single unit, holding other independent variables (TTI, PIII, MII and FMPI) constant. When FMPI increases by a single unit, GNI per capita increases by 1496 holding other independent variables (TTI, PII, MII and III) constant. All of the independent variables have a positive influence on GNI per capita. This shows that raising any of the independent variables (holding other factors constant) raises GNI per capita. Since the independent variables capture the influence of regional integration on GNI per capita and an increase in any of these variables (other factors remaining unchanged) leads to a rise in GNI per capita, the research project concludes that in the case of Botswana there is a positive relation between regional integration and economic advancement in which an increase in regional integration leads to an improvement in economic advancement .

Democratic Republic of Congo

Table 9: Selected out of the least squares method

Variable	Coefficient
C	1019.577
TII	76.62
PII	479.1122
MII	0.81
III	85.03
FMPI	133.69

$$Gni\ per\ capita = 1019,58 + 76,62TII + 479,1122PII + 0,81MII + 85,03III + 133,69FMPI$$

Table 9 presents the selected output of the least squares method using the data for the Democratic Republic of Congo and this output was created through the utilization of E-views 12. When the independent variables (TII, PII, MII, III and FMPI) have zero values, the value of Gni per capita will be 1019,58. When TTI increases by a single unit GNI per capita increases by 76,62 holding other independent variables (PII, MII, III and FMPI) constant. The value of GNI per capita increases by 479,11 when PII increases by a single unit, holding other independent variables (TTI, MII, III and FMPI) constant. When MII increases by a single unit, GNI per capita increases by 0,81 holding other independent variables (TTI, PII, III and FMPI) constant. The value of GNI per capita increases by 85,03 units when III

increases by a single unit, holding other independent variables (TTI, PIII, MII and FMPI) constant. When FMPI increases by a single unit, GNI per capita increases by 133,68 holding other independent variables (TTI, PII, MII and III) constant. All of the independent variables have a positive influence on GNI per capita. This shows that raising any of the independent variables (holding other factors constant) raises GNI per capita. Since the independent variables capture the influence of regional integration on GNI per capita and an increase in any of these variables (other factors remaining unchanged) leads to a rise in GNI per capita, the research project concludes that in the case of the Democratic Republic of Congo there is a positive relation between regional integration and economic advancement in which an increase in regional integration leads to an improvement in economic advancement .

Eswatini

Table 10: Selected out of the least squares method

Variable	Coefficient
C	8451.29
TII	971.3156
PII	4765.938
MII	0.497
III	1525.134
FMPI	543.7904

Gni per capita

$$= 8451,29 + 971,32TII + 4765,94PII + 0,50MII + 1525,13III + 543,79FMPI$$

Table 10 presents the selected output of the least squares method using the data for Eswatini and this output was created through the utilization of E-views 12. When the independent variables (TII, PII, MII, III and FMPI) have zero values, the value of GNI per capita will be 8451,29. When TTI increases by a single unit GNI per capita increases by 971,32 holding other independent variables (PII, MII, III and FMPI) constant. The value of GNI per capita increases by 4765,94 when PII increases by a single unit, holding other independent variables (TTI, MII, III and FMPI) constant. When MII increases by a single unit, GNI per capita increases by 0,50 holding other independent variables (TTI, PII, III and

FMPI) constant. The value of GNI per capita increases by 1525,13 units when III increases by a single unit, holding other independent variables (TTI, PIII, MII and FMPI) constant. When FMPI increases by a single unit, GNI per capita increases by 543,80 holding other independent variables (TTI, PII, MII and III) constant. All of the independent variables have a positive influence on GNI per capita. This shows that raising any of the independent variables (holding other factors constant) raises GNI per capita. Since the independent variables capture the influence of regional integration on GNI per capita and an increase in any of these variables (other factors remaining unchanged) leads to a rise in GNI per capita, the research project concludes that in the case of Eswatini there is a positive relation between regional integration and economic advancement in which an increase in regional integration leads to an improvement in economic advancement .

Lesotho

Table 11: Selected out of the least squares method

Variable	Coefficient
C	2738.582
TII	14.456
PII	892.2873
MII	1.0959
III	838.4282
FMPI	239.2351

$$Gni\ per\ capita = 2738,58 + 14,46TII + 892,28PII + 1,10MII + 838,42III + 239,24FMPI$$

Table 11 presents the selected output of the least squares method using the data for Lesotho and this output was created through the utilization of E-views 12. When the independent variables (TII, PII, MII, III and FMPI) have zero values, the value of GNI per capita will be 27389. When TTI increases by a single unit GNI per capita increases by 14,46 holding other independent variables (PII, MII, III and FMPI) constant. The value of GNI per capita increases by 892,28 when PII increases by a single unit, holding other independent variables (TTI, MII, III and FMPI) constant. When MII increases by a single unit, GNI per capita

increases by 1,10 holding other independent variables (TTI, PII, III and FMPI) constant. The value of GNI per capita increases by 838,43 units when III increases by a single unit, holding other independent variables (TTI, PIII, MII and FMPI) constant. When FMPI increases by a single unit, GNI per capita increases by 239,24 holding other independent variables (TTI, PII, MII and III) constant. All of the independent variables have a positive influence on GNI per capita. This shows that raising any of the independent variables (holding other factors constant) raises GNI per capita. Since the independent variables capture the influence of regional integration on GNI per capita and an increase in any of these variables (other factors remaining unchanged) leads to a rise in GNI per capita, the research project concludes that in the case of Lesotho there is a positive relation between regional integration and economic advancement in which an increase in regional integration leads to an improvement in economic advancement .

South Africa

Table 12: Selected out of the least squares method

Variable	Coefficient
C	13595.87
TII	81.061
PII	327.7135
MII	1.413
III	383.2496
FMPI	233.7524

$$Gni\ per\ capita = 13595,87 + 81,06TII + 327,71PII + 1,41MII + 383,25III + 233,75FMPI$$

Table 12 presents the selected output of the least squares method using the data for South Africa and this output was created through the utilization of E-views 12. When the independent variables (TII, PII, MII, III and FMPI) have zero values, the value of GNI per capita will be 13595,87. When TTI increases by a single unit GNI per capita increases by 81,06 holding other independent variables (PII, MII, III and FMPI) constant. The value of GNI per capita increases by 327,71 when PII increases by a single unit, holding other independent variables (TTI, MII, III and FMPI) constant. When MII increases by a single unit,

GNI per capita increases by 1,41 holding other independent variables (TTI, PII, III and FMPI) constant. The value of GNI per capita increases by 383,25 units when III increases by a single unit, holding other independent variables (TTI, PIII, MII and FMPI) constant. When FMPI increases by a single unit, GNI per capita increases by 233,75 holding other independent variables (TTI, PII, MII and III) constant. All of the independent variables have a positive influence on GNI per capita. This shows that raising any of the independent variables (holding other factors constant) raises GNI per capita. Since the independent variables capture the influence of regional integration on GNI per capita and an increase in any of these variables (other factors remaining unchanged) leads to a rise in GNI per capita, the research project concludes that in the case of South Africa there is a positive relation between regional integration and economic advancement in which an increase in regional integration leads to an improvement in economic advancement .

4.3 Hypothesis testing

In chapter three the study made the following hypothesis:

Ho: $\beta=0$

H1: $\beta>0$

The null hypothesis stated that regional integration does not have an influence on the economic advancement of SADC member nations. The contrasting hypothesis stated that regional integration has a positive influence on the economic advancement of SADC member nations. In this chapter the study tested these hypothesis. The influence of regional integration on economic advancement was captured by several independent variables; Trade Integration Index, Productive Integration Index, Macroeconomic Integration Index, Infrastructural Integration Index and the Free Movement of People Index. As a result, the study needed to test for joint statistical significance. To achieve this the study made use of the Wald test.

4.3.1 The Wald test

4.3.1.1 Angola

Table 13: Selected out of the Wald test

	Probability
F-statistic	0.0254

$H_0: \beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = 0$

H_1 : there is no truth to the null hypothesis

$\alpha = 0,05$

Table 13 presents the selected output of the Wald test using the data on Angola and this output was created through the utilization of E-views 12. The independent variables (Trade Integration Index, Productive Integration Index, Macroeconomic Integration Index, Infrastructural Integration Index, and the Free Movement of People Index) do not have an influence on GNI per capita, according to the null hypothesis. The independent variables jointly have an influence on GNI per capita, according to the contrasting hypothesis. The Wald test's F-statistic probability value (0,0254) is surpassed by the degree of statistical importance (0,05). As a result, at a five percent degree of statistical importance the null hypothesis that the independent variables jointly do not have an influence on GNI per capita is rejected and the research project concludes that all of the independent variables have an influence on GNI per capita. The independent variables capture the influence of regional integration on economic advancement (measured by GNI per capita) and as these independent variables are found to be statistically significant, it means that the contrasting hypothesis that regional integration has a positive influence on economic advancement is correct. Meaning that a rise in regional integration leads to an improvement in economic advancement.

4.3.1.2 Botswana

Table 14: Selected out of the Wald test

	Probability
F-statistic	0.0225

H0: $\beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = 0$

H1: there is no truth to the null hypothesis

$\alpha = 0,05$

Table 14 presents the selected output of the Wald test using the data on Botswana and this output was created through the utilization of E-views 12. The independent variables (Trade Integration Index, Productive Integration Index, Macroeconomic Integration Index, Infrastructural Integration Index, and the Free Movement of People Index) do not have an influence on GNI per capita, according to the null hypothesis. The independent variables jointly have an influence on GNI per capita, according to the contrasting hypothesis. The Wald test's F-statistic probability value (0,0225) is surpassed by the degree of statistical importance (0,05). As a result, at a five percent degree of statistical importance the null hypothesis that the independent variables jointly do not have an influence on GNI per capita is rejected and the research project concludes that all of the independent variables have an influence on GNI per capita. The independent variables capture the influence of regional integration on economic advancement (measured by GNI per capita) and as these independent variables are found to be statistically significant, it means that the contrasting hypothesis that regional integration has a positive influence on economic advancement is correct. Meaning that a rise in regional integration leads to an improvement in economic advancement.

4.3.1.3 Democratic Republic of Congo

Table 15: Selected out of the Wald test

	Probability
F-statistic	0.0452

H0: $\beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = 0$

H1: there is no truth to the null hypothesis

$\alpha = 0,05$

Table 15 presents the selected output of the Wald test method using the data on the Democratic Republic of Congo and this output was created through the utilization of E-views 12. The independent variables (Trade Integration Index, Productive Integration Index, Macroeconomic Integration Index, Infrastructural Integration Index, and the Free Movement of People Index) do not have an influence on GNI per capita, according to the null hypothesis. The independent variables jointly have an influence on GNI per capita, according to the contrasting hypothesis. The Wald test's F-statistic probability value (0,0452) is surpassed by the degree of statistical importance (0,05). As a result, at five percent degree of statistical importance the null hypothesis that the independent variables jointly do not have an influence on GNI per capita is rejected and the research project concludes that all of the independent variables have an influence on GNI per capita. The independent variables capture the influence of regional integration on economic advancement (measured by GNI per capita) and as these independent variables are found to be statistically significant, it means that the contrasting hypothesis that regional integration has a positive influence on economic advancement is correct. Meaning that a rise in regional integration leads to an improvement in economic advancement.

4.3.1.4 Eswatini

Table 16: Selected out of the Wald test

	Probability
F-statistic	0.0123

H0: $\beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = 0$

H1: there is no truth to the null hypothesis

$\alpha = 0,05$

Table 16 presents the selected output of the Wald test method using the data on Eswatini and this output was created through the utilization of E-views 12. The independent variables (Trade Integration Index, Productive Integration Index, Macroeconomic Integration Index, Infrastructural Integration Index, and the Free Movement of People Index) do not have an influence on GNI per capita, according to the null hypothesis. The independent variables jointly have an influence on GNI per capita, according to the contrasting hypothesis. The Wald test's F-statistic probability value (0,0123) is surpassed by the degree of statistical importance (0,05). As a result, at five percent degree of statistical importance the null hypothesis that the independent variables jointly do not have an influence on GNI per capita is rejected and the research project concludes that all of the independent variables have an influence on GNI per capita. The independent variables capture the influence of regional integration on economic advancement (measured by GNI per capita) and as these independent variables are found to be statistically significant, it means that the contrasting hypothesis that regional integration has a positive influence on economic advancement is correct. Meaning that a rise in regional integration leads to an improvement in economic advancement.

4.3.1.5 Lesotho

Table 17: Selected out of the Wald test

	Probability
F-statistic	0.0182

H0: $\beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = 0$

H1: there is no truth to the null hypothesis

$\alpha = 0,05$

Table 17 presents the selected output of the Wald test method using the data on Lesotho and this output was created through the utilization of E-views 12. The independent variables (Trade Integration Index, Productive Integration Index, Macroeconomic Integration Index, Infrastructural Integration Index, and the Free Movement of People Index) do not have an influence on GNI per capita, according to the null hypothesis. The independent variables jointly have an influence on GNI per capita, according to the contrasting hypothesis. The Wald test's F-statistic probability value (0,0182) is surpassed by the degree of statistical importance (0,05). As a result, at a five percent degree of statistical importance the null hypothesis that the independent variables jointly do not have an influence on GNI per capita is rejected and the research project concludes that all of the independent variables have an influence on GNI per capita. The independent variables capture the influence of regional integration on economic advancement (measured by GNI per capita) and as these independent variables are found to be statistically significant, it means that the contrasting hypothesis that regional integration has a positive influence on economic advancement is correct. Meaning that a rise in regional integration leads to an improvement in economic advancement.

4.3.1.6 South Africa

Table 18: Selected out of the Wald test

	Probability
F-statistic	0.0500

H0: $\beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = 0$

H1: there is no truth to the null hypothesis

$\alpha = 0,05$

Table 18 presents the selected output of the Wald test method using the data on South Africa and this output was created through the utilization of E-views 12. The independent variables (Trade Integration Index, Productive Integration Index, Macroeconomic Integration Index, Infrastructural Integration Index, and the Free Movement of People Index) do not have an influence on GNI per capita, according to the null hypothesis. The independent variables jointly have an influence on GNI per capita, according to the contrasting hypothesis. The Wald test's F-statistic probability value (0,0500) is surpassed by the degree of statistical importance (0,05). As a result, at five percent degree of statistical importance the null hypothesis that the independent variables jointly do not have an influence on GNI per capita is rejected and the research project concludes that all of the independent variables have an influence on GNI per capita. The independent variables capture the influence of regional integration on economic advancement (measured by GNI per capita) and as these independent variables are found to be statistically significant, it means that the contrasting hypothesis that regional integration has a positive influence on economic advancement is correct. Meaning that a rise in regional integration leads to an improvement in economic advancement.

Chapter summary

Using the Augmented Dickey Fuller test, the chapter started with a unit root test before forecasting regression models. This was done in an attempt to avoid spurious regression. The unit root test was applied on six countries; Angola, Botswana, Democratic Republic of Congo, Eswatini, Lesotho and South Africa. For each country the Augmented Dickey Fuller Unit root test was applied on six variables; GNI per capita, Trade Integration Index (TII), Productive Integration Index (PII), Macroeconomic Integration Index (MII), Infrastructural Integration Index (III) and the Free Movement of People Index (FMPI). Different variables yielded distinct outcomes from the unit root testing, as it was discovered that certain variables were stationary at levels, whereas others remained stationary following the first and second differences. After focusing on unit root testing, the chapter then focused on multiple regression analysis. The second section focuses on forecasting a multiple regression model using the least squares method. The last section of the chapter focused on hypothesis testing. The study needed to test for joint statistical significance. To achieve this the study made use of the Wald test. In testing the hypothesis, the F-statistic probability value of the Wald test was compared to the degree of statistical importance. The rejection of the null hypothesis occurred when the Wald test's F-statistic probability value was below the degree of statistical importance.

CHAPTER FIVE: CONCLUSION

The research project had three objectives. Investigating empirically how regional integration influences the economic advancement of the Southern African Development Community (SADC) SADC member nations was the main objective. Testing the hypothesis (a word that is used in place of the term hypothesis throughout the dissertation) that regional integration has a beneficial influence on the economic advancement of SADC member nations was the secondary objective. Finding the major hurdles that render regional integration under SADC ineffective towards economic advancement was the study's final objective. The first two objectives have been achieved as the study used a multiple regression analysis to empirically assess the influence of regional integration on the economic advancement of SADC member nations and the study has also made use of the Wald test in order to test the hypothesis that regional integration has a beneficial influence on the economic advancement of SADC member countries. The study now focuses on the third objective. As a result, the study concludes by outlining challenges to Southern African regional integration and offering recommendations on how to address these challenges. As mentioned in the problem statement, Southern African regional integration under SADC has been ineffective towards economic advancement. As a result, Southern Africa has not yet adequately reaped the benefits engaging in regional integration. This is caused by the occurrence of binding constraints to effective regional integration in SADC. The following factors are the main blocks to effective regional integration in SADC regional integration arrangement:

A) The hegemony of South Africa

South Africa's overwhelming regional economic dominance (which is one of the features of its hegemony), threatens the goal of regional integration (achieving equity and mutual benefit among member countries) (Kimenyi and Kuhlmann, 2019: 11). The hegemony creates a zero-sum game in which South Africa economically gains most from engaging in regional integration at the expense of other SADC member countries (Mapuva and Mapuva, 2014:29). Mapuva and Mapuva (2014: 29) agree with this viewpoint by remarking that South Africa's long term economic gains from regional integration has often occurred at the expense of the economic benefits of member countries of SACU and SADC. Therefore, the hegemony of South Africa in SADC has led to unequal benefits in relation to regional integration in SADC (Chingono and Nakana, 2009: 29). By bringing about an unequal

distribution of the benefits of regional integration, the hegemony of South Africa both causes and strengthens economic inequalities among the member countries of SADC (Sebek, 2001: 82).

B) Lack of proper infrastructure

Extremely poor infrastructure, particularly in the area of transportation, is one of the major hindrances to attaining genuine regional integration in SADC (Kimenyi and Kuhlmann, 2019: 10). Transport, information communications technology, electricity and trans-boundary water are the main core elements of infrastructure (Girma, 2020: 20). According to the 2010 World Bank Africa infrastructure country diagnostic study, SADC has a deficit in each of the abovementioned components of infrastructure. When SADC member countries gained independence, they inherited infrastructure that was deficient and the majority of them have been unable to make significant improvements as they lack resources to invest in capital formation (Gardachew, Kefale and Antiegn, 2019:6).

C) Limited diversification

Non-diversification of exports is considered to be one of the major factors explaining the poor trade performance of SADC. To a large extent, SADC countries rely on exporting primary commodities (such as minerals, oil and agricultural commodities) to developed countries and they are exported in their raw form (Kimenyi and Kuhlmann, 2019:11). Exporting primary commodities in their raw form leaves SADC countries without any additional processing or value added to their exports (Kimenyi and Kuhlmann, 2019: 11). It makes the value of the exports of SADC countries to be significantly lower than it would be if the raw materials were processed (Kimenyi and Kuhlmann, 2019: 11). Lacking the industrial capacity to transform raw materials into manufactured goods to a huge extent, accounts for SADC countries exporting primary commodities (Kimenyi and Kuhlmann, 2019: 11). SADC member countries have similar exports to each other as they have a similar production structure (Ngarachu et al., 2018). Having similar exports severely limits intra-regional trade as scholars argue that countries typically trade more with each other when their exports are diversified. According to Ngarachu et al (2018) lack of diversification of exports has led to disappointing trade performance between SADC member nations. The authors argue that producing and exporting goods that are similar allows little trade between countries in a region as it does not make sense for countries to import what they already have in abundance (primary commodities) (Ngarachu et al., 2018).

D) Intra-SADC trade imbalances

Analysis of intra-SADC trade data indicates that trade between each of the other member state and South Africa accounts for the majority of regional trade within the SADC (Habiyaemye, 2022: 489). The country has always dominated the regions intra-regional trade accounting for more than 50% of the SADC's exports (Habiyaemye, 2022: 489). Furthermore, South Africa exports more than five times the number of commodities it imports from the region (Habiyaemye, 2022: 489). When we take South Africa's trade patterns with SADC member countries out of the equation, SADC's regional trade would be considerable lower (Lorrah, 2019: 57).

E) Lack of complementarity and harmonization of policies

When SADC countries gained independence, they embraced a variety of ideologies, including South Africa's rainbow nation, Zambia's humanism, Tanzania's African socialism and Mozambique's socialism (Chingono and Nakana 2008: 403). These differences in ideologies have led to different political and economic systems that do not complement each other (Chingono and Nakana 2008: 403). In order to achieve tighter economic and political integration, member countries of a regional organization must have complementary political and economic systems (Habiyaemye 2022: 489). Regional integration is predicated on having complementary economic policies and productive structures, according to Chingono and Nakana (2008: 402).

F) The heterogeneity of SADC economies

The SADC nations are symbolised by stark disparities and economic disparities (Mapuva and Mapuva, 2014: 29). The variations and degrees of economic status are where these disparities and inequities in the economy are most evident (Mapuva and Mapuva, 2014: 29). As a result, the economies of the SADC member nations vary in size and in terms of their rates of growth and economic advancement (Nyirabu 2004: 29). South Africa, Namibia, Mauritius, Botswana, Seychelles, and Eswatini are among the seven SADC member countries that the World Bank classified as developing in 2004, the remaining seven countries, Mozambique, Zambia, Lesotho, Tanzania, Angola, Malawi, and, Congo are classified as least developed (Nyirabu, 2004: 29). This presents a serious problem to regional integration because "one of the conditions for successful regional integration requires that regional partners be more or less on the same level of economic advancement" (Lorrah, 2019: 59).

G) Surrendering sovereignty

Southern Africa has not fully applied the principle of supra-nationality (Nyirabu, 2010). This is demonstrated by the fact that the SADC member nations have not fully shifted their loyalties to the ideals of a supranational authority (Olaniyan, 2008: 6). Regional integration requires countries to surrender some aspects of their sovereignty to a new centre (a supranational entity) (Uzodike, 2009). According to Lorrah (2019: 71), sovereignty is the highest legal power that a nation possesses to establish and uphold laws inside a specific territory as well as its independence from the authority of other nations. Although countries in Southern Africa willingly enter into SADC, most of them are not ready to cede power and authority to their regional body (Dinka and Kennes, 2007). As a result, the majority of SADC member countries are reluctant to create a supranational body and transfer power to it (Geda and Kibret, 2002).

The study has provided empirical evidence (by finding the hypothesis that regional integration has a positive influence on economic advancement to be correct) that regional integration improves economic advancement. However, in order for SADC member countries to economically benefit from regional integration they will need to tackle the above-mentioned blocks to effective regional integration. In light of this, the research project suggests that SADC member countries take the following actions:

- Create an investment fund into which participating nations will contribute a set amount each month to support member state infrastructure projects and increased capital creation
- Guarantee that the advantages of integration are spread equitably and do not give rise to new types of inequality and establish a standard compensation system.
- Reduce their reliance on exporting primary commodities and transform most of their raw materials into manufactured goods
- Implement measures to encourage ceding of sovereignty to a supranational body such as reducing corruption at regional level.
- Improve the coordination and complementarity of their economic and political policies

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