TAX BURDEN, ECONOMIC DEVELOPMENT, MACRO-ECONOMIC FACTORS AND FOREIGN DIRECT INVESTMENT INFLOWS INTO THE EAST AFRICAN COMMUNITY COUNTRIES

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NOVEMBER, 2016

DECLARATION

This thesis is my original work and has not been submitted to any university for an award.

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ACKNOWLEDGEMENT

DEDICATION

This thesis is dedicated to:

My parents, the late John Wachira Thuku and late Agnes Nyaguthii Mureithi - you gave me the gift of life.

My maternal grandparents, the late Moses Mureithi Ngari and late Wangu Mureithi - you taught me the value of education and started me on the path of education.

My maternal uncle, the late Wanjohi Mureithi - you walked the same path before me.

My dear children George, Wairimu and Wangai - you have endured it all.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF GRAPHS

ABBREVIATIONS AND ACRONYMS

ADF	-	Augmented Dickey-Fuller
AFDI	-	Annual Foreign Direct Investment
ANOVA	-	Analysis of Variance
ARDL	-	Autoregressive Distributed Lag
BRICS	-	Brazil, Russia, India, China and South Africa
CED	-	Composite Economic Development
DTTs	-	Double Taxation Treaties
EAC	-	East Africa Community
EDI	-	Economic Development Indicators
ERR	-	Economic Risk Rating
EU	-	European Union
EXCR	-	Exchange Rates
FDI	-	Foreign Direct Investment
FE	-	Fixed Effect
FRR	-	Financial Risk Rating
GDP	-	Gross Domestic Product
GDPR	-	Gross Domestic Product Growth Rate
GMM	-	Generalized Method of Moments
HCA	-	Human Capital
HFT	-	Heterogeneous Firms Trade
IFR	-	Inflation Rates
IMF	-	International Monetary Fund
INR	-	Interest Rates

JVs	-	Joint-Ventures
LM	-	LaGrange Multiplier
M&A	-	Merger and Acquisitions
MEF	-	Macro-economic Factors
ODA	-	Overseas Development Assistance
OECD	-	Organization of Economic Cooperation and Development
OPE	-	Country Openness
PCA	-	Principal Component Analysis
PRS	-	Political Risk Services
ROI	-	Return on investment
SADC	-	Southern Africa Development Community
SEE	-	South-East Europe
SIZE	-	Market Size
SPSS	-	Statistical Package for Social Science
SSA	-	Sub-Saharan Africa
TAXB	-	Tax Burden
UK	-	United Kingdom
UNCTAD	-	United Nations Conference on Trade and Development
UNSTAT	-	United Nations Statistics
US	-	United States
VAR	-	Vector Autoregressive Models
VAT	-	Value Added Tax
VECM	-	Vector Error Correction Models
WB	-	World Bank
WBDI	-	World Bank Development Indicators

ABSTRACT

Determinants of foreign direct investment (FDI) inflows are numerous and vary from country to country. To advance research on the determinants of FDI inflows, this study offers conceptualisation of the determinant in the East African Community (EAC) countries as tax burden with the relationship significantly influenced by economic development and macro-economic factors. Individual economic development indicators in the study are market size, human capital, country openness and return on investment while the macro-economic factors are GDP growth rates, inflation rates, exchange rates and interest rates. Specifically, the study determined the effect of the tax burden on FDI inflows into the EAC countries; investigated the influence of economic development on the relationship between the tax burden and FDI inflows into the EAC countries; established the influence of macro-economic factors on the relationship between the tax burden and FDI inflows into the EAC countries; and determined the joint effect of the tax burden, economic development, and macro-economic factors on FDI inflows into the EAC countries. Correlational research design was used on secondary data from 2000 to 2013. The research philosophy was positivism. Data analysis and hypotheses tests (ANOVA and regression analyses) were conducted. The study found that in Objective One, tax burden had insignificant negative coefficients, in Objective Two, market size and return on investments as moderating variables had significant positive coefficients, in Objective Three, exchange rate had significant positive coefficients and in Objective Four, tax burden and human capital had significant negative coefficients while market size, country openness, and exchange rate had significant positive coefficients. The study concluded that in the EAC countries, tax burden had insignificant negative effect on FDI inflows. In addition, market size and return on investments as economic development indicators had significant positive moderating influence on the relationship between tax burden and FDI inflows. Further, exchange rate as a macro-economic factor had significant positive partial mediating influence on the relationship between tax burden and FDI inflows into the EAC countries. Moreover, tax burden and human capital had significant negative joint effect, while market size, country openness, and exchange rate had significant positive joint effect on FDI inflows into the EAC countries. The study has several contributions. For policy contribution, the study has demonstrated that tax burden in presence of economic development and macro-economic factors, has significant negative effect on FDI inflows. Therefore, policies to attract increased and consistent volumes of FDI inflows should be focused on tax burden, economic development and macro-economic stability. For theoretical contribution, the negative relationship between tax burden and FDI inflows confirms that tax competition theory, equity theory and political power theory are applicable in the EAC countries. For knowledge contribution, this is one of the few studies on the subject based in EAC countries; the study forms a base for further research in taxation and international investments. In addition, the study contributes to practice of finance and taxation in that it established the relationship between tax burden and FDI inflows. On policy implications, tax burden based policies such as tax incentives should continue being implemented alongside economic development and macro-economic stability policies to attract increased and consistent volumes of FDI inflows into the EAC. Further studies are recommended: replicating same study after some time, a study using FDI outflows as dependent variable, a study using components of tax burden such as tax types, tax rates, tax bases, tax structures.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Foreign direct investment (FDI) inflows are international investments that countries compete to attract. FDI inflows are long-term foreign investments that flow as equity capital and/or debt during initial and subsequent investment transactions (OECD, 2008). According to Hussain and Kimuli (2012) and Boopen, Wahid, and Rojid (2009), FDI inflows have many benefits to a host country such as increased economic development, creation of employment and technology transfer. The inflows are attracted by such factors as economic development which according to Makhova and Zinecker (2014) and Muhammad (2010) is defined as the level of a country's overall development and macro-economic factors that indicate a country's current and future economic outlook.

However, research has shown that economic development cannot be relied upon to infinitely attract FDI inflows since some of its aspects such as market size and human capital take time to create (Lokesha & Leelavathy, 2012). In addition, macro-economic factors are influenced by market forces and international economic environment (Khurshid, 2015). This necessities host governments to seek other means to attract FDI inflows. For instance countries reduce tax burden, which is defined as the total tax revenues divided by the gross domestic product in a country (Atrostic and Nunns, 1988: Australian Treasury, 2012).

Therefore, the tax burden, economic development, macro-economic factors and FDI inflows characterizes investment environment in a country. Hence, the argument in this

study is that the tax burden has negative effect on FDI inflows since tax burden has negative influence on profits, cost of doing business and efficiency. In addition, economic development (market size, human capital, country openness, and return on investment) has a significant moderating influence on the relationship between the tax burden and FDI inflows in East African Community (EAC) countries. This is because tax burden and the economic development indicators have capacity to create interactive variables that affects the relationship between tax burden and FDI inflows. The interactive variable has varied consequences at diverse standards of the moderating variable (Mackinnon, 2012). Further, macro-economic factors (GDP growth rates, inflation rates, exchange rates, interest rates) have a significant mediating influence on the relationship between the tax burden and FDI inflows. The reason for this is that macro-economic factors have capacity to explain the correlation between tax burden and FDI inflows. Moreover, the tax burden, economic development (market size, human capital, country openness, and return on investment) and macro-economic factors (GDP growth rates, inflation rates, exchange rates, interest rates) jointly influence FDI inflows in a host country.

FDI has been flowing into the East African Community (EAC) countries of Burundi, Tanzania, Uganda, Kenya and Rwanda over the years. However, the inflows to the EAC countries are low compared to other regions in Africa (see Appendix 1). According to the EAC (2014), economic development in the EAC countries has improved over the years. For example, real Gross Domestic Product (GDP) in the EAC countries grew from 31.5 billion US dollars to 49.5 billion US dollars from 2000 to 2013 (see Appendix 2). Economic development has attracted FDI inflows into the respective countries (EAC, 2014). Conversely, most of the development in the EAC countries is financed by

tax revenues among other domestic (mobilized) revenues since the proportion of aid to GDP is decreasing and governments are constrained in accessing financial markets to borrow (World Bank, 2015). However, it can be contended that reliance on tax revenues results in differing tax burden in each country which creates uncertainty in the tax regimes. The uncertainty in the tax regimes results in FDI outflows to other regions with favourable tax regimes such as the tax havens.

According to the EAC Annual Report (2014), the EAC countries macro-economy has not been stable with GDP growth rates, inflations rates and interest rates being volatile. For example during the study period, the lowest GDP growth rate during the study period was in Burundi at -1.2 per cent in 2003 while the highest GDP growth rate was in Uganda at 10.4 per cent in 2008. In addition, the lowest and highest inflation rates were in Burundi at -5.1 per cent in 2002 and 27.0 per cent in 2008, respectively. Further, the lowest interest rate was in Kenya at 12.7 per cent in 2004 while the highest interest rate was in Uganda at 26.7 per cent in 2011 (see Appendix 3). This is an indication of unstable macro-economic environment in the region. However, only a few countries had favourable GDP growth rates. For instance, Uganda had a mean of 6.8 per cent growth over the study period. Therefore, the need to achieve economic development objectives and the prevailing macro-economic instability has contributed to reduced FDI inflows into the EAC countries. Therefore, tax burden has negative effect on FDI inflows into a host country (Cung and Hua, 2013).

GDP growth rate is the most widely used measure of a country's economic progress and hence, when GDP growth rate improves, it is assumed that there is economic development (Costanza, Hart, Posner & Talberth, 2009). Consequently, the development reduces government reliance on taxation as the main source of domestic

mobilisation revenue. Hence, economic development reduces the tax burden. Moreover, macro-economic stability reduces the general riskiness in a country (Basemera, Mutenyo, Hisali, & Bbaale, 2012). Hence, the cost of financing investments and consumption, and thus stimulates economic growth. Therefore, macro-economic stability reduces the tax burden in the economy. Consequently, FDI inflows into the EAC countries are positively influenced by economic developments and macro-economic stability in the region. Consequently, this research is anchored on three theories: tax competition theory which proposes that international investments are attracted by low tax levels, equity theory which proposes that output should be commensurate with input in a relationship and political power theory which proposes that international investors are able to use their resources to achieve their goals in host countries. Hence, this study explores those inter-relationships between tax burden, economic development, Macro-economic development and FDI inflows into the EAC countries from 2000 to 2013.

1.1.1 Tax Burden

Tax has been defined by Atrostic and Nunns (1988) and the OECD (2008) as obligatory unreciprocated payments to the government. Therefore, the total unreciprocated payments in any year are the total tax revenues (contributions) from the taxpayers to the government. For the purposes of this study, tax burden definition by according to Atrostic and Nunns (1988) and the Australian Treasury (2012) is adopted which is the total annual tax receipts expressed as a percentage of the GDP in any financial year. Tax receipts are important revenues to enable governments meet the many objectives of levying tax such as the generation of adequate revenues, protection of home industries and social equity. To achieve such set of objectives, governments boost domestic

revenue mobilization by increasing factors such as the tax rates and tax bases that influence tax receipts positively hence increasing the tax burden. In addition, tax revenues have potential governance and state-building benefits, releases governments from reliance on foreign aid and potential trade liberalisation benefits (Mascagni, Moore & Mccluskey, 2014). Therefore, benefits that accrue from tax receipts make tax one of the most important sources of host government revenue.

However, though governments are in need of revenues, the tax burden should not be at the expense of investors. According to the OECD (2008), tax burden has capacity to act as an entry barrier where imports such as raw materials and machines become expensive. In addition, the tax burden may become an internal barrier through high income and consumption taxes. Further, the tax burden may become an exit barrier that inhibits exports of locally manufactured goods and repatriation of generated profits from the host countries hence, when the tax burden act as barriers, they affect efficiency and cost of doing business in the host countries. Therefore, host governments should balance the use of the tax burden for mobilization of tax revenues and for attracting foreign investors since tax plays a role in attracting international investments (Nuta, A & Nuta, F. 2012).

It is the responsibility of governments to balance use of the tax burden to benefit the host country and the investors. According to Ghinamo, Panteghini and Revelli (2007), governments manipulate the tax burden components such as tax rates, tax bases, tax breaks, tax holidays, and tax incentives (exemptions and concessions) to attract FDI inflows. Therefore, any change in the tax burden components influences FDI inflows. Consequently, the tax burden affects profits realised in the host country and profits repatriated to home countries. However, the tax burden is one of the factors that host

governments have control over. Moreover, effects of the tax burden components in a host country are projected in tax revenues as soon as any tax changes are effected either immediately after the reading of the national budget or in the supplementary budgets.

1.1.2 Economic Development

According to Makhova and Zinecker (2014) and Muhammad (2010), economic development is the level of development as indicated by such factors as gross domestic products (GDP), market size, infrastructure, human capital, exploitation of natural resources, country openness and return on investment (ROI) in a country. Gross Domestic Product (GDP), though an important factor, it is not considered on its own but it is used in establishing some of the variables in the study.

Countries have populations that are potential markets for goods and services produced in the country; hence a large population attracts investments into a country (Tshepo, 2014). In addition, schooled labour easily adapts to technology increasing productivity and reducing the cost of production thereby attracting investments (Hussain & Kimuli, 2012). However, though many international investors seek schooled labour, the investors also seek cheap and employable labour in an attempt to reduce cost of production. A country's school enrolment rates indicate future labour availability. In addition, country openness which is indicated by the ratio of imports plus exports to real GDP attracts investors seeking to locate production facilities abroad (Hunady & Orviska, 2014). Moreover, high country openness assures international investors of ease of importation of raw materials and machinery, and exportation of locally produced goods and services.

According to Asiedu (2002), profit maximisation in form of return on investment (ROI) is another economic development indicator that attracts foreign investments into host

countries and regions. Hence, countries and regions with high and assured ROI attract foreign investments. Therefore, economic development in a country attracts international investments. However, according to Hussain and Kimuli (2012), economic developments vary between countries and over time. In addition, economic development indicators such as market size and human capital take time to create and they are dynamic too. Consequently, economic development does not assure a country or region of consistent and increasing FDI inflows for ever. Moreover, host governments are not in control of the economic development indicators (Lokesha & Leelavathy, 2012). Lack of consistent and increasing FDI inflows, and control over economic development indicators compels host governments to seek alternative means to attract consistent and high volumes of FDI inflows. Host governments have many policy options and other measures within their control to utilise to attract increased and consistent volumes of FDI into their countries. Apart from economic development, the study also used macro-economic factors and independent variables.

1.1.3 Macro-economic Factors

Macro-economic factors such as inflation, exchange rate, interest rate indicate a country or region's current and future economic outlook; affect investor's financial performance, future growth and sustainable development (Mokhova & Zinecker, 2014). According to Vijayakumar, Sridharan and Rao (2010) and Hussain and Kimuli (2012), high and growing GDP indicates current and future market potential demonstrating future attractiveness as a market. Thus, investors seek countries with high and growing GDP for current and potential future markets in the countries.

In addition, stable inflation rates indicate stability of the macro-economic environment and monetary discipline in a country while high inflation rates signify internal economic

tension resulting from failure to manage the monetary policy as revealed in country's budget deficits (Muhammad, 2010). The internal tension signals high inflation rates which increase the cost of doing business in the country and region. Consequently, according to Kubicova (2013) and, Murthy and Bhasin (2013), high inflation rates make doing business in a host country expensive and unattractive to international investors. Exchange rates indicate local currency value for conversion purposes to a foreign currency. Okpara *(2012)* and Nelson (2015) explains that local currency strength presents income concerns where local currency profits are transformed into higher foreign currency proceeds while local currency weakness presents expense concerns where immovable components of production become expensive and exports become cheaper. Thus exchange rate negatively affects profits realised in a host country. Therefore, foreign investors are concerned about the value of local currency as indicated by the exchange rates in the country in comparison to the home currency both in the short-run and long-run.

According to Khurshid (2015), interest rates and investments have long-run relationship. Hence, interest rates affect the investments environment in a country in several ways. First, high interest rates discourage investments since they result in high cost of borrowing in the domestic market. Though FDI flows into a host country as equity, foreign investors also acquire local debts after the initial investments. Therefore, the investors are concerned about the local lending interest rates. Second, low interest rates attract investments since they encourage continued investments because the cost of borrowing is low hence; the interest rates render the country economically competitive. However, though investors seek attractive macro-economic factors, the factors are affected by internal and external influences such as market forces of demand and

supply, international economic factors such as international financial crisis, international institutions such as the World Bank and the International Monetary Fund (IMF). Therefore, host governments are not in full control of macro-economic factors in their countries. The factors are affected by extraneous factors beyond the host government's controls. Hence, a host country with stable macro-economic factors has potential to attract FDI inflows.

1.1.4 Foreign Direct Investment Inflows

Foreign direct investments (FDI) are inflows and outflows of investments into a country or region. In any international investment, FDI inflows are throughout the life of the investment. According to OECD (2008), FDI flows in the initial transactions in green-fields investments, cross-border mergers and acquisitions [M&A] and joint ventures [JVs]). In addition, FDI flows in subsequent transactions as equity capital, intra-company loans and non-equity investments. Hence, international investors seek safe investment destinations with high return on investment (OECD, 2008). Therefore, FDI inflows are attracted into a country by factors such as presence of previous FDI inflows, economic development indicators such as high and consistent return on investment, market size, country openness, macro-economic factors such as inflation rate, exchange rate, interest rate, political stability, religious affiliations, strong institutions and many other factors specific to the needs of the foreign investor.

In addition, host countries seek FDI inflows for potential benefits. According to Moolman, Roos, Roux and Toit (2015) and Hussain and Kimuli (2012), FDI inflows are cheaper than international loans, increase local investments in all sectors of the economy, facilitate sustainable economic growth and promote development in the host country. Further, the inflows result in technology transfer from source country, human

capital development in host country, and increase in exports from host country and reduction in imports into the host country (OECD, 2008). Moreover, substantial amount of tax revenues are utilized every year in efforts to attract FDI inflows into host countries, the estimated amounts being over US dollars 50 billion worldwide (Leowendahl, 2016). However, for FDI to consistently flow into a host country and region such as the EAC countries, economic development, macro-economic factors, political stability and other factors that attract international investments must be present.

1.1.5 East African Community Countries

The study period covered five EAC countries: Burundi, Tanzania, Uganda, Kenya and Rwanda form the East African Community (EAC). Among the member countries of EAC, these countries were selected since data for the countries was available for the whole study period. South Sudan joined the community in 2016, a period not covered in the study hence the country was not included in the study. The EAC as a developing region requires international investments to spur economic growth, eradicate prevailing poverty, reduce current high unemployment and lower individual country's national budget deficits (EAC, 2014). In addition, according to EAC (2014), in recent years, the region's GDP has been on the rise with agriculture, wholesale and retail trade, and manufacturing sectors being the three main GDP contributors. However, economic development in the EAC countries relies on international and domestic revenue mobilization with tax being one of the revenue sources. The tax revenues are from customs duties and taxes, income tax, consumption taxes and trade taxes. However, custom duties and taxes are harmonized since 2005 while income taxes, consumption taxes and trade taxes regimes in the region are not harmonized (Petersen, Bublitz, Kegyenda, Munya, Saalmann and Wisemeth, 2009). Therefore, income taxes,

consumption taxes and trade taxes results in domestic tax burden that varies across the region in the different countries. This enables the EAC countries to engage in tax competition to attract FDI inflows.

The EAC countries have economic developments indicators that attract FDI inflows for example in 2013, the total population in the region was over 143.5 million people (EAC, 2014). This is a large population for market seeking FDI. The human capital in the EAC countries is schooled with increasing gross primary and secondary school enrolments. This assures investors of availability of cheap employable labour in the current and future. In addition, the EAC countries have liberalized macro-economic regimes of exchange and interest rates. The macro-economic regimes are subject to market forces of demand and supply with minimal government intervention hence, the inflation rates, exchange rates and interest rates are market determined and vary across the region. For instance, in 2013, the regional headline underlying inflation was highest in Tanzania and Burundi at 7.9 % while in Rwanda it was 4.2 (EAC, 2014).

The investment environments in the EAC countries have continued to attract investment from local and international investors. However, though FDI inflows in the EAC countries have been on upward trend, the inflows are low compared to other regions in Africa (Appendix 2). In the past several years, Uganda and Tanzania have consistently attracted more FDI inflows while Burundi has consistently attracted the lowest FDI inflows in the region (EAC, 2014). Combined FDI inflows to Burundi, Kenya and Rwanda are less than the FDI inflows to either Tanzania or Uganda (Appendix 4). Therefore, the EAC countries are in need of more FDI inflows for sustained growth. In the EAC countries, there is presence of economic development and macro-economic factors that attract FDI inflows.

1.2 Research Problem

Tax competition theory proposes that when the tax burden decreases, FDI inflows increase (Wilson, 1999). This indicates that tax burden has negative effect on FDI inflows in host countries. However, equity theory proposes that there is positive relationship among economic development, macro-economic factors, the tax burden and FDI flows (Hofmans, 2012). Moreover, political power theory asserts that the tax burden, economic development and macro-economic stability negatively impacts on FDI inflows (French & Raven, 1959). Therefore, the three theories have different propositions. Hence, from a theoretical perspective, there is no consensus on the relationship between the tax burden, economic development, macro-economic factors and FDI inflows in host countries.

FDI inflows into the EAC countries over the years are low compared to the rest of Africa (Appendix 2). However, the region has enjoyed general economic development in the recent past. Most of the developments have largely been financed by tax revenues among other sources of revenue (Sichei & Kinyondo, 2012). This has resulted in high tax burden in the region relative to the rest of Africa consequently making the region expensive to invest in. The high tax burden has resulted in increased taxation in EAC countries compared to other regions in Africa. According to Eshete (2014), this has led to FDI outflows inform of capital flight to other regions with favourable tax regimes such as tax havens.

According to the EAC (2014), EAC countries macro-economy has been unstable over the study years, characterized by high and unstable inflation rates which cause volatile interest rates and, weak and unstable exchange rates (Appendix 3). All the EAC countries have favourable growth rates except Rwanda at 11.2 per cent in 2008.

Therefore, there is need to balance economic development goals, macro-economic stability and FDI inflows since according to Raudonen and Freytag (2013), high economic development attract FDI inflows. However, empirical literature provides contradictory evidence on the relationship between the tax burden and FDI inflows into host countries. There are studies that report negative relationship between the tax burden and FDI inflows (Zirgulis, 2014: Baldwin and Okubo, 2009).

However, Hunady and Orviska (2014) report no relationships between the tax burden and FDI inflows. Baldwin and Okubo (2009) studied international tax competition in presence of significant agglomeration of economies and firm heterogeneity using Nash Equilibrium, where big economies maintain higher taxes while small economies maintain lower taxes. The data used was from Eurostat and the model was Heterogeneous Firm Trade (HFT) model. The study found that large companies were sensitive to tax differentials and were likely to relocate to other regions to escape the high taxes. Hunady and Orviska (2014) investigated key determinants of FDI inflows in European Union (EU) using panel data and regression models. The study focused on country statutory effective tax rates and the effect of FDI inflows using data from 27 EU countries. The study found that corporate tax had no relationship with FDI inflows.

Consequently, there is no consensus on the relationship between the tax burden and FDI inflows since various researchers have found contradicting outcomes. Therefore, this study contributes to this debate by proposing economic development and macro-economic stability to illuminate the relationship between the tax burden and FDI inflows. The main argument in this study is that economic development and macro-economic factors influence the relationship between the tax burden and FDI inflows.

Hence, this study answers the following research question: *what are the influences of economic development and macro-economic factors on the relationship between the tax burden and FDI inflows into the EAC countries?*

1.3 Objectives of the Study

The general objective of the study was to establish the influence of economic development (market size, human capital, country openness and return on investment) and macro-economic factors (GDP growth rates, inflation rates, exchange rates and interest rates) on the relationship between the tax burden and FDI inflows into the EAC countries.

Specific objectives were:

i. To determine the effect of the tax burden on FDI inflows into the EAC countries.

ii. To investigate the influence of economic development on the relationship between the tax burden and FDI inflows into the EAC countries.

iii. To establish the influence of macro-economic factors on the relationship between the tax burden and FDI inflows into the EAC countries.

iv. To determine the joint effect of the tax burden, economic development and macro-economic factors on FDI inflows into the EAC countries.

1.4 Value of the Study

First, the study contributes to the theory of taxation and international investments by laying down current theoretical perspectives on tax burden and FDI inflows. The study further contributes to tax competition theory and the arguments that tax competition leads to reduced FDI inflows. From tax competition theory, host governments lower tax burden to attract increased FDI inflows. This study is anchored on tax competition theory applicability. Subsequently, the results of the study either confirms the theory or

does not confirm the theory. Therefore, the study creates a bridge between theory and practice of taxation and international investments in the EAC countries.

Second, the study contributes to policy development in the area of taxation and international investments. Tax policies are formulated with one of the objectives being to set tax burden that enable host countries to generate adequate tax revenues for recurrent and development expenditures. The results of the effect of the tax burden on the FDI are a pointer to the appropriateness of using the tax burden to attract FDI inflows. Hence, the findings may result in a policy shift from the use of the tax burden to attract FDI inflows and tax competition in the region. Tax administrative and technical advice to the governments is provided by tax administrators who are mandated to facilitate governments to set up tax policies that make the tax burden manageable. The study illuminates whether in the long run, policy formulation to attract FDI inflows using tax burden benefits host countries or foreign investors. Further, the results of the study enable comparison of the EAC countries with other regions based on their tax competition policies as reflected in tax burden and the resultant FDI inflows.

Third, the study contributes to the practice of tax and international investments. The study is on international investments and is a regional study. Therefore, the findings in the study may be used by business consultants to identify and advice their clients accordingly. The study is also useful to international investors. The research findings unveil whether the EAC countries are preferred investment destination based on the tax burden and the other variables in the study.

Fourth, the study contributes to research discipline. Any research contributes to the field of research. This research study is among the few empirical tax studies focusing on the EAC countries. The study addressed knowledge gaps identified in previous studies on

the subject area across the world. The research will serve as reference for future studies on tax burden and FDI inflows into the EAC countries, Africa and elsewhere in the world. Areas of further research have been identified in the study in the context of appraising effects of the tax burden on FDI inflows into the EAC countries. This study may be replicated in the future in EAC countries or in any single EAC country.

1.5 Organisation of the Thesis

Chapter One introduces the study and comprises background to the study, the research problem, the research question, research objectives and a brief overview of the value of the study and thesis organisation. Chapter Two examines the theoretical foundation of the study. Tax competition theory, equity theory and political power theory are explained. In addition, empirical literature related to the research problem is reviewed with the aim of identifying research gaps. Further, a conceptual model developed on the inter-relationships of the research variables is presented with the study's hypotheses.

Chapter Three discusses research philosophy in the study, the research design, and the study population. Operationalization and measurements of the variables, collection and source of data and the data analysis are included. Chapter Four includes data analysis, results and discussions. Chapter Five contains results and discussions of hypotheses tests. On the basis of the empirical findings, Chapter Six presents summary of the findings, main conclusions and contributions of the study (theory, policy and knowledge contributions), limitations of the study and recommendations for further research.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents a review of the theoretical and empirical literature. The theoretical literature is guided by three theories. Tax competition theory is the anchor theory. The other two theories are equity theory and political power theory. The empirical literature on tax burden, economic development and macro-economic factors and FDI inflows is discussed. In addition, summary of literature review and research gaps established during the literature review are presented. The conceptual framework and the study's hypotheses derived from the conceptual framework are presented in this chapter.

2.2 Theoretical Literature

The study is based on three theories; tax competition theory, equity theory and political power theory. The anchor theory is tax competition theory which supports the proposition that FDI inflows increase when the tax burden decreases. Equity theory explains that when FDI increases, the tax burden increases, since investors and host governments require returns that are commensurate to their inputs. Political power theory supports the proposition that when FDI inflows increase, the tax burden decreases since international investors have financial resources to either influence the host governments to reduce the tax burden or alternatively, the international investors use their substantial resources to reduce the tax burden. Thus, the three theories form the theoretical bases for this study.

2.2.1 Tax Competition Theory

Tax competition theory was proposed by Oates in 1972 as explained by Wilson (1999). The theory proposes that governments lower fiscal burdens for purposes such as to encourage inflows of productive resources into the country and to discourage exodus of production resources from the country. Tax competition theory explains that government's strategy to lower fiscal burden is aimed at such objectives as attracting investment inflows into the country, attract skilled and qualified human capital, and attract financial investments into the country. Hence, the government strategies result in lower overall tax burden. This creates competitive advantages based on tax. The competitive advantage will result in more investments that will positively impact on the economic development in the country (Yin, Ye and Xu, 2014). However, the theory has two assumptions. First, the theory assumes that most countries use tax burden to improve their competitiveness internationally. The other assumption is that the tax burden is a major consideration in international investment decisions.

The theory has been critiqued by such scholars as Bretschger and Hettich (2000) for it assumptions explaining that apart from considering tax in international investment decisions, the international investors consider other factors such as host government social expenditure, labour costs, and education levels and political stability in the host country. The other critique is that host governments have many strategies to implement to make the country internationally competitive to attract FDI inflows apart from using tax burden. The scholars point out that investors do not consider only tax burden when making international investments decisions.

Tax competition theory is the anchor theory in this study. The theory is relevant to this study in that it addresses tax burden and FDI inflows, the two main variables in this

study. This theory supports the proposition that there is negative relationship between the tax burden and FDI inflows where the lower the tax burden, the higher the expected FDI inflows. Hansson and Olofsdotter (2010) and Benassy-Quere, Fontagne and Lahreche-Revil (2003) previously used this theory in the study of tax and foreign direct investments. Use of tax burden to attract FDI inflows is an act of tax competition. The theory supports hypothesis H_1 for Objective One which states that tax burden has significant negative effect on FDI inflows into the EAC countries.

2.2.2 Equity Theory

The Equity Theory was developed by Adams (1963) and proposes that if a person perceives that there is inequality in a relationship, where their output/input ratio is less than or greater than what they perceive as the output/input ratio of the other person in the relationship, then the person is likely to be distressed. This theory is relevant in this study because it may be used to explain the actions of international investors and host governments in the investment relationships. In accordance with the theory, international investors exchange their capital (inputs) for a return on investment (outputs) while host governments exchange their country's resources (inputs) for a return (outputs) such as tax revenues, employment creation, reduced poverty levels and economic development.

The assumptions of the theory are that in any relationship important considerations are inputs and outputs. However, the theory has been critiqued by scholars such as Pritchard (1969) in two major aspects. The scholars argue that parties in any relationship do not only look at unfairness from the perspectives of inputs and outputs. Other factors such as psychological and demographic variables that affect people's perceptions are considered. In addition, the research supporting the theory was not conducted in an open

operation but in a laboratory setting. Hence, questions arise as to the theory's real world applicability. Hofmans (2012) explains that foreign investors consider other factors apart from inputs and output when evaluating their decisions to invest in a country.

Equity theory explains the input/output in a relationship proposing that output in a relationship should be commensurate to the input. Therefore, when the host governments provide a lot of FDI inflows incentives inform of reduced tax burdens, economic development and stable macro-economic environment, the host governments expects higher FDI inflows into the country. From the high FDI inflows, the host governments expect to receive other FDI inflows benefits such as technology transfer and creation of employment. Equally, when the international investors increase the volumes of FDI inflows, they expect support from the host government such so that they can achieve their objectives such as maximise return on investments, access to market and ease of export and imports. The support that international investors expect from the host governments are for example in upholding sanctity of formal and informal contracts and protecting foreign property ownership (Wellhausen, 2015). Therefore, equity theory explains the research outcomes in this study. The theory supports hypothesis H_4 for Objective Four which states that there is significant joint effect of tax burden, economic development and macro-economic factors on FDI inflows into the EAC countries.

2.2.3 Political Power Theory

Political power was defined by Martin (1989) as methods, powers and pressures available for to realize the goals of the power holders. Political power theory proposes that international investors have political connections with host governments and this puts the investors at privileged positions to manipulate the host governments to

implement and achieve any strategy they have. The theory also proposes that investors have substantial resources to achieve their goals. This theory is relevant to current study since it explains that international investors, by their business size are able to politically manipulate host governments or use their sizeable resources to achieve any strategy that they have including lowering the tax burden. For example, the tax burden is lowered using transfer pricing by increasing expenses thus reducing the taxable profits. Therefore, according to the theory, tax burden is not an important consideration in international investor's investment decisions abroad.

French and Raven (1959) in critiquing the political power theory pointed out that though power is a key concept in political thought phenomena, there is no agreement about the definition of power itself and the many conceptual context features that power has. The other critique is the assumption that all foreign investors are large and have political power to manipulate host governments and have enormous resources to arrange their tax affairs thus reducing their tax burden. International investors with political connections and huge resources are few. Many international investors do not have political connections or substantial resources. However, all international investors operate in same business environment in host country.

Political power theory proposes that the international investors are large and have resources and leverage political power of their home government (Duanmu, 2014) which they use to their advantages such as reducing the amount of tax burden they bear. Therefore, tax burden may not be a critical factor in the international investment decisions. The fact that the international investors are able to lower the tax burden is an indication that macro-economic factors would mediate in the relationship between tax burden and FDI inflows into a host country.

The theory supports hypothesis H_2 for Objective Two and H_3 for Objective Three. In this study, H_2 in Objective Two states that economic development has significant influence on the relationship between the tax burden and FDI inflows into the EAC countries while hypothesis H_3 in Objective Three states that macro-economic factors have significant influence on the relationship between the tax burden and FDI inflows into the EAC countries. Therefore, the proposal in this study is that international investment decisions are based on such factors as economic development and macro-economic factors.

2.2.4 Summary of Theoretical Foundation

In this study, three theories support the research study. The three theories of tax competition theory, equity theory and political power theory offer explanations for the relationships between the study variables. Tax competition theory explains the negative relationship between the tax burden and FDI inflows, equity theory explains the positive relationships between the tax burden, economic development, macro-economic factors and FDI inflows, while political power theory explains the negative relationship between the tax burden, economic development, macro-economic factors and FDI inflows. Therefore, from the theoretical literature, there is no consensus on the relationship between the tax burden and FDI inflows, tax burden, economic development and FDI inflows, tax burden, macro-economic factors and FDI inflows and tax burden, economic development, macro-economic factors and FDI inflows in the literature reviewed.

2.3 Empirical Literature

Several empirical studies were reviewed in this study. From the studies, Zirgulis (2014), Kubicova (2013), Hansson and Olofsdotter (2010) and Baldwin and Okubo (2009) find

that tax burden has a negative relationship with FDI inflows while Hunady and Orviska (2014) show there is no relationship between the tax burden and FDI inflows. In addition, studies by Bellak and Leibrecht (2009), Sichei and Kinyondo (2012), Nikula and Kotilainen (2012) and Raudonen and Freytag (2013) demonstrate that there is positive relationship between the tax burden and economic development and FDI inflows. Further, studies by Kersan-Skabic (2014), Cung and Hua (2013), Murthy and Bhasin (2013 and Arbatli (2011) demonstrate there is positive relationship between the tax burden, macro-economic factors and FDI inflows. Okpara (2012), Demirhan and Masca (2008), and Boopen et al. (2009) indicate that tax burden, economic development and macro-economic factors have negative relationship with FDI inflows.

2.3.1 Tax Burden and Foreign Direct Investment Inflows

A study to investigate key determinants of foreign direct investment (FDI) inflows in the European Union (EU) using panel data and regression models was conducted by Hunady and Orviska (2014). The study focused on country statutory effective tax rates and the effect of FDI inflows. The data were from 27 EU countries. The study found that corporate tax has no relationship with FDI inflows and labour costs but economic openness, economic and financial crisis were statistically significant. This study is relevant to current study since corporate tax is a component of tax burden. However, from the study, it is not clear the specific models that were used or the period covered by the study. In addition, though the study was undertaken in the EU, the study cannot be generalised. The research gap identified is for a similar study using same variables, specific models and for specific study periods in a region other than the EU.

The effects of taxes were studied in Zirgulis (2014). In the study, capital taxes and productivity on FDI inflows using panel data from 41 countries and Generalized

Method of Moments (GMM) system on dynamic spatial models were studied. The study found that high growth in domestic productivity and increase in capital tax rates result in reduced FDI inflows. The study is relevant because capital tax and FDI inflows were variables. However, the study was undertaken in 41 unidentified countries and the study period covered is not indicated. In addition, the study had only three variables which may have affected the study results. The research gap identified was to undertake a study with more variables and include tax burden and FDI inflows among the variables.

Cung and Hua (2013) analysed determinants of FDI inflows into Vietnam using descriptive statistical method and empirical method with data from 1999 to 2011. The independent variables used were cheap labour costs, economic growth rates, science and technology investments, inflation index and other factors. The study found that the tax burden, inflation and labour costs were significant in attracting FDI inflows into Vietnam. The study concluded that among the countries in the region, Vietnam uses tax burden to create competitive advantages. The study was relevant to current study since Vietnam is a developing country like the EAC countries. In addition, the study used tax burden as one of the independent variables. However, this was a single country study and used descriptive statistical and empirical methods. The research gap was to undertake a regional level study using statistical methods other than descriptive and empirical methods to analyse the research data.

Kubicova (2013) examined the role of corporate income tax in FDI inflows into European Union member states using panel data built from time series for the period 2003 to 2011. The study found that labour costs, inflation and infrastructure were significant but had adverse effects on FDI inflows. In addition, effective tax rate and statutory corporate tax rates were not significant but had adverse effects on FDI inflows.

This study was relevant to this study because it addressed the factors that attract FDI inflows into Africa. The research was conducted in integrated European region. The research gap was to conduct a study in a region that is not fully integrated using tax burden instead of corporate tax rates while excluding labour costs.

In addition, Mughal and Akram (2011) explored effects of market size on FDI inflows in a low income developing country. Other independent variables were corporate tax rates and exchange rates. Time series data were used from 1984 to 2008. The method used in the study for co-integration was Autoregressive Distributed Lag (ARDL) and error correction model based on ARDL. This was to estimate the relationships present among the variables. Market size was found to attract FDI inflows while exchange rates were found to negatively impact on the long and short runs FDI inflows. However, corporate tax rates were found to have no effect on the FDI inflows. The study is relevant to current study since it is on FDI inflows and country development factors. However, the study had only three variables under study and was a single country study. This study presented a research gap to conduct a regional study using more independent variables while statistical methods other than ARDL.

The effects of agglomeration economies and corporate tax rates on FDI flows and stocks in the EU was analysed by Hansson and Olofsdotter (2010) to determine the agglomeration forces that may explain the differences in tax policies between the old and new EU member countries. An implicit model on FDI inflows decisions on whether to invest and how much to invest was used. Data were obtained from 27 EU countries from 1995 to 2006. The study found differences in the determinants of FDI inflows to the EU countries. Tax differentials were found to be important investment considerations in the old 15 member states. This study explored few variables (FDI

inflows and tax differentials) and was conducted in an integrated region with agglomerated economies and tax harmonisation at advanced stages. The research gap was for a study using some of the independent variables in a region that is in the process of economic integration.

Further, Baldwin and Okubo (2009) studied international tax competition in presence of significant agglomeration of economies and firm heterogeneity. The study used Nash Equilibrium, where big economies maintain higher taxes and vice versa. The study found that heterogeneity of companies allows tax schemes with different effects on location decisions. Hence, large companies are sensitive to tax differentials and are likely to relocate to other countries to escape high taxes in big nations. Therefore, by lowering tax rates, small countries can attract high productivity firms. The study had economic agglomeration, firm heterogeneity and corporate tax competition as variables. The research gap was to study tax burden and FDI in economies without economic agglomeration and firm heterogeneity.

Further, Ang (2008) studied tax burden and FDI inflows by examining annual times-series data from 1960 to 2005 to establish the determinants of foreign direct investment in Malaysia. This was a contribution to the analytical and political investment debates in the country. The study found that though the GDP growth rate exerted minimal effect on FDI inflows, real GDP was significant and positive. Trade openness, infrastructure and financial development were found to promote FDI inflows. However, corporate tax rates and real exchange appreciation were found not to attract FDI inflows in Malaysia. This study was relevant since it was based on the FDI inflows into a developing country. However, though the study was conducted in a developing country, the study was a single country study and the models used were not explained. In addition, the study

period was 45 years, a long period during which the world economy and the Malaysian economy had changed considerably over the year. The research gap was for a multi-country study covering a shorter period.

From the studies by Zirgulis (2014), Cung and Hua (2013), Kubicova (2013), Hansson and Olofsdotter (2010), Baldwin and Okubo (2009) and Ang (2008), the tax burden had negative effects on FDI inflows. Studies by Hunady and Orviska (2014), and Mughal and Akram (2011) found that the tax burden has no effect on FDI inflows in a country. Hence, from the studies reviewed in this section, there is no consensus on the effect of the tax burden on FDI inflows into a host country. The literature reviewed in this section supports Objective One which was to determine the effect of the tax burden on FDI inflows into the EAC countries during the study period.

2.3.2 Tax Burden, Economic Development and Foreign Direct Investment Inflows

There are many studies on the relationship between the tax burden, economic development, and FDI inflows. Tshepo (2014) studied the impact of foreign direct investment inflows (FDI) on economic growth and employment in South Africa using time series data from 1990 to 2013. Unit sequence for time series stationary test were used to test for existence of the variable's long run relationships. The study used co-integration tests to determine the variables long run relationship. For causal effects, granger causality test were conducted. Gross Domestic Product (GDP) and employment were determined to be stationary while FDI was found to be stationary at level form. Co-integration tests confirmed the expected relationships between GDP, employment and FDI inflows. Other factors found to affect FDI inflows were human capital, labour disputes, return on investment (ROI), labour costs and exchange rates. This research was relevant to current study in that time series data were used and tests for

relationships were investigated. The research gap is a study covering many countries with research hypotheses to test.

Iqbal, Masood and Ramzan (2014) studied the relationships between the tax burden, economic development and FDI inflows in Pakistani. The role of market size, exchange rates and human capital in attracting FDI inflows were investigated. Annual time series data from 1985 to 2010 was used. To establish stationary in the data, Phillip-Perron PP unit root tests and Augmented Dickey-Fuller (ADF) tests were used. The study found that all the variables in the model were stationary. In addition, to test for co-integration, Autoregressive Distribution Lag (ARDL) with bound testing approach was used. The study found that human capital and market size were strong determinants of FDI inflows but exchange rates had negative effects on FDI inflows. This study was relevant in that it used time series data and was conducted in a developing country. The research gap is a study covering several countries with several variables relationships to be tested.

Ho, Ahmad and Dahan (2013) explored factors that determined FDI inflows into Brazil, Russia, India, China and South Africa (BRICS) and Malaysia from 1977 to 2010. The study examined country specific factors and macro-economic fundamentals. Trade openness, economic growth and government consumptions, economic freedom, country specific factors and quality of infrastructure were also found to be important determining factors for FDI inflows. This study was relevant since it was undertaken in a group of host countries that were members of same organisation. However, though BRICS countries are grouped together for economic purposes, the countries do not share any national boundaries for economic spill-overs. The study covered a period of 33 years within which most of the fundamentals may have changed. This study presented a

research gap to conduct a study in developing countries with common boundaries and a shorter study period.

Further, Wenkai, Xiuke and Geng (2009) analysed capital investment returns in China, Japan and United States to determine the reasons for high investment returns in China which resulted in high FDI inflows to the country. A share of capital output in form of labour was also analysed. In addition, a capital-output ratio statistics for purposes of predicting future investments trends was established. The study found that high investments corresponded with high returns where relatively high returns in China attracted FDI inflows. In addition, the returns on investments rates in the three countries demonstrated. There were signs of convergence and the returns on investments were likely to reduce in the future. This study was relevant in that it addressed returns on investment and FDI inflow features. The study gap was that this study was undertaken in developed countries and was restricted to investments. This presented a research gap for a study to address investments and FDI inflows in a developing region.

There are other studies on economic development, tax burden and FDI inflows. Bellak and Leibrecht (2009) in a study to determine whether low corporate income tax attracts FDI inflows estimated a panel of 56 bilateral country-relationships of 7 home and 8 host countries from 1995-2003 in the European Union (EU). The study used panel gravity-model setting to analyse the role of taxation as a determinant of FDI. The study found that the source of FDI, host country market size, and progress in the country's privatisation is positively related to FDI inflows. The distance between home and host country, corporate tax rate and unit labour costs are found to be negatively related to FDI inflows. This study was relevant to current study in that it addressed tax burden and inward FDI inflows. However, the study was on bilateral FDI, and used effective

average tax rates instead of statutory tax rates. This presented a research gap for a study using tax burden and multilateral FDI inflows instead of bilateral FDI inflows while excluding privatization as a research variable.

Sichei and Kinyondo (2012) used dynamic panel data estimation techniques on panel data of forty five (45) African countries from 1980 to 2009 to identify factors that determine FDI inflows. The study found that natural resources, real GDP growth rate and double taxation treaties (DTTs) attract FDI inflows. This study was relevant since it was on factors that attract FDI inflows in Africa. However, the study did not consider macro-economic factors. The research gap is a study to include tax burden, economic development, and macro-economic factors instead of tax policy alone.

In addition, Nikula and Kotilainen (2012) econometrically investigated FDI inflows to 9 countries in the Baltic Sea region from 1995 to 2010 using two gravity models of aggregate and bilateral FDI inflows. The study found corporate tax had adverse effects on FDI inflows and was statistically significant. GDP growth, foreign trade, distance between countries, institution factors like membership to EU were also found to be statistically significant but with positive sign. The study was relevant to current study since it addressed regional FDI inflows. However, the study used gravity model to compare the two types of FDI inflows in the same region. This study presented a research gap to study FDI inflows in other regions apart from the Baltic Sea region using other research models other than gravity models.

Raudonen and Freytag (2013) analysed FDI inflows to the Baltic countries using gravity approach from 2000 to 2008. The data were from Eurostat. The study found that influence of corporate taxation and geographical distances were statistically significant but have negative effect on FDI inflows. In addition, economic freedom index and

economy size impacts positively on FDI inflows. The study was relevant to current study in that it addressed components of tax burden and economic development relative to FDI inflows. The research gap was for a study to analyse FDI inflows using different analytical models.

In summary, from the studies in this section by Tshepo (2014), Iqbal et al. (2014), Ho et al. (2013) and Wenkai et al. (2009), economic development was found to be significant in attracting FDI inflows. Raudonen and Freytag (2013), Sichei and Kinyondo (2012), Nikula and Kotilainen (2012) and Bellak and Leibrecht (2009) found that tax burden was negative but significant. Therefore, there is negative relationship between the tax burden and FDI inflows, and positive relationship between economic development and FDI inflows. Hence, economic development influences the relationship between the tax burden and FDI inflows. The literature reviewed in this section was in support of Objective Two which was to investigate the influence of economic development on the relationship between the tax burden and FDI inflows into the EAC countries.

2.3.3 Tax Burden, Macro-economic Factors and Foreign Direct Investment Inflows

There are several studies on the relationship between the tax burden, macro-economic factors and foreign direct investment inflows. For example, Kersan-Skabic (2015) researched on the determinants of FDI inflows in South-East European (SEE) countries of Albania, Bosnia and Herzegovina, Croatia, the former Yugoslav Republics of Macedonia, Montenegro and Serbia. The study had special emphasis on corporate tax rates using panel data Generalized Method of Moments (GMM methodology) from 2000 to 2011. A gravity model based on bilateral FDI inflows and on total FDI inflows was used. The study found that determinants of FDI are market size, growth rate, GDP per capita and wages. Institutional variables were also significant. However, low tax

burden was found to be an important indicator in presence of strong institutional framework and macro-economic stability. Institutional variables were significant in the analysis of inward flows. The study examined corporate tax and used two versions of gravity model, based on bilateral FDI and total FDI inflows. The study presented a research gap for a study using tax burden and one gravity model of FDI inflows and a different analytical method for the research data from GMM methodology.

In addition, Murthy and Bhasin (2013) using panel data from 1993 to 2007 studied role of tax treaties as modelled in promoting FDI inflows. A fixed effect model was used to capture policy and macro-economic factors. The analytical model was enriched by use of Principal Component Analysis (PCA). FDI inflows were found to be influenced by policy and macro-economic variables that included tax treaties. However, the FDI inflows were found to be market and efficiency seeking. The study was on tax treaties and used multilateral FDI inflows to one country, India. The research gap was to undertake a study on tax burden with multilateral FDI inflows to multiple countries.

Further, Arbatli (2011) investigated determinants of FDI inflows to emerging market economies using data base on events of domestic conflicts on economic policies, political stability and role of external push-factors. Data from forty six countries from 1990 to 2009 were used. The study found that reducing trade tariffs and rates of corporate tax, managing the exchange rate policies and eliminating capital controls that are related to FDI attracts FDI inflows. Political instability and conflict events in the domestic environment were found to significantly affect FDI negatively. However, the oil sector and inflation rates were allocated dummy variables. Corporate tax rates were used. The research gap was to use FDI inflows and tax burden in a regional research study.

Vijayakumar et al. (2010) examined determining factors for FDI inflows into Brazil, Russia, India, China and South Africa (BRICS). Datasets from 1975 to 2007 were used in the study. However, the data for Russia was from 1990. Panel data analysis method was used. The study found that market size, infrastructure, labour costs, gross capital formation and currency value were determinants of FDI inflows in BRICS. However, gross prospects in industrial production, inflation rates and stability of the economy were found to be insignificant in attracting FDI inflows. This study was based on BRICS, countries that are not in an integrated region. The study was relevant in that FDI inflows were the dependent variable. The study presents a research gap for a study in a region under integration process such as the EAC countries.

From the studies in this section by Kersan-Skabic (2015), Murthy and Bhasin (2013), Arbatli (2011) and Vijayakumar et al. (2010) the conclusion is that there is a positive relationship between macro-economic factors and FDI inflows but a negative relationship between the tax burden and FDI inflows. Therefore, macro-economic factors were found to influence the relationship between the tax burden and FDI inflows. The studies reviewed in this section were relevant to Objective Three which was to establish the influence of macro-economic factors on the relationship between the tax burden and FDI inflows into the EAC countries during the study period.

2.3.4 Tax Burden, Economic Development, Macro-economic Factors and Foreign Direct Investment Inflows

Several studies on the relationship between the tax burden, economic development, macro-economic factors and foreign direct investment inflows have been conducted across the world. For example, an investigation of the determinants of FDI inflows to Nigeria from 1970 to 2009 using Granger causality and error correction model was

conducted by Okpara (2012). The study found that availability of natural resources, exchange rate, fiscal incentives, government policies, road network development, and trade openness were statistically significant. This study concluded that past foreign investments, fiscal incentives, favourable government policies and infrastructural development are positive predictors of FDI inflows and should be used as policy instruments. However, this study was a single country study and the nature of the country's economy (dependent on oil export) may have affected the study's results. Hence, the results of this study cannot be generalized. This presented a research gap for a study in several countries with different investment environments and economies that are not dependent on a single export.

Using data from World Bank Development Indicators (WBDI) and Political Risk Services (PRS), Basemera et al. (2012) analysed the role of institutions in FDI inflows to East Africa between 1987 and 2008 using Hausman's specification tests to establish fixed effect (FE), economic risk rating (ERR) and financial risk rating (FRR). The study used a model based on Dunning's (1981) eclectic paradigm but was modified to include institutional variables. The study found that FDI inflows are significantly influenced by financial and economic risk rating and corruption in a country. GDP per capita, inflation, and economic openness were found to be significant. This study was significant to current study which addresses tax burden and FDI inflows into the EAC countries. The study presented a research gap for a study using different variables apart from institutions.

Further, Anyanwu (2011) used panel data analysis from 1980 to 2007 to establish the factors that determine FDI inflows in Africa. The study used data for seven five-year overlapping periods from 1980 to 2007. The study found that market size, natural

resources endowment and exploitation, country openness, government expenditure, agglomeration and international remittances attracts FDI inflows to Africa. Financial development had negative relationship with FDI inflows. The study concluded that East and Southern Africa sub-regions are positively disposed to attract higher levels of inward FDI. The study did not consider tax burden as a determinant. The research gap presented was for a study in some African countries or countries that would include tax burden as a variable.

Okafor, Piesse and Webster (2013) in a study of Sub-Saharan Africa (SSA) countries investigated determinants of FDI inflows. The study examined the extent to which hypotheses developed under categorised theories explain FDI activities in the region. The study found that FDI inflows were determined by infrastructure, trade openness, literacy levels, and return on capital, corruption control and political stability. The study was undertaken in a region with diverse economies. The results of the study cannot be generalized to the EAC countries. The research gap was for a study in a region in SSA using other variables excluding corruption and trade liberalization.

In addition, factors that determined foreign direct investment (FDI) inflows in developing countries over the period 2000 to 2004 were explored by Demirhan and Masca (2008). The study used cross sectional data from 38 countries, and an estimated econometric model. The study found that the Gross Domestic Product (GDP) per capita, growth rate, degree of openness, tax rates, telephone main lines and inflation rates were statistically significant. However, the study was conducted in several developing countries and used telephone main lines as infrastructure development proxy which is critiqued for being available but not reliable and used GDP per capita for GDP growth rate instead of real GDP. In addition, the study period of only four years was not long

enough for any significant changes in the economic development. This presented a research gap for a study that would include tax burden, macro-economic factors, and their influence on FDI inflows for a longer time period using times series data.

Further, analysis of various potential determinants of FDI for a sample of 20 African economies was undertaken by Boopen et al. (2009). Panel data technique was used over a period of 15 years, from 1990 to 2005. The study used Hausman test specification in the econometric function. The study found the market size, natural resources intensity, and rates of corporate tax, human capital, labour costs, political instability, and host country's openness statistically significant. The study concluded that the findings were in-line with recent findings in other studies across the world. However, the findings were not conclusive since a country's inclusion in the study depended on the availability of data. Also, the study did not address macro-economic factors. Therefore, the results cannot be generalised. The research gap was for a study that would include macro-economic factors and other statistical analysis tests in the study.

From the findings of the studies by Okpara (2012), Basemera et al. (2012), Anyanwu (2011), Okafor et al. (2013), Demirhan and Masca (2008) and Boopen et al. (2009) in this section, tax burden had negative relationships with FDI inflows, while economic development and macro-economic factors had positive relationships with FDI inflows. Therefore, there is no consensus on the joint effects of the tax burden, economic development and macro-economic factors on FDI inflows. The studies reviewed in this section were in support of Objective Four which was to determine the joint effects of the tax burden, economic development and macro-economic factors on FDI inflows into the EAC countries during the study period.

2.4 Summary of Empirical Literature Review and Research Gaps

Literature was reviewed to find out the effects of the tax burden on FDI inflows according to Objective One which was to determine the effect of the tax burden on FDI inflows into the EAC countries. In addition, literature was reviewed to establish the influence of economic development on the relationship between the tax burden and FDI inflows, which was according to Objective Two which was to investigate the influence of economic development on the relationship between the tax burden and FDI inflows into the EAC countries. Further, literature was reviewed to reveal the influence of macro-economic factors on the relationship between the tax burden and FDI inflows which was according to Objective Three to establish the influence of macro-economic factors on the relationship between the tax burden and FDI inflows into the EAC countries. Moreover, empirical literature was reviewed to demonstrate the effect of the tax burden, economic development and macro-economic factors on FDI inflows. This was according to Objective Four which was to determine the joint effects of the tax burden, economic development and macro-economic factors on FDI inflows into the EAC countries.

From the literature reviewed in this chapter and the research gaps established, the main conclusions were that there is no consensus on the effect of the tax burden on FDI inflows. In addition, there was no consensus on the influence of economic development on the relationship between the tax burden and FDI inflows. Further, there was no consensus on the influence of macro-economic factors on the relationship between the tax burden and FDI inflows. Additionally, there was no consensus on the joint effects of the tax burden, economic development and macro-economic factors on FDI inflows. Therefore, the main research gaps were to investigate the effect of tax burden on FDI,

the influence of economic development and macro-economic factors on the relationship between the tax burden and FDI inflows into the EAC countries and the joint effects of the tax burden, economic development and macro-economic factors on FDI inflows into the EAC countries. Table 2.1 is a summary of the empirical literature reviewed and research gaps established.

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Table 2.1: Summary of Empirical Literature Review and Research Gaps

Tax Burden and Foreign Direct Investment Inflows				
Author(s)	**Focus of the Study and Research Methodology**	**Findings**	**Research Gaps**	**Bridging the Gaps in Current Study**
Hunady and Orviska (2014)	To determine key determinant of FDI inflows in EU. Study used panel datasets, Hausman tests and fixed panel data regression models for data from 2004 to 2011 in 27 EU member states.	Corporate tax, labour costs, economic openness, public debt, economic and financial crisis were not significant.	Study used corporate tax rates and excluded one country due to complexities of its corporate taxes. The research gap is for a similar study using same variables, specific models and study periods in a region other than the EU.	Current study is in a region undergoing integration process and used tax burden and FDI inflows as the main variables. All member countries during the study period in the region were included.
Zirgulis (2014)	Studied effects of capital taxes and productivity on FDI inflows. Study used panel data from 41 countries. Generalized Method of Moments (GMM) system on dynamic spatial models was used.	High growth in domestic productivity and capital tax rates results in reduced FDI inflows. There was no effect on FDI from foreign competition.	Countries where study was conducted and study period were not indicated. Study considered three variables; and this could have affected the results. The research gap is to undertake a study with more variables and include tax burden and FDI inflows.	The study is in the EAC countries from 2000 to 2013. More variables to be used and time series data to be used.
Cung and Hua (2013)	Analysed determinants of FDI inflows into Vietnam using descriptive and empirical statistical methods with data from 1999 to 2011.	Study found there is negative relationship between FDI inflows and tax burden, inflation rate and labour costs.	This was a single country study and used descriptive statistical and empirical methods which may not have produced exhaustive results. Research gap is to undertake a regional study using statistical methods other than descriptive and empirical methods.	Current study is in five EAC countries. Labour costs are not used. The study used correlational research design incorporating hypotheses tests.
Kubicova (2013)	Examined role of corporate income tax on FDI inflows into EU member states. Study examined panel data built from time series data from 2003 to 2011.	Inflation, labour costs and infrastructure are significant but have adverse effects on FDI inflows. Effective tax rate and statutory corporate tax rates are not significant but have adverse effect on FDI inflows.	Research study was conducted in an integrated region using panel data, and effective and statutory tax rates. The research gap is to conduct a study in a region that is not fully integrated using tax burden instead of corporate tax rates while excluding labour costs.	Current study is conducted in EAC countries and used time series data. Tax burden which incorporates tax rates and tax base was used.

Mughal and Akram (2011)	Explored effects of market size, corporate tax rates and exchange rates on FDI inflows in Pakistani using time series data from 1984 to 2008. Autoregressive Distributed Lag (ARDL) and error correction models based on ARDL were used	Market size attracted FDI inflows while exchange rates negatively impacted on long and short runs FDI inflows. However, corporate tax rates had no effect on the FDI inflows.	The study had only three variables under study and was a single country study. The study period is not long enough for regression analysis tests. The variables were also few affecting the results. The study gap is to undertake a regional study using more independent variables while applying other statistical methods.	Current study used one dependent variable and nine independent variables. Other statistical methods were used for the panel data. The study involved several countries which enriched the study.
Hansson and Olofsdotter (2010)	Analysed effect of agglomeration economies and corporate tax rates on FDI flows and stocks in EU and determined causes of differences in tax policies between old and new member countries. Study used implicit model and data from 27 European countries from 1995 to 2006.	There were differences in the determinant of FDI inflows to the countries and tax differentials were important consideration for investments in the old 15 member states.	The study considered few variables and was conducted in a fully integrated region with agglomerated economies. The study was a comparison between the old and new member states of the European Union which have different economic variables. The research gap is to undertake a study with some of the variables in a region that is not fully integrated.	Current study used nine independent variables in a region without firm heterogeneity and agglomeration of economies. The study is on tax burden instead of corporate tax rates and used data from five countries. The study is not a comparison of countries.
Baldwin and Okubo (2009)	Examined international tax competition in presence of agglomeration economies and firm heterogeneity. One year study on firms from the North and South according to the classification of Nash tax equilibrium. Heterogeneous Firms Trade (HFT) model was used.	Heterogeneity allows a given tax scheme to have different effects on host country decisions of small and big firms with big firms likely to relocate to escape high taxes imposed by big nations. It is problematic to design reforms that raise tax revenues without losing firms when they relocate.	The study was conducted in a region with economic agglomeration and firm heterogeneity. The study was on firms, corporate tax competition, heterogeneous firms and agglomerated economies. This may have affected the results. The research gap is for a study on tax burden in economies without agglomeration and firm heterogeneity using tax burden as one of the independent variables.	Current study was not on economic agglomeration and firm heterogeneity. The study is not on international investments and taxation. The unit of analysis is country not firm.
Ang (2008)	Studied tax burden and FDI inflows by examining annual times-series data from 1960 to 2005 to establish the determinants of foreign direct investment (FDI) in Malaysia.	The study found that though GDP growth rate exerted minimal effect on FDI inflows, real GDP was significant and positive. Trade openness, infrastructure and financial development promoted FDI inflows. However, corporate tax	This was a single developing country study, and the models used were not explained. The study period was 45 years, during which the world and Malaysian economies had changed considerably over the year. The research gap is for a study covering several countries for shorter time period.	Current study is in several countries, the study period is fourteen years but with seventy observations. The time does not allow for a lot of variation in the research fundamentals.

		rates and real exchange appreciation did not attract FDI inflows in Malaysia.		

Tax Burden, Economic Development and Foreign Direct Investment Inflows

Author(s)	Focus of the Study	Findings	Research Gaps	Bridging the Gaps in Current Study
Tshepo (2014)	Studied impact of FDI on economic growth and employment in South Africa using time series data from 1990 to 2013. Unit series for time series stationary test and co-integration tests were used to determine long run relationship. For causal effects, granger causality tests were used.	GDP and employment were determined to be stationary while FDI was found to be stationary at level form. Co-integration tests confirmed the expected relationships between GDP, employment and FDI inflows. Human capital, labour disputes, return on investment (ROI), labour costs and exchange rates also affected FDI inflows.	This was a single country study and this presented a research gap. The study used co-integration tests to determine long-run relationships.	Current study is a multi-country study using different analysis methods. To establish long–run relationships the study used Vector Error Correction (VECM) models.
Iqbal et al. (2014)	Studied the role of market size, exchange rates and human capital in attracting FDI inflows using annual time series data from 1985 to 2010. Phillip-Perron PP unit root tests, Augmented Dickey-Fuller (ADF) tests, Autoregressive Distributed Lag (ARDL) with bound testing approach were used.	All variables in the model were stationary. Human capital and market size were strong determinants of FDI inflows but exchange rates had negative effects on FDI inflows.	This was a single country study and it was restricted to only relationships between the variables. This presented a research gap.	Current study is on the relationships between the dependent variable and nine independent variables. The study is also a regional study. Unit root tests were conducted using Augmented Dickey-Fuller (ADF).
Ho *et al* ., (2013)	Explored factors that determined FDI inflows into Brazil, Russia, India, China and South Africa (BRICS) and Malaysia from 1977 to 2010. The study examined country specific	Trade openness, economic growth and government consumptions, economic freedom, country specific factors and quality of infrastructure	Study was undertaken in Brazil, Russia, India, China and South Africa (BRICS), countries that are grouped together for economic purposes and the study period was long, covering a period of 33 years	Current study is in developing countries with common boundaries and for a shorter period of time.

	factors and macro-economic fundamentals.	were important determining factors of FDI inflows.	within which most of the fundamentals may have changed. The research gap is for a multi-country research covering a shorter period of time.	
Raudonen and Freytag (2013)	Analysed FDI inflows to Baltic countries using gravity approach from 2000-2008 with data from Eurostat.	Corporate taxation and geographical distance are statistically significant but have negative effects on FDI inflows. Economic freedom index and economy size impacts positively on FDI inflows.	The study addressed elements of tax burden and economic development in relation to FDI inflows. Study was for nine years. Research gap is a multiple country study with hypotheses to be tested.	Current study used all the components of tax burden but excluded labour costs. The study covers a longer period which is fourteen years.
Sichei and Kinyondo (2012)	To identify factors that determines FDI flows in Africa. Dynamic panel data estimation for 45 African countries from 1980 to 2009 was used.	Natural resources, real GDP, and international investment agreements were found to affect FDI inflows in Africa.	The study was inconclusive on presidential term and type of government. The study was in 45 countries for 29 years; results of the study cannot be generalized. The research gap is a study that includes tax burden, economic development and macroeconomic factors instead of tax policy alone.	Current study is on EAC countries. Actual figures for inflation rates are used. The study used tax burden which incorporates tax base instead of corporate tax rates. The study is for a shorter period.
Nikula and Koitilainen (2012)	Econometrically investigated FDI inflows to 9 countries in the Baltic Sea region from 1995 to 2010 using two gravity models of aggregate and bilateral FDI inflows.	Corporate tax and corruption have adverse effects on FDI inflows and were statistically significant. GDP growth, foreign trade, distance between countries, institution factors like membership to EU were statistically significant but with positive sign.	The study used gravity model to compare the two types of FDI inflows in the same region. Research gap is to study FDI inflows in other regions apart from the Baltic Sea region using other research models other than gravity models.	Current study in on FDI inflows to countries in a region undergoing integration process. The study used only one type of FDI inflows for exhaustive study.
Wenkai et al. 2009	Analysed capital investment returns in China, Japan and United States to determine the reasons for high investment returns in China which resulted in high FDI inflows to the country. A share of capital output inform of labour was also analysed. In	High investments corresponded with high returns where relatively high returns in China attracted FDI inflows. Returns on investments rates in the three countries demonstrated signs of convergence and were likely to	The study was undertaken in developed countries and was restricted to investments. The research gap is for a study in the developing world covering other research variables other than from investments.	Current study addressed different variables from those in this study and FDI inflows in a developing region, the EAC countries.

Author(s)	Focus of the Study	Findings	Research Gaps	Bridging the Gaps in Current Study
	addition, a capital-output ratio statistics for purposes of predicting future investments trends was established.	reduce in the future.		
Bellak and Leibrecht (2009)	Analysed role of corporate income tax rates as a determinant of FDI and estimated a panel of 56 bilateral country-relationships 7 home and 8 host in EU countries from 1995-2003 using a panel gravity-model setting.	Source of FDI, host country market size, progress in country's privatisation are positively related to FDI inflows distance between home and host country, corporate tax rate and unit labour costs are negatively related to FDI inflows.	Study was on bilateral FDI, and used effective average tax rates instead of statutory tax rates. The research gap is a study on multilateral FDI using tax burden.	Current study was conducted in the EAC countries and used tax burden and multilateral FDI inflows.

Tax Burden, Macro-economic Factors and Foreign Direct Investment Inflows

Author(s)	Focus of the Study	Findings	Research Gaps	Bridging the Gaps in Current Study
Kersan – Skabic (2014)	Researched determinants of FDI inflows in six SEE countries using panel data Generalized Method of Moments (GMM methodology) from 2000 to 2011 and Gravity model based on bilateral FDI and total FDI inflows.	Determinants of FDI inflows are market size, growth rate, GDP per capita and wages. Institutional variables were significant in the analysis of inward flows.	Study looked at corporate tax rates and used two versions of gravity model.	This study used tax burden time series data from 2000 to 2013. The FDI inflow is multilateral. ANOVA and regression analyses were used.
Murthy and Bhasin (2013)	Studied role of tax treaties in promoting FDI inflows using panel data from 1993 to 2007. Analytical model enriched using Principal Component Analysis (PCA).	FDI inflows were determined by policy and macro-economic variables that included tax treaties. The inflows were found to be market and efficiency seeking.	The study was a bilateral study on multilateral FDI inflows to one country India. The research gap is to undertake a study using multilateral FDI inflows.	Current study is a regional study and used nine independent variables and one dependent variable. The FDI inflows are not bilateral but multilateral FDI inflows.
Arbatli (2011)	Investigated determinants of FDI inflows to emerging market economies using domestic conflict events data from 46 emerging countries from 1990	Lowering corporate tax rates and trade tariffs, adopting managed exchange rate policies and eliminating FDI related capital	Study was based on emerging market economies. Study used corporate tax rates and did not consider tax base. The research gap is for a study in developing countries	Current study is in a region with five developing countries using real inflation rates. Tax burden is used instead of corporate tax rates.

	to 2009.	controls facilitate FDI inflows. Domestic conflict and political instability have negative effects.	using all components of tax burden.	
Vijayakumar et al. (2010)	Examined determining factors of FDI inflows to Brazil, Russia, India, China and South Africa (BRICS) using datasets from 1975 to 2007. Data for Russia was from 1990. Panel data analysis method was used.	Market size, infrastructure, labour costs, gross capital formation and currency value were determinants of FDI inflows. Gross prospects in industrial production, inflation rates and stability of the economy were insignificant in attracting FDI inflows.	This study was in Brazil, Russia, India, China and South Africa (BRICS), countries that are not integrated. The study presented a research gap for a study in a region where countries share boundaries.	Current study uses some of the variables in a region that is in the process of integration.

Tax Burden, Economic Development, Macro-economic Factors and Foreign Direct Investment Inflows

Author(s)	Focus of the Study	Findings	Research Gaps	Bridging the Gaps in the Current Study
Okofar et al. 2013	Investigated determinants of FDI inflows Sub-Saharan Africa (SSA) countries. The study examined to what extent the hypotheses developed under categorised theories of FDI explains FDI activities in the region.	FDI inflows were determined by infrastructure, trade openness, literacy levels, and return on capital, corruption control and political stability.	The study was undertaken in a region with diverse economic and used corruption and trade liberalization as variables. The research gap is a study in a region undergoing integration and exclude corruption and trade liberalisation as variables.	Current study is in an economic region undergoing integration and excludes corruption and trade liberalization as variables.
Okpara (2012)	Investigated determinants of FDI inflows in Nigeria. Granger causality and error correction models were used on data from 1970 to 2009.	Availability of natural resources, exchange rate, fiscal incentives, road network development and trade openness were found to be statistically significant.	A single country study, results cannot be generalized. The study was a causal study and used data for 39 years. The research gap is a study in several countries covering fewer years.	This study is in five countries using tax burden instead of fiscal incentives. The study data is for 14 years.
Basemera et al. (2012)	Analysed role of institutions in FDI inflows to East Africa between 1987 and 2008 using data from World Bank Development Indicators and Political Risk Services. Hausman's	FDI inflows are significantly influenced by financial and economic risk rating and corruption in a country. GDP per capita, inflation, and economic	This study used institutions as variables with data from Political Risk Services (PRS). The research gap is a study using other variables other than institutions with data from other sources apart from PRS.	Current study excludes institutions as variables and uses data from the several other credible sources.

	specification tests established fixed effect economic risk rating and financial risk rating. A model based on Dunning's (1981) eclectic paradigm but modified to include institutional variables was used.	openness were significant.		
Anyanwu (2011)	Used panel data analysis from 1980 to 2007 to establish the factors that determine FDI inflows in Africa. Data for seven five-year overlapping periods from 1980 to 2007 was used.	Market size, natural resources endowment, country openness, government expenditure, agglomeration and international remittances attract FDI inflows but not financial development.	The study did not consider tax burden as a determinant. The research gap is a study using tax burden as a variable.	Current study includes tax burden as one of the variables and FDI inflows.
Boopen et al. (2009)	Panel data technique was used over a period of 15 years, from 1990 to 2005. The study used Hausman test specification in the econometric function.	The study found the market size, natural resources intensity, and rates of corporate tax, human capital, labour costs, political instability, and host country's openness statistically significant.	A country's inclusion in the study depended on the availability of data. Also, the study did not address macro-economic factors. The research gap is for a study covering countries whose inclusion will not depend on data availability and include macro-economic factors.	The current research included all the five countries in the EAC during the study period and the inclusion did not depend on data availability. The research also included macro-economic factors in the study.
Demirhan and Masca (2008)	Explored determining factors of FDI inflows in developing countries from 2000 to 2004. Cross sectional data were used for 38 developing countries to estimate a cross-sectional econometric model.	Growth rate per capita, degree of openness had positive and statistically significant. Inflation rates and tax rates had negative signs and were statistically significant. Labour had positive sign while risk had negative sign. The two were not significant.	The study used telephone main lines which are available but not reliable. The study was conducted across developing countries and used GDP per capita for GDP growth rate. The research gap is for a study in a developing region and include macro-economic factors among other factors.	Current study was conducted in EAC countries. Macro-economic factors were included, real GDP growth rates were used and the study relied on time series data.

Source: Author, 2016.

2.5 Conceptual Framework and Hypotheses

This section discusses the conceptual framework on the interrelationship among the independent variable, the moderating variables, the mediating variables and the dependent variable. The conceptual framework is presented in Section 2.5.1. In addition, Section 2.5.2 contains the four hypotheses of the study.

2.5.1 Conceptual Framework

The conceptual framework as illustrated in Figure 2.1 depicts the assumed relationships between the independent variable, moderating variable, mediating variable and dependent variable. The hypotheses to be tested are derived from the conceptual framework. In the conceptual framework, it is assumed there is a relationship between the tax burden and FDI inflows consistent with Cung and Hua (2013). Therefore, it is hypothesed in H_1 that tax burden has significant negative effect on FDI inflows into the EAC countries. This is according to Objective One which was to determine the effect of the tax burden on FDI inflows into the EAC countries.

Economic development indicators of market size, human capital, country openness and return on investment are the moderating variables in the model. The economic development indicators considered in this study among others have previously been used elsewhere to study the relationship between tax burden and FDI inflows. The proposition is that the economic development indicators influence the relationship between the tax burden and FDI inflows by producing an interaction creating a product between the independent variable and economic development variable which acts as the moderator variable. The moderator variable affects the direction and strength of the relationship. This proposition is in line with Dearing and Hamilton (2006). However,

according to Mackinnon et al. (2002), the interaction created between the independent and moderating variables can be enhancing, buffering or antagonistic. Therefore, it is hypothesized in H_2 that the economic development indicators have significant moderating influence on the relationship between the tax burden and FDI inflows into the EAC countries. The hypothesis is according to Objective Two which was to investigate the influence of economic development on the relationship between the tax burden and FDI into the EAC countries.

Macro-economic factors (GDP growth rates, inflation rates, exchange rates and interest rates) are the mediating variables in the model. There are many macro-economic factors but in this study, GDP growth rates, inflation rates, exchange rates and interest rates are used. The main reason for using these particular macro-economic factors is that the factors have been extensively used in other macro-economic studies elsewhere in the world especially in studies based in economic regions. The proposition in this study is that tax burden is correlated with FDI inflows not because it exerts direct effect but because macro-economic factors intermediate on the relationship. The intermediation results in significant influence on the relationship between tax burden and FDI inflows. This is consistent with MacKinnon, Lockwood, Hoffman, West, and Sheets (2002). Hence, it is hypothesized in H_3 that the macro-economic factors have significant mediating influence on the relationship between the tax burden and FDI inflows into the EAC countries. The hypothesis is according to Objective Three which was to establish the influence of macro-economic factors on the relationship between the tax burden and FDI inflows into the EAC countries during the study period.

Therefore, tax burden, economic development and macro-economic factors are the independent variables in the conceptual model. However, the general proposition is that

47

economic development and macro-economic factors influence the direction and strength of the relationship between the tax burden and FDI inflows. Hence, it was hypothesized in H_4 that there is significant joint effect of the tax burden, economic development and macro-economic factors on FDI inflows into the EAC countries. The hypothesis is in line with Objective Four which was to determine the joint effects of tax burden, economic development and macro-economic factors on FDI inflows into the EAC countries.

Figure 2.1 Conceptual Model
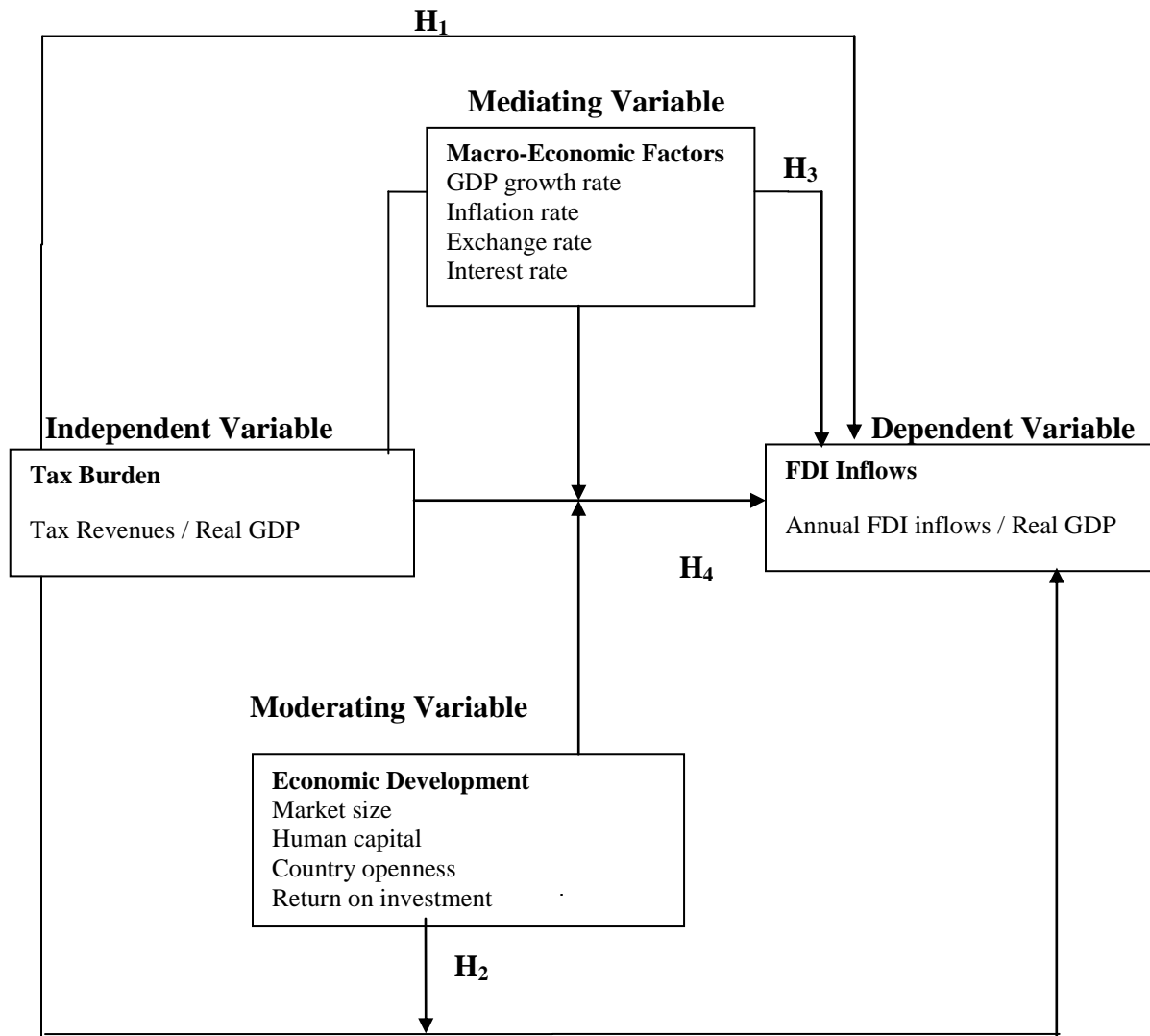
Source: Author, 2016.

2.5.2 Conceptual Hypotheses

Based on the conceptual framework and the research objectives, the following are the conceptual hypotheses that were tested in this study:

For Objective One:

H_1:   Tax burden has significant negative effect on FDI inflows into the EAC countries.

For Objective Two:

H_2:   Economic development has significant moderating influence on the relationship between the tax burden and FDI inflows into the EAC countries.

For Objective Three:

H_3:   Macro-economic factors have significant mediating influence on the relationship between the tax burden and FDI inflows into the EAC countries.

For Objective Four:

H_4:   There is significant joint effect of the tax burden, economic development and macro-economic factors on FDI inflows into the EAC countries.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter discusses the research methodology used in this study. Philosophical orientation and the reasons for selecting the particular orientation in the study are explained. Correlational research design and it's appropriateness as a research design in this study are explained. The population of the study is reviewed and the data collection processes are discussed. In addition, measurements of research variables are explained. Further, data analysis and hypotheses testing in the study are expounded.

3.2 Research Philosophy

According to Shepard, Jensen, Schrnoll, Hack and Gwyer (1993), in social science studies, there are several philosophical orientations such as epistemology, ontology, rhetorical, methodological, and axiology. Ontology, epistemology and methodological orientations have various suppositions. Ontology is about conjectures, ideas and presence, epistemology is about conjectures, ideas and understanding while methodological is about deductions. This study is a quantitative study with a distinct research focus, proper hypotheses and a fitting research methodology. Hence, the study has ontological, epistemological and methodological foundations which according to Bracken (2010) enable researchers to ponder upon and detail the best technique to undertake the research undertaking. Therefore, the philosophical orientation best suited for this study is positivism which is closely associated with the above research orientations. According to Riley (2007), positivism proposes that the universe comprises

of apparent predictabilities from which a researcher by reflection can construe authentic world understanding. Therefore, the researcher's task is reduced to data collection and elucidation through tangible methods. By use of statistical analysis, the research findings are patent and determinate which leads to the suppositions of relationships.

According to Collins (2011), positivism is a suitable approach to study nature of relationships in research studies that have hypotheses. In addition, positivism underpins quantitative methodologies with normal or numerical data which are subject to descriptive or analytical statistics. Therefore, adoption of positivism in this study allowed use of conceptual frameworks, operationalization of perceptions, hypotheses tests and broad view of results. These are important characteristics in correlational research design. In addition, this study was quantitatively oriented, with hypotheses to be tested. The study sought to determine relationships and establish the strength and direction of the relationships. Hence, from the study's approach, positivism was the best-suited philosophical approach since it enabled the fulfilment of the study's objectives and this was a quantitative research study.

3.3 Research Design

Cohen, Manion and Morrison (2007) explain that a research design guides a study in solving a research problem. This study is longitudinal and used time series data from 2000 to 2013. The presupposition of the study was to establish presence of relationships between variables. Hence, the study involved quantitative hypotheses testing of the relationships and their quantifications without influencing the independent variable. Therefore, correlational research design was used. According to Siegel (2003), correlational research design enables establishing and quantifying relationships between independent and dependent variables under study. In addition, the research design

enables analyses of the collected data. This study determined the relationship between the tax burden and FDI inflows into the EAC countries, investigated moderating influence of economic development (market size, human capital, country openness, return on investment) on the relationship between the tax burden and FDI inflows into the EAC countries and established mediating influence of macro-economic factors (GDP growth rates, inflation rates, exchange rates, interest rates) on the relationship between the tax burden and FDI inflows into the EAC countries. The study also determined the joint effects of the tax burden, economic development (market size, human capital, country openness, return on investment), and macro-economic factors (GDP growth rates, inflation rates, exchange rates, interest rates) on FDI inflows into the EAC countries. This study included moderation and mediation tests because of the potential contribution of the two processes. According to Namazi., M and Namzi, N-R (2016), moderating and mediating processes have capacity to influence the results of current research. The processes have ability to clearly depict the character of convoluted associations, enhance comprehensiveness of research models, broaden the extent of the research and facilitate reaction to prevailing interactions between variables.

According to Cohen et al. (2007), longitudinal studies have problems of attrition, expense and control. However, in this study, the unit of analysis was country. In addition, the study was for a period of fourteen years with seventy observations and relied on publicly available secondary data for the quantitative analysis with linear relationships. Therefore, problems that afflict longitudinal studies were not experienced in this study.

3.4 Population of the Study

The research study was undertaken in the East African Community (EAC) countries. Among the EAC countries, only Burundi, Tanzania, Uganda, Kenya and Rwanda were included in the study. New member country South Sudan was not included since the country joined the community in 2016 and this was a period beyond the scope of the study. The unit of analysis was country. Hence, the study was a census. According to EAC (2014), in the EAC countries, there are many factors that attract foreign direct investment (FDI) inflows such as economic development and macro-economic factors in the region. Data for the tax burden, economic development, macro-economic factors and FDI inflows for the period 2000 to 2013 for the population of the study were used. The economic development indicators included in the study were market size, human capital, country openness and return on equity while the macro-economic factors included in the study were the Growth Domestic Product (GDP) growth rates, inflation rates, exchange rates and interest rates.

There were several reasons for the study's focus on the EAC countries. The five EAC countries have differing domestic tax regimes though custom duties and taxes are harmonized since 2005. The EAC countries are in the final stages of full integration and the research population is an interesting subject for research in a period just before full integration. In addition, the population has generated interest in recent years as one of the regions with the fastest economic growth in Africa (EAC, 2014). Further, recent discovery of oil and gas in some of the countries notably Tanzania and Uganda is likely to shift the volumes and type of FDI inflows into the region. Moreover, there are few tax burden and FDI studies in the EAC countries unlike in other regions such as in the

developed economies in Europe and emerging economies such as Brazil, Russia, India, China and South Africa (BRICS).

3.5 Data Collection Process

The study used secondary data for the period 2000 to 2013. The FDI inflows data was collected from the United Nations Conference on Trade and Development statistics (UNCTADStats.), trade data was from the United Nations Statistics (UNStats.) while data for other variables were from the EAC DataStats., and the World Bank. All the data were published data in public domain. Samples of the data were compared with data from the country's Central Bureau of Statistics which are the primary data sources. The data did not have any material difference. For FDI inflows, data on annual FDI flows and real GDP were required. For tax burden, annual tax revenues and annual real GDP data were required.

In addition, for economic development, market size data (real GDP per capita), human capital (rate of gross primary schools enrolment), country's openness, (annual imports, annual exports and real GDP) and ROI (real GDP per capita) data were required. Further, data required for macro-economic factors was the annual average GDP growth rate, annual average inflation rate, annual average exchange rate and annual average interest rate data. The required secondary data for the study is set in Appendix 5.

3.6 Measurement of Research Variables

The study determined the effect of the tax burden on the FDI inflows into the EAC countries, investigated the influence of economic development on the relationship between tax burden and FDI inflows into the EAC, established the influence of macro-economic factors on the relationship between the tax burden and FDI inflows into the

EAC countries and determined the joint effect of the tax burden, economic development

and macro-economic factors on FDI inflows into the EAC countries. The arithmetical

data measurements and the expected signs for each variable are presented in Table 3.1.

In addition, Table 3.1 also presents operationalization of the research variables.

Table 3.1: Operationalization of Variables

Variables	Operationalization of Variables	Hypotheses	Source of Measure	Measure and Expected Sign
Foreign Direct Investment Inflows	International investment inflows into a host country in US dollars.	H_1, H_2, H_3, H_4 for Objectives One, Two, Three and Four respectively.	Asiedu (2002), Boopen et al. (2009) and Demirhan and Masca (2008).	Ratio of annual FDI inflows to real GDP, expected sign +ve
Tax Burden	Ratio of tax revenues to real GDP.	H_1, H_2, H_3, H_4 for Objectives One, Two, Three and Four respectively.	OECD (2008), Australian Treasury (2012).	Ratio of annual tax revenues to real GDP, expected sign –ve.
Economic Development				
Market Size	Potential market for goods and services.	H_1 and H_4 for Objectives Two and Four respectively.	Hussain and Kimuli (2012). Kersan-Skabic (2015).	Log of real GDP per capita, expected sign + ve.
Human Capital	Employable labour.	H_1 and H_4 for Objectives Two and Four respectively.	Hussain and Kimuli (2012),	Gross primary school enrolment rate, expected sign +ve.
Country Openness	A country's relationship with outside world.	H_1 and H_4 for Objectives Two and Four respectively.	Muhammad (2010), Anyanwu (2011), Okpara (2012).	Ratio of annual exports plus annual imports to real GDP, expected sign +ve.
Return on investment	A measure of investment's profitability.	H_1 and H_4 for Objectives Two and Four respectively.	Ahmed and Mayowa (2012), Okafor et al. (2013),	Natural log of inverse of real GDP per capita, expected sign +ve.

Macro-economic Factors

GDP Growth Rates	Indicates attractiveness of a country's market and productivity	H_0 for Objectives Three and Four.	Demirhan and Masca (2008), Moosa (2002) and Ang (2008).	Average annual growth rate, expected sign +ve.
Inflation Rates	Price stability indicating macro-economic stability and monetary discipline in a country.	H_3 and H_4 for Objectives Two and Four respectively.	Asiedu (2002), Moosa (2002), and Cung and Hua (2015).	Average annual inflation rate, expected sign -ve.
Exchange Rates	Value of one currency to another for conversion purposes.	H_3 and H_4 for Objectives Two and Four respectively.	Okpara (2012), Arbatli (2011).	Average annual exchange rate, expected sign -ve.
Interest Rates	Part of the loan charged as interest expressed as percentage of the loan.	H_3 and H_4 for Objectives Two and Four respectively.	Vijayakumar et al. (2010).	Average annual interest rate, expected sign -ve.

Source: Author 2016.

3.7 Data Analysis

Data analyses were conducted using several processes to enable making of certain deductions about the problem being investigated. The data was analysed and hypotheses tests were conducted. In the data analysis, weighted average data from the five EAC countries for the fourteen years under study was used. For the hypotheses tests, the data from the five countries for fourteen years was used resulting in seventy observations. According to Doane and Seward (2011), data statistics are used to describe the centre of data distribution, variability of data and data shape. In this study, the data were first prepared. Thereafter, diagnostic tests, summary statistics, variable's movements and causality analyses, and independent variable's significance and association with the dependent variable and hypotheses tests were conducted. Data diagnostic entailed auto-correlation tests, unit root tests and co-integration tests. Summary statistics tests covered central tendency tests (mean), data dispersions tests (range [minimum, maximum], and standard deviation) and data asymmetry tests (skewness and kurtosis).

Establishing relationships entailed use of variable trends, covariance analysis, correlation analysis and Granger-causality. The determination of the independent variable's significance and associations with the dependent variable involved tests using Vector Error models (VAR) and Vector Error Correction (VECM) Models. The four hypotheses were tested using analysis of variance (ANOVA) and regression analyses where model summaries were established. The following are the specific steps that were conducted during the data analyses.

3.7.1 Data Preparation

Secondary data was collected from several data sources namely the United Nations Conference on Trade and Development (UNCTADstat.); the United Nations Statistics

(UNstat.); the EAC Datastat., and the World Bank. Thereafter, the data were prepared according to the requirements. FDI inflows (FDI) were established by calculating the ratios of annual FDI inflows to real GDP in each country over the study period. The tax burden (TAXB) figures were used as collected from the secondary data sources. In addition, the log of real GDP per capita in each country was calculated to represent market size (SIZE). Gross primary enrolment rates were used as collected to represent human capital (HCA).

Further, country openness (OPE) was established from the data collected as the ratio of annual exports plus annual imports to the real GDP. The natural log of the inverse of GDP per capita was established as the proxy for return on investment (ROI). For macro-economic factors, annual averages data for GDP growth rates (GDPR), inflation rates (IFR), exchange rates (EXCR) and interest rates (INR) were used as collected from secondary sources during the study. Once the data were prepared, it was cross checked for errors and compared with the primary sources. No errors were found.

3.7.2 Data Diagnostics

Data diagnostics were conducted on the weighted average of yearly data in each country in the EAC for the fourteen years under study. The diagnostics were conducted to identify the true state of the data to determine whether the diagnostic conditions existed. This was important since use of integrity compromised data results in invalid study outcomes. It is important to note that sometimes, a diagnostic test may fail. In such cases, there are several remedies for a failed diagnostic test. The first remedy is to leave out the diagnostic test altogether. The second remedy is to use a test that would yield similar results. The third remedy is to conduct a different test. None of the diagnostic

tests in this study failed. The data were subjected to diagnostic tests of autocorrelation, unit root and co-integrations during the study.

3.7.2.1 Autocorrelation Tests

Auto-correlation tests were carried out to establish whether the data was affected by historical events over the years. Autocorrelation tests are important since the data was time series data and ordinary least squares (OLS) estimates of coefficient parameters as presented in disturbances of linear models may be unbiased and inefficient (Breusch, 1978). The p-values for the standard Q-test statistics developed by Box and Pierce in 1970 and which were refined by Ljung and Box in 1978 were used to test the uni-variate time series data under the assumption of strictly exogenous regression variables. The tests were conducted according to the system generated number of lags which was 12. It was confirmed that all the spikes were within the two parallel lines of autocorrelation and partial correlation in the correlogram. In addition, it was confirmed that the autoregressive coefficients gradually decreased from lag 1 to lag 12.

3.7.2.2 Unit Root Tests

Most economic data variables are not constant but are affected by past events. The effects of past events on data were established by determining data stationarity using Augmented Dickey-Fuller (ADF) tests which were first developed by Dickey and Fuller in 1979 to test whether a variable has unit root or it is a random walk. The ADF tests in the current study were conducted at level with trend and intercept to establish presence of unit roots in the data or data stationarity.

According to Granger and Swanson (1997), non-stationary data can be made stationary by first (1st) differencing. If time series data stationarity is not established, the data is

differenced till stationarity is achieved. Iqbal et al. (2014) used ADF to investigate the role of market size, exchange rates, and human capital in attracting FDI into Pakistani.

3.7.2.3 Co-integration Tests

Johansen tests of co-integration were used to establish presence of co-integration equations in the variables to enable determination of correct statistical models to use in further data analyses. According to Bhunia and Ganguly (2015), variables are co-integrated either at level or first differencing. Therefore, Johansen co-integration technique was preferred to locate co-integration equations among the study variables. Two conditions were fulfilled when conducting Johansen co-integration tests. First, the data was at level with the assumption that all data or variables are non-stationary. Second, the data was integrated of same order. To determine the co-integration vectors in the Johansen co-integration tests, Trace tests and Maximun Eigen Value tests were conducted on the data.

Trace tests and Maximun Eigen Value tests were developed by Johansen and Juselius (1990). During the tests, linear deterministic trends unrestricted with intercepts without trends using lag I to 12 at first (1st) differencing were assumed. The conditional decision rule was that if there was at least one co-integration equation, Vector Error Correction (VECM) Models was used in further data tests. In cases where the data series had no co-integration equations, Vector Autoregressive Models (VAR) was used in further data tests. The individual and joint significance of the coefficients was determined at individual and joint variable levels using VAR models. In addition, the associations in the coefficients were determined at the long-run or short-run levels using VECM models. Tshepo (2014) previously used co-integration tests to study the impact of FDI on economic growth and employment in South Africa.

3.7.3 Summary Statistics

Summary statistics were established for the data. The statistics that were established were measures of central tendency (mean) and measures of dispersion (range [minimum, maximum], and standard deviation). In addition, measures of asymmetry (kurtosis and skewness) were ascertained. According to Sterman (1984), summary statistics are important in data analyses since they condense data that expresses communication between a model's performance and numerical data. The summary statistics were established for the independent, moderating and mediating variables.

3.7.3.1 Measures of Central Tendency

According to Australia Bureau of Statistics (2015), measures of central tendency describe data sets with a single number that symbolises the centre of the distribution. This facilitates determination of the source of any problems, future trends forecasting and determination of suitable working considerations. The central tendency measure used in this study is mean. Mean takes all scores in the distribution into consideration, is a unique value and commonly used for evaluating different sets of data measurements. In the study, the values of the mean were determined using Eviews, the statistical software package.

3.7.3.2 Measures of Dispersion

In this research study, it was important to establish the extent of data variability. According to Manikandan (2011), measures of dispersion determine variability of data from the mean. The measures of dispersion used were range with its components of maximum and minimum, and standard deviations. Range is the difference (spread) between the highest and the lowest values in a data set while standard deviation

measures the data spread around the mean thus demonstrating data volatility. Range and standard deviations were determined using the statistical software.

3.7.3.3 Measures of Asymmetry

Boshnakov (2007) explains that measures of asymmetry evaluate probability concentrations behaviour on the left and on the right of the mode(s). The measures of asymmetry were used to determine data distribution characterized by shape which is a measure of data distribution normality. Skewness and kurtosis were the measures of asymmetry used in the study. National Institute of Standard and Technology (2015) describes skewness as the departure from the mean indicating a statistical probability distribution around the mean. Skewness is zero when data is symmetrical and positive or negative when data has asymmetrical distribution. Skewness was used in this study to indicate the extent to which data distribution differed from normal distribution with the acceptable range being set at +/-2.

According to DeCarlo (1997), kurtosis indicates the statistical degree of variation around the mean. The measure is used to determine the concentration and distribution about the peak. Zero kurtosis demonstrates normal distribution while positive kurtosis shows sharp peaks and distribution with heavier tails relative to normal distribution. Negative kurtosis indicates lighter tails and flat distribution peak than normal distribution. In this study, the acceptable range of kurtosis was set at +/-2.

3.7.4 Variable's Movements and Causality Analyses

Direction and strength of the variables movements were established using variables trends, covariance analysis and correlations analyses. In addition, Granger-causality tests were conducted to determine causality between the independent and dependent

variables. According to Liew (2013), establishing interrelationships of variables enables exploring the processes and their relevance to the intended application. The variables relationship directions, strength and causality were determined in relation to the theoretical expectations.

3.7.4.1 Variable's Trends

According to Braithwaite and Goldstone (2013), variables trends may facilitate perceptions of complex relationships among data points. Variables trends were used in this study to virtually display the variable's movements over the study period. The variables movements were compared among the countries to determine data stationarity. The statistical software was used for the graphical plotting of the variables.

3.7.4.2 Covariance Analysis

According to McDonald (2014), covariance measures how changes in one variable are related with variations in another variable. Hence, covariance is the determinant of linear association. The rationale of using covariance in this study was to establish the co-movements between the independent and the dependent variables. The independent variable included in the covariance analysis were tax burden, market size, human capital, country openness, return on investment, GDP growth rates, inflation rates, exchange rates and interest rates. The dependent variable was foreign direct investment inflows. In positive covariance, high values of one variable correspond with high values of another variable and smaller values of one variable correspond with smaller values of the other variable. In negative covariance, high values of one variable corresponded with lower values of the other variable and vice versa, this is inverse behaviour. Zero covariance indicates that the two variables are independent of each other. However, covariance analyses do not indicate strength of variable's relationships.

3.7.4.3 Correlation Analysis

Correlation demonstrates direction and strength of the relationship between variables (Trochim, 2006). It was important to determine the correlations in the study variables since the research was about variable's relationships and influences. Independent and dependent variables were included in the correlation analysis. The independent variables included in the correlation analysis were the tax burden, market size, human capital, country openness, return on investment, GDP growth rates, inflation rates, exchange rates and interest rates. The dependent variable was foreign direct investment inflows. From the correlation matrix, the correlation coefficient (r) indicates the direction and magnitude of the correlation. The coefficient (r) varies from -1 to + 1 where (r) = 1.0 indicates perfect correlation, (r) = 0.0 demonstrate the two variables do not vary together, there is no relationship while (r) = -1, indicate perfect negative or inverse correlation. Therefore, the correlation coefficient (r) represents linear dependence of two variables. In this study, correlation values were considered significant if (r) > 0.535. The value of (r) was determined as $2/\sqrt{n}$ where n is 14 which is the number of years in the study period. If absolute r = 0.535 or more, then correlation is significant. The significance level is 0.05.

3.7.4.4 Granger Causality

According to Australian Bureau of Statistics (2015), causation shows that occurrence of one event is as a result of another event: there is cause and effect relationship between the two events. Therefore, it was important to determine Granger-causality among the variables since the main purpose of the study was to establish the influence of economic development (market size, human capital, country openness, return on investment) and macro-economic factors (GDP growth rates, inflation rates, exchange rates, interest

rates) on the relationship between the tax burden and FDI inflows into the EAC countries. Granger-causality tests were conducted between the independent and the dependent variables under VAR environment. The independent variables included in the tests were tax burden, market size, human capital, country openness, return on investment, GDP growth rates, inflation rates, exchange rates and interest rates while the dependent variable was foreign direct investment inflows. According to Granger (1969), F-tests in Granger-causality test with lagged information about one variable provides statistically significant information about another variable. Okpara (2012), previously used Granger-causality in a study to investigate determinants of FDI inflows in Nigeria on data from 1970 to 2009.

3.7.5 Independent Variable's Significance and Associations with the Dependent Variable

From the results of co-integration tests using Trace and Max-Eigen Value tests in Johansen co-integration tests, Vector Autoregressive (VAR) and Vector Error Correction (VECM) models were established as the most ideal statistical tools to conduct further data tests. VECM models were used for data that had been established to have co-integration equations in Johansen co-integration tests. VAR models were used for data that did not have co-integration equations.

VECM models were used to examine the significance of the associations in the relationships between the independent and dependent variables. VECM tests were conducted to establish whether there was short-run or long-run association between the independent and the dependent variable. The following is the system model from the VECM model used during the tests.

D(DV) = C(1)*(DV(-1) + β*IV(-1) + ε) + C(2)*D(DV(-1)) + C(3)*D(DV(-2)) + C(4)*D(IV(-1)) + C(5)*D(IV(-2)) + C(6) ……………………………………………………………….(3.1)

where:

D(DV) is the dependent variable, IV is independent variable, C(1) is coefficient for long-run association. C(2), C(3), C(4) and C(5) are coefficients for short-run associations. C(6) is the coefficient of the model constant. β is regression coefficients in the long-run model.

The t-statistic associated p-value was used to test the significance of the long-run association while the chi-square associated p-values were used to determine the significance of the short-run association. VECM have previously been used by Joostle, Liu and Naraidoo (2013) in analysing the effects of fiscal policy shocks in the South African economy.

VAR tests were for individual and joint significance of the independent variables on the dependent variable. The tests performed using VAR models were on data that did not have co-integration equations during earlier Johansen co-integration tests. The following is the general VAR model used during the tests.

DV = C(1)*DV(-1) + C(2)*DV(-2) + C(3)*IV(-1) + C(4)*IV(-2) + C(5) …………..……….(3.2)

where:

DV is dependent variable, IV is independent variables and C(1), C(2), C(3), and C(4) are individual and joint coefficients. C(5) is coefficient of the model constant.

The t-statistic associated p-values were used to test the significance of the individual coefficients while chi-square associated p-values tested the significance of the joint coefficients. The VAR models at level were estimated and the appropriate lags chosen

based on the information criteria provided by the system of the analysis. VAR has previously been used in research by Mutascu and Danuletiu (2011) in analysing the relationship between tax and economic growth in Romania from 1999 to 2010. In current study, the purpose of using VAR was to establish whether there was individual or joint significance on the relationships between the independent variables (tax burden, market size, human capital, country openness, return on investment, GDP growth rates, inflation rates, exchange rates and interest rates) and the dependent variable.

3.7.6 Hypotheses Tests

There were four hypotheses to be tested based on the four objectives of the study. For Objective One, H_1: tax burden has significant negative effect on FDI inflows into the EAC countries. For Objective Two, H_2: economic development (market size, human capital, country openness, return on investment) has significant moderating influence on the relationship between the tax burden and FDI inflows into the EAC countries. In addition, for Objective Three, H_3: macro-economic factors (GDP growth rates, inflation rates, exchange rates, interest rates) have significant mediating influence on the relationship between the tax burden and FDI inflows into the EAC countries. Further, for Objective Four, H_4: there is significant joint effect of the tax burden, economic development (market size, human capital, country openness, return on investment) and macro-economic factors (GDP growth rates, inflation rates, exchange rates, interest rates) on FDI inflows into the EAC countries. Data analysis tests confirmed that the data did not have autocorrelations. Hence, the time series data was used for regression analyses. The level of significance during the study was 0.05.

Step-Wise multiple regression methods associated with Baron and Kenny (1986) were used in the regression analyses. Linear regression models were used in the tests for

relationships between the independent variables (tax burden, economic development and macro-economic factors) and the dependent variable FDI inflows. The hypotheses were tested using analysis of variance (ANOVA) and regression analyses to determine the statistical significance of the variables coefficient. The statistical software used for statistical analysis was Statistical Package for the Social Science (SPSS). Model summaries were developed. According to Higgins (2005), statistical significance tests for the coefficients are conducted to establish the likelihood of the hypotheses tests results supposing to be true. Hunady and Orviska (2014) previously studied FDI inflows into the European Union (EU) using regression analysis models to determine relationship and strength of the relationship.

3.7.6.1 Tax Burden and Foreign Direct Investment Inflows

Objective One was to determine the effect of tax burden on FDI inflows into the EAC countries. The study used linear regression analyses to establish the relationships and strength between the tax burden and FDI inflows variable. The following is the univariate regression model of the relationship.

$$FDI_{it} = \alpha_1 + \beta_{T1}TAXB_{it} + \varepsilon_1 \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots \text{(3.3)}.$$

where:

α is model constant. FDI is FDI inflows, TAXB is tax burden. β_{T1} is regression coefficient. i denotes EAC countries, t denotes time, ε is error term.

A model summary was established, analysis of variance (ANOVA) and regression analyses were conducted on the tax burden and the FDI inflows. This was to determine the effect of tax burden on foreign direct investment inflows into the EAC.

3.7.6.2 Tax Burden, Economic Development and Foreign Direct Investment Inflows

Objective Two was to investigate the moderating influence of economic development on the relationship between the tax burden and FDI inflows into the EAC countries. The economic development indicators are market size, human capital, country openness and return on investment. These economic development factors were selected because of the ability to create a third variable (a moderator variable) which is the product of the tax burden and the economic development indicator that affects the strength of the relationship between the FDI inflows and the tax burden. The study assumes linear hypotheses tests. However, testing for moderation effect is a hierarchical multiple regression analyses process according to Baron and Kenny (1986) which involves several steps in the analyses.

The first step is to run the main effect model where the dependent variable is regressed on the independent variable. However, all the variables should be standardised using centering to avoid problems of multicolinearity which results in large standard deviations that cause vagueness. Thereafter, the dependent variable is regressed on the independent and the moderating variable. In addition, a moderator or interaction variable (a product of the independent variable and the moderating variable) is added into the regression model. The moderator/interaction variable can either be created manually or using a statistical package like SPSS. Further, the significances of the variables are examined by checking the significance of R^2. According to Zhao, Lynch and Chen (2010), there are several criticisms of moderation process. Centering creates multicolinearity problems which results in the coefficients created to have high standard deviations. However, in regression analysis, correlation matrix is used and the data is

already centered when calculating the correlations. The other problem is that the moderator/interaction variable is correlated with the two variables that create it. There were two sections in Objective Two. In each section, there were four steps that were conducted during the study.

In Section One, composite economic development (CED) was used as a variable in the relationship between the tax burden and foreign direct investment inflows into the EAC countries. The following four steps were conducted for the regression analysis according to Barron and Kenny (1986). Step One: FDI inflows were regressed on the tax burden (similar to Objective One). Step Two: composite economic development variable was introduced in the regression equation in Step One as an ordinary variable to determine the variables influence; Step Three: the product of tax burden and composite economic development was added in the equation in Step Two as the moderator variable (TAXB*CED) to determine moderating influence. Step Four: comparisons of TAXB coefficients in Step One, Step Two, Step Three were conducted. The significance of the moderating influence of composite economic development (CED) on the relationship between the tax burden and FDI inflows into the EAC countries was established by examining the coefficient of the moderator variable. In Step One, Step Two and Step Three, model summaries were established and ANOVA analyses and regression analyses were conducted. The following are the three models that were used in the analyses:

Step One model:

$$FDI_{it} = \alpha_{21} + \beta_{T21}TAXB_{it} + \varepsilon_{21} \ \text{…..………………..………………………......………..} \ (3.4).$$

Step Two model:

$$FDI_{it} = \alpha_{22} + \beta_{T22}TAXB_{it} + \beta_{CED22}CED_{it} + \varepsilon_{22} \ \text{…………..…..………….………………..….} \ (3.5).$$

Step Three model:

$$FDI_{it} = \alpha_{23} + \beta_{T23}TAXB_{it} + \beta_{CED23}CED_{it} + \beta_{TCED23}TAXB*CED + \varepsilon_{23} \ldots\ldots\ldots\ldots\ldots\ldots \text{ (3.6).}$$

[model according to Dearing and Hamilton (2006)]

where:

α_{21}, α_{22} and α_{23} are regression constants. FDI and TAXB are defined in (3.3), CED is composite economic development. TAXB*CED is the moderator variable. β_{T21}, β_{T22}, β_{CED22}, β_{T23}, β_{CED23} and β_{TCED23} are regression coefficients. i denotes EAC countries, t denotes time. ε_{21}, ε_{22} and ε_{23} are error terms.

In Section Two, individual economic development indicators (EDI) were used as variables in the relationship between the tax burden and foreign direct investment inflows into the EAC countries. The economic development indicators were market size (SIZE), human capital (HCA), country openness (OPE) and return on investments (ROI). The indicators were subjected to regression analyses to investigate the significance of the indicator's individual moderating influence on the relationship between the tax burden and foreign direct inflows into the EAC countries.

Analogous to Section One, there were four steps in this section: Step One: FDI inflows were regressed on the tax burden (similar to Objective One). Step Two: economic development indicator variables were introduced into the regression equation in Step One as ordinary variables to determine the variable's influence; Step Three: products of the tax burden and economic development indicators were introduced into the regression equation in Step Two as moderator variables (TAXB*EDI) to determine the moderating influence. Step Four: comparisons of the TAXB coefficients in Step One, Step Two, Step Three were conducted. To establish the significance of the moderating

influence of economic development indicators on the relationship between the tax burden and FDI inflows into the EAC countries, the coefficients of the moderator variables were examined. In Step One, Step Two and Step Three, model summaries were established, ANOVA tests and regressions analyses were conducted. The following are the three models that were used in the analyses:

Step One model.

$$FDI_{it} = \alpha_{211} + \beta_{T211}TAXB_{it} + \varepsilon_{211}...................................\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (3.7).$$

Step Two model:

$$FDI_{it} = \alpha_{221} + \beta_{T221}TAXB_{it} + \beta_{S221}SIZE_{it} + \beta_{H221}HCA_{it} + \beta_{O221}OPE_{it} + \beta_{R221}ROI_{it} + \varepsilon_{221}\ldots\ldots\ldots\ldots\ldots (3.8).$$

[model according to Dearing and Hamilton (2006)]

Step Three model:

$$FDI_{it} = \alpha_{231} + \beta_{T231}TAXB_{it} + \beta_{S231}SIZE_{it} + \beta_{H231}HCA_{it} + \beta_{O231}OPE_{it} + \beta_{R231}ROI_{it} + \beta_{TS231}TAXB*SIZE_{it} +$$
$$\beta_{TH231}TAXB*HCA_{it} + \beta_{TO231}TAXB*OPE_{it} + \beta_{TR231}TAXB*ROI_{it} + \varepsilon_{231} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (3.9)$$

[model according to Dearing and Hamilton (2006)]

where:

α_{211}, α_{221} and α_{231} are regression constants. TAXB and FDI are defined in (3.3). SIZE is market size, HCA is human capital, OPE is country openness, and ROI is return on capital. TAXB*SIZE is product of tax burden and market size. TAXB*HCA is product of tax burden and human capital. TAXB*OPE is product of tax burden and country openness. TAXB*ROI is product of tax burden and return on investment. β_{T211}, β_{T221}, β_{S221}, β_{H221}, β_{O221}, β_{R221}, β_{T231}, β_{S231}, β_{H231}, β_{O231}, β_{R231}, β_{TS231}, β_{TH231}, β_{TO231} and β_{TR231} are regression coefficients. i denotes EAC countries, t denotes time. ε_{211}, ε_{221} and ε_{231} are error terms.

3.7.6.3 Tax Burden, Macro-economic Factors and Foreign Direct Investment Inflows

Objective Three was to establish the mediating influence of macro-economic factors on the relationship between the tax burden and foreign direct investment inflows into the EAC countries. The macro-economic factors are GDP growth rates, inflation rates, exchange rates and interest rates. In this section, the mediating variable explains the relationship between the FDI inflows and the tax burden. In the tests, the intervention of the mediating variable counteracts direct interaction between tax burden and FDI inflows. Therefore, the macro-economic factors that were selected have capacity to intervene in the interaction between FDI inflows and tax burden. The macro-economic factors of GDP growth rate, inflation, exchange rates and interest rates have previously been used as mediation variables in other research. Hayes and Preacher (2014) previously used statistical mediation analyses.

The regression analysis followed Baron and Kenny (1986) four steps to determine the mediating influence. The following were the four steps used during the tests: Step One, FDI inflows were regressed on the tax burden (similar to Objective One). Step Two, the mediators were regressed on the tax burden to determine the mediator variable whose TAXB coefficients were significant to be included in further statistical data analyses. Step Three, FDI inflows were regressed on the tax burden and the mediator variables (from Step Two) to determine presence and significance of mediating influence. Step Four, TAXB coefficients from Step One, Step Two and Step Three were compared. Significance of the mediating influence was established by examining the coefficients of the mediator variables. In addition, in Step One, Step Two and Step Three, model summaries were established, ANOVA tests and regression analysis were conducted.

The following are the models that were used in Step One, Step Two and Step Three in the mediation tests.

Step One Models

$$FDI_{it} = \alpha_{31} + \beta_{T31}TAXB_{it} + \varepsilon_{31} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (3.10).$$

(Similar to Objective One)

Step One Models:

$$GDPR_{it} \quad = \quad \alpha_{G32} + \beta_{TG32}TAXB_{it\,+}\,\varepsilon_{G32}\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(3.11).$$

$$IFR_{it} \quad = \quad \alpha_{IF32} + \beta_{TIF32}TAXB_{it\,+}\,\varepsilon_{IF32}\dots\dots\dots\dots\dots\dots\dots\dots\dots(3.12).$$

$$EXCR_{it} \quad = \quad \alpha_{E32} + \beta_{TE32}TAXB_{it} + \varepsilon_{TE32}\dots\dots\dots\dots\dots\dots\dots\dots\dots(3.13).$$

$$INR_{it} \quad = \quad \alpha_{I32} + \beta_{TI32}TAXB_{it} + \varepsilon_{TI32}\dots\dots\dots\dots\dots\dots\dots\dots\dots(3.14).$$

[model according to Mackinnon, Lockwood, Hoffman, West and Sheets (2002).]

In 3.11, 3.12, 3.13 and 3.14, the variables with significant coefficients (β_{Tit}) were considered for further statistical analysis.

Step Three model:

$$FDI_{it} = \alpha_{33} + \beta_{T33}TAXB_{it} + \beta_{G33}GDPR_{it,} + \beta_{F33}IFR_{it,} + \beta_{E33}EXCR_{it,} + \beta_{I33}INR_{it,} +$$

$$\varepsilon_{33}\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(3.15).$$

where:

$\alpha_{31,}$ $\alpha_{G32,}$ $\alpha_{IF32,}$ $\alpha_{E32,}$ $\alpha_{I32,}$ and α_{33} are regression constants. FDI and TAXB are defined in (3.3). GDPR is GDP growth rate, IFR is inflation rate, EXCR is exchange rate, INR is interest rate. GDPR, IFR, EXCR and INR are mediator variables. β_{T31}, β_{TG32}, β_{TIF32}, β_{TE32}, β_{TI32}, β_{T33}, β_{G33}, β_{F33}, β_{E33} and β_{I33} are regression coefficients. i denotes EAC countries, t denotes time. ε_{31}, ε_{G32}, ε_{IF32}, ε_{TE32}, ε_{TI32}, and ε_{33} are error terms.

[Mediating variable's coefficients (β_{G33}, β_{F33}, β_{E33}, β_{I33}) in Step Three must be significant. The coefficients of factors being mediated must be significant when the mediating variable is included ($\beta_{T31} < \beta_{Ti}$).]

According to Zhao, Lynch and Chen (2010), the main criticism of mediation process is the ability to influence the mediating variables. Hence, care must be taken to measure the mediation variable in ethical and conventional methods to deter the interference with the mediator outcome. Hence, paradigm for the validity of the mediator results should be determined. In addition, since the research design is a correlational design, a third variable that is independent of the mediator variable may cause the mediation effect. However, this limitation is mitigated by temporal precedence of the independent variable before the dependent variable in time. This offers substantiation for guiding and contributory link from the independent variable to the dependent variable. In addition, non-inaccuracy should enable detection of another variable. In this study the tools used to formulae the independent variable and the mediator were theoretically divergent hence the mediator and independent variables would not interrelate.

3.7.6.4 Tax Burden, Economic Development, Macro-economic Factors and Foreign Direct Investment Inflows

Objective Four was to establish the joint effect of the tax burden, economic development (market size, human capital, country openness, return on investment) and macro-economic factors (GDP growth rates, inflation rates, exchange rates and interest rates) on foreign direct investment inflows into the EAC countries. This was a three step method. Step One: tests were conducted similar to Objective One. Step Two, the variables were introduced in the regression equation in Step One on the relationship between the tax burden and foreign direct investment inflows into the EAC countries.

Step Three, comparisons of TAXB coefficients in Step One and Step Two were conducted to determine the joint effect on FDI inflows. The significance of the joint effect was determined by examining the coefficients of the variables. In Step One and Step Two, model summaries were established, ANOVA tests and regression analysis were conducted. List, Shaikh and Xu (2016) previously examined use of joint effect in multiple hypotheses testing. The following were the models used during the tests:

Step One model:

$$FDI_{it} = \alpha_{41} + \beta_{T41}TAXB_{it} + \varepsilon_{41} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (3.16).$$

Step Two model:

$$FDI_{it} = \alpha_{42} + \beta_{T42}TAXB_{it} + \beta_{S42}SIZE_{it} + \beta_{H42}HCA_{it} + \beta_{O42}OPE_{it} + \beta_{R42}ROI_{it} + \beta_{G42}GDPR_{it}$$
$$+ \beta_{F42}IFR_{it} + \beta_{E42}EXCR_{it} + \beta_{I42}INR_{it} + \varepsilon_{42} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (3.17).$$

[model according to Fairchild and Mackinnon (2009)]

where:

α_{41} and α_{42} are model constants. FDI and TAXB are defined in (3.3). SIZE, HCA, OPE and ROI are defined in (3.7, 3.8 and 3.9). GDPR, IFR, EXCR and INR are defined in (3.10 to 3.13). β_{T41}, β_{T42}, β_{S42}, β_{H42}, β_{O42}, β_{R42}, β_{G42}, β_{F42}, β_{E42}, β_{I42} are regression coefficients. i denotes EAC countries while t denotes time. ε_{41} and ε_{42} are error terms.

According to Sribney (2011), stepwise multiple regression methods yield biased R^2 and F- tests with narrow confidence intervals, biased regression coefficients and meaningless p-values. The problems were addressed by adopting adjusted statistics using total number of candidate variables. R^2 and adjusted R^2 results were not materially different as evidenced by the results presented in Chapter 5. Sections 3.7.6.1 to 3.7.6.4 of the study are summarised in Table 3.2.

Table 3.2: Summary of Research Objectives, Hypotheses, Statistical Analysis and Interpretations, 2000 - 2013

Objective One: To determine the effect of the tax burden on FDI inflows into the EAC countries.	
Hypotheses H_1: Tax burden has significant negative effect on FDI inflows into the EAC countries.	
Analytical Technique	Statistical Analysis and Interpretation of Results.
Simple linear regressions analysis model.	F-test for ANOVA, $p < 0.05$, reject H_0, accept H_1.
FDI= f(TAXB)	T-tests for regression analyses, $p < 0.05$, reject H_0, accept H_1.
Step One model: Regress FDI inflows on TAXB.	Relationship exists if β_{T1} is significant.
$FDI_{it} = \alpha_1 + \beta_{T1}TAXB_{it} + \varepsilon_1$	Presence of significant negative effect if the for tax burden coefficient is significant and negative.
where:	
α_1 is regression constant, FDI is FDI inflows, TAXB is tax burden, β_{T1} is regression coefficients, i denotes EAC countries, t denotes years, ε is error term.	
Objective Two: To investigate the influence of economic development on the relationship between the tax burden and FDI inflows into the EAC countries.	
Hypotheses H_2: Economic development (market size, human capital, country openness and return on investment) has significant influence on the relationship between the tax burden and FDI inflows into the EAC countries.	
Analytical Technique	Statistical Analysis and Interpretation of Results
Section One: Composite economic development as an independent variable	F-test for ANOVA, $p < 0.05$, reject H_0, accept H_1.
Multiple linear regression analysis	T-tests for regression analyses, $p < 0.05$, reject H_0, accept H_1.

FDI= f(TAXB, Economic Development) Step One model: Regress FDI inflows on TAXB. $FDI_{it} = \alpha_{21} + \beta_{T21}TAXB_{it} + \varepsilon_{21}$ Step Two model: Include composite economic development as an independent variable. Regress FDI on TAXB and CED. $FDI_{it} = \alpha_{22} + \beta_{T22}TAXB_{it} + \beta_{ED22}CED_{it} + \varepsilon_{22}$ Step Three model: Include product of tax burden and composite economic development as moderator variable. Regress FDI inflows on TAXB, CED and TAXB*CED. $FDI_{it} = \alpha_{23} + \beta_{T23}TAXB_{it} + \beta_{ED23}CED_{it} + \beta_{TED23}TAXB*CED_{it} + \varepsilon_{23}$ [models according to Dearing and Hamilton (2006)] where: $\alpha_{21,}$ α_{22} and α_{23} are regression constants. FDI is FDI inflows, TAXB is tax burden, CED is composite economic development, TAXB*CED is product of tax burden and composite economic development. β_{T21}, β_{T22}, β_{ED22}, β_{T23}, β_{ED23}, β_{TED23} are regression coefficients, i denotes EAC countries, t denotes time. ε_{21}, ε_{22} and ε_{23} are error terms.	Relationship exists if β_{T21}, β_{T22}, β_{ED22}, β_{T23}, β_{ED23}, β_{TED23} are significant. a. If tax burden and composite economic development coefficients are not significant when TAXB*CED is added, there is full moderating influence b. If tax burden and composite economic development are significant with TAXB*CED added, there is moderation and the main effect is significant.
Section Two: Economic development indicators as a variable. Multiple linear regression analysis FDI = f(TAXB, Economic Development Indicators) Step One model: Regress FDI inflows on TAXB. $FDI_{it} = \alpha_{211} + \beta_{T211}TAXB_{it} + \varepsilon_{211}$ Step Two model: Include economic development indicators. Regress FDI inflows on TAXB, SIZE, HCA, OPE and ROI.	Correlation coefficient significant if (r) > 0.535. F-test for ANOVA, $p < 0.05$, reject H_0, accept H_1. T-tests for regression analyses, $p < 0.05$, reject H_0, accept H_1. Relationship exists if β_{T211}, β_{T221}, β_{S221}, β_{H221}, β_{O221}, β_{R221}, β_{T231}, β_{S231}, β_{H221}, β_{O231}, β_{R221}, β_{TS221}, β_{TH231}, β_{TO231} and β_{TR231} are significant. a. If tax burden and economic development indicators coefficients

$FDI_{it} = \alpha_{221} + \beta_{T221}TAXB_{it} + \beta_{S221}SIZE_{it} + \beta_{H221}HCA_{it} + \beta_{O221}OPE_{it} + \beta_{R221}ROI_{it} + \epsilon_{221}$	are not significant with TAXB*EDI added, there is full moderating influence
Step Three model: Include economic development indicators as moderating variables. Regress FDI on TAXB, SIZE, HCA, OPE, ROI, TAXB*SIZE, TAXB*HCA, TAXB*OPE and TAXB*ROI.	b. If tax burden and EDI economic development indicators are significant with TAXB*EDI added, there is moderation and the main effect is significant.
$FDI_{it} = \alpha_{231} + \beta_{T231}TAXB_{it} + \beta_{S231}SIZEit + \beta_{H231}HCA_{it} + \beta_{O231}OPE_{it} + \beta_{R221}ROI_{it} + \beta_{TS221}TAXB*SIZE_{it} + \beta_{TH231}TAXB*HCA_{it} + \beta_{TO231}TAXB*OPE_{it} + \beta_{TR231}TAXB*ROI_{it} + \epsilon_{231}$	
[models according to Dearing and Hamilton (2006)]	
where:	
α_{211}, α_{221} and α_{231} are regression constants. FDI is FDI inflows, TAXB is tax burden, SIZE is market size, HCA is human capital, OPE is country openness while ROI is return on investment. TAXB*SIZE is product of tax burden and market size, TAXB*HCA is product of tax burden and human capital, TAXB*OPE is product of tax burden and country openness while TAXB*ROI is product of tax burden and return on investment. β_{T211}, β_{T221}, β_{S221}, β_{H221}, β_{O221}, β_{R221}, β_{T231}, β_{S231}, β_{H221}, β_{O231}, β_{R221}, β_{TS221}, β_{TH231}, β_{TO231} and β_{TR231} are regression coefficients, i denotes EAC countries, t denotes time. ϵ_{211}, ϵ_{221} and ϵ_{231} are error terms.	

Objective Three: To establish the effect of macro-economic factors (GDP growth rates, inflation rates, exchange rates and interest rates) on the relationship between the tax burden and FDI inflows into the EAC countries.

Hypotheses H$_3$: Macro-economic factors (GDP growth rates, inflation rates, exchange rates and interest rates) have significant effect on the relationship between the tax burden and FDI inflows into the EAC countries.

Multiple linear regression analysis.	F-test for ANOVA, $p < 0.05$, reject H$_0$, accept H$_1$.
FDI = f(TAXB, Macro-economic Factors)	T-tests for regression analyses, $p < 0.05$, reject H$_0$, accept H$_1$.
Step One model: Regress mediators (GDPR, IFR, EXCR and INR) on TAXB.	Relationship exists if β_{T31}, β_{TG32}, β_{TIF32}, β_{TE32}, β_{TI32}, β_{T33}, β_{G33}, β_{F33}, β_{E33} and β_{I33} are significant.
$GDPR_{it} \quad = \quad \alpha_{G31} + \beta_{TG31}TAXB_{it} + \epsilon_{G31}$	Presence of mediation influence if the coefficients in Step one is
$IFR_{it} \quad = \quad \alpha_{IF31} + \beta_{TIF31}TAXB_{it} + \epsilon_{IF31}$	

$$EXCR_{it} \quad = \quad \alpha_{E31} + \beta_{TE31}TAXB_{it} + \varepsilon_{TE31}$$

$$INR_{it} \quad = \quad \alpha_{I31} + \beta_{TI31}TAXB_{it} + \varepsilon_{TI31}$$

[model according to Mackinnon, Lockwood, Hoffman, West and Sheets (2002).] Only mediator variables with significant TAXB coefficients are included in Step Three.

Step Two model: Regress FDI inflows on TAXB.

$$FDI_{it} = \alpha_{32} + \beta_{T32}TAXB_{it} + \varepsilon_{32}$$

Step Three model: Add GDPR and EXCR into Model in Step Two. Regress FDI inflows on TAXB, GDPR and EXCR.

$$FDI_{it} = \alpha_{33} + \beta_{T33}TAXB_{it} + \beta_{G33}GDPR_{it,} + \beta_{E33}EXCR_{it,} + \varepsilon_{33}$$

where:
α_{G31}, α_{IF31}, α_{E31}, α_{I31}, α_{32} and α_{33} are regression constants. FDI and TAXB are defined in (3.3). GDPR is GDP growth rate, IFR is inflation rate, EXCR is exchange rate, INR is interest rate. GDPR, IFR, EXCR and INR are mediator variables. β_{TG31}, β_{TIF31}, β_{TE31}, β_{TI31}, β_{T32}, β_{T33}, β_{G33}, and β_{E33} are regression coefficients. i denotes EAC countries, t denotes time. ε_{G31}, ε_{IF31}, ε_{TE31}, ε_{TI31}, ε_{32} and ε_{33} are error terms.

Objective Four: To determine the joint effect of the tax burden, economic development (market size, human capital, country openness and return on investment) and macro-economic factors (GDP growth rates, inflation rates, exchange rates and interest rates) on FDI inflows into the EAC countries.

Hypotheses H_4: There is significant joint effect of tax burden, economic development (market size, human capital, country openness and return on investment) and macro-economic factors (GDP growth rates, inflation rates, exchange rates and interest rates) on FDI inflows in EAC countries.

Multiple linear regression analysis.	F-test for ANOVA, $p < 0.05$, reject H_0, accept H_1
FDI = f(TAXB, Economic Development, Macro-economic Factors)	T-tests for regression analyses, $p < 0.05$, reject H_0, accept H_1.
Step One model: Regress FDI inflows on TAXB.	Relationship exists if β_{T41}, β_{T42}, β_{S42}, β_{H42}, β_{O42}, β_{R42}, β_{G42}, β_{F42}, β_{E42}, β_{I42} are significant.

	Presence of joint effect if the coefficients of the independent variables are significant.
$FDI_{it} = \alpha_{41} + \beta_{T41}TAXB_{it} + \varepsilon_{41}$ Step Two model: Include TAXB, as independent variable and Economic Development, Macro-economic Factors as independent variables. Regress FDI inflows on TAXB, SIZE, HCA, OPE, ROI, GDPR, IFR, EXCR and INR. $FDI_{it} = \alpha_{42} + \beta_{T42}TAXB_{it} + \beta_{S42}SIZE_{it} + \beta_{H42}HCA_{it} + \beta_{O4}OPE_{it} + \beta_{R42}ROI_{it} + \beta_{G42}GDPR_{it} + \beta_{IF42}IFR_{it} + \beta_{E42}EXCR_{it} + \beta_{IN42}INR_{it} + \varepsilon_{42}$ where: α_{41} and α_{41} are model constants. FDI and TAXB are defined in (3.3). SIZE, HCA, OPE and ROI are defined in (3.6). GDPR, IFR, EXCR and INR are defined in (3.10 to 3.13). β_{T41}, β_{T42}, β_{S42}, β_{H42}, β_{O42}, β_{R42}, β_{G42}, β_{F42}, β_{E42}, β_{I42} are regression coefficients, i denotes EAC countries while t denotes time, ε_{41} and ε_{42} are error terms.	

Source: Author, 2016.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSIONS

4.1 Introduction

This chapter presents data analysis, results and discussions. The results for data diagnostics tests and summary statistics tests are presented. In addition, test results for the variable's movements and causality analysis are set out. Further, results of independent variable's significance and associations with the dependent variable are demonstrated. The discussions on data analysis test results are presented. The chapter summary is included.

4.2 Diagnostic Test Results

Data were subjected to diagnostic tests to establish whether certain conditions were present. The diagnostic tests conducted were autocorrelation tests, unit root tests and co-integration tests. The tests were conducted on the independent variables and the dependent variable. The independent variables were tax burden (TAXB), market size (SIZE), human capital (HCA), country openness (OPE), return on investment (ROI), GDP growth rates (GDPR), inflation rates (IFR), exchange rates (EXCR) and interest rates (INR) while the dependent variable was foreign direct investment (FDI) inflows. The following sections presents test results for the diagnostic tests.

4.2.1 Auto-correlation Tests Results

The data for the independent and dependent variables were subjected to autocorrelation tests to establish whether the time series data used in the study were influenced by historical values. Q-statistics and the associated probabilities were established using

Correlogram and Ljung-Box statistics. The Q-tests statistics were conducted under the assumption of strictly exogenous regression variables. The tests were conducted according to the number of system generated lags which was 12. During the tests, it was confirmed that all the spikes were within the autocorrelation and partial correlation lines in the correlogram and the autoregressive coefficients gradually decreased from lag 1 to lag 12.

The test results indicate that SIZE, HCA, OPE and ROI data had spikes outside the autocorrelation and partial correlation lines at level. However, the p-values were more than 0.05. Further, autocorrelation tests were conducted. The spikes were within the autocorrelation and partial correlation lines at 1st differencing; hence the Q-statistics and p-values were established. The Q-statistic associated p-values were more than 0.05. Table 4.1 presents the Q-statistics and the associated p-values.

Table 4.1: Autocorrelation Test Results, 2000 - 2013

Country	Statistic	FDI	TAXB	SIZE**	HCA**	OPE**
At Level	Q-statistic	7.3376	6.4573	12.735	12.211	8.6559
	p-value	0.835	0.891	0.389	0.429	0.732
1st Differencing	Q-statistic			9.0965	2.4294	0.6901
	p-value			0.613	0.996	1.0000

Country	Statistic	ROI**	GDPR	IFR	EXCR	INR
At Level	Q-statistic	10.750	4.7663	1.5994	4.4612	8.7713
	p-value	0.550	0.965	1.000	0.974	0.722
1st Differencing	Q-statistic	1.5985				
	p-value	0.999				

Note: H_0: data is auto-correlated. H_1: data is not auto-correlated. If p-value < 0.05, reject H_0 and accept H_1. Number of lags is 12. Data tested at level with 12 lags. Coefficients decreased gradually from lag 1 to lag 12. None of the spikes was beyond autocorrelation and partial correlation lines. ** data had spike beyond two lines, at level. After 1st differencing, the spikes were within the two lines. Significance level is 0.05.
Source: Author Computations, 2016.

Therefore, there was no autocorrelation in SIZE, HCA, OPE and ROI data. In addition, data for FDI, TAXB, GDPR, IFR, EXCR and INR was subjected to autocorrelation tests. The results indicated that the variables spikes were within the autocorrelation and partial correlation lines at level. The Q-statistic associated p-values were more than 0.05. Hence, there was no autocorrelation. Therefore, all the data did not have autocorrelation and was not affected by historical values during the study period.

4.2.2 Unit Root Test Results

The time series data used in this study was subjected to unit root tests to establish presence of data stationarity. Table 4.2 presents t-statistics, standard error, confidence levels and p-values from the tests.

Table 4.2: Unit Root Test Results, 2000 - 2013

Country	Statistic	FDI	TAXB	SIZE**	HCA	OPE **
At Level	t-statistic	-0.6978	-0.7702	-3.0857	-2.8144	-2.1098
	Std. Error	0.3274	0.1717	0.2754	0.0793	0.2223
Level of	1 %	-4.2001	-4.0579	-5.1249	-4.0579	-4.8864
significance	5 %	-3.1754	-3.1199	-3.9334	-3.1199	-3.8290
	10 %	-2.7290	-2.7011	-3.4200	-2.7011	-3.3630
	p-value	0.8074	0.7937	0.1572	0.0831	0.4937

Country	Statistic	ROI	GDPR**	IFR	EXCR	INR
At Level	t-statistic	0.7828	-3.6456	-1.3010	-0.8064	-2.7542
	Std. Error	0.0788	-3.6456	0.5341	0.1144	-2.7542
Level of	1 %	-4.0579	-4.8864	-4.2001	-4.0579	-4.0579
significance	5 %	-3.1199	-3.8290	-3.1754	-3.1199	-3.1199
	10 %	-2.7011	-3.3630	-2.7290	-2.7011	-2.7011
	p-value	0.9889	0.0659	0.5887	0.7831	0.0917

Note: H_0: data has unit roots. H_1: data does not have unit root. If p-values < 0.05, reject H_0 and accept H_1. Significance levels were 0.01, 0.05 and 0.1.
Source: Author Computations, 2016.

Presence of unit roots dictate whether data should be differenced before use since it indicates data stationarity. Use of data that is not stationary results in spurious results

that are not valid. Augmented Dickey-Fuller (ADF) tests were performed to investigate presence of unit roots in the independent and dependent variables data. The hypothesis tested was that the data had unit root during the study period.

From the results in Table 4.2, data for FDI inflows, tax burden, market size, country openness, return on investments, inflation rates, exchange rates and interest rates did not have unit roots at level with intercept. However, data for OPE and GDPR had unit roots at level with intercepts but were tested further. The data did not have units root at level with trend and intercept. Therefore, there was no need for differencing. In addition, all the p-values were more than 0.05. Thus, the data did not have unit root. This was confirmation that the data was stationary and hence further analysis using the data would not results in spurious results. Hence, the data was integrated of order O (I (0)) since the data did not have unit roots at 1 %, 5 % and 10 % levels of significance as evidenced by the p-values.

4.2.3 Co-integration Test Results

Co-integration tests are used for long-run measurements of relationships. Johansen co-integration tests were conducted between the independent variables and the dependent variable. In this study, presence of co-integration is indicated by Trace or Max-Eigen statistics being more than the critical values at 0.05 levels of confidence. In case of presence of at least one co-integration equation, Vector Error Correction (VECM) models were used in additional statistical data analysis elsewhere in this study. In addition, if no co-integration equations were present, Vector Autoregressive models (VAR) were used for further statistical data analysis. Table 4.3 presents results of Johansen co-integration test results.

Table 4.3: Johansen Co-Integration Test Results, 2000 - 2013

Variables	Statistics	Hypothesized No. of CE(s)	Eigen Value	Statistic	P-value	Critical value	Co-integration Equation
TAXB	Trace	None	0.761	21.440	15.495	0.006	1
		At most 1	0.299	4.265	3.842	0.039	1
	Max-Eigen	None	0.761	17.175	14.265	0.017	1
		At most 1	0.299	4.265	3.842	0.039	1
SIZE	Trace	None	0.681	15.310	0.053	15.495	0
		At most 1	0.125	1.604	0.205	3.842	0
	Max-Eigen	None	0.681	13.706	0.061	14.265	0
		At most 1	0.125	1.604	0.205	3.842	0
HCA	Trace	None	0.632	13.965	15.495	0.084	0
		At most 1	0.152	1.972	3.842	0.160	0
	Max-Eigen	None	0.632	11.993	14.265	0.111	0
		At most 1	0.152	1.972	3.842	0.160	0
OPE	Trace	None	0.413	9.367	15.495	0.333	0
		At most 1	0.219	2.973	3.842	0.085	0
	Max-Eigen	None	0.413	6.394	14.265	0.563	0
		At most 1	0.219	2.973	3.842	0.085	0
ROI	Trace	None	0.677	15.090	15.495	0.058	0
		At most 1	0.120	1.535	3.842	0.215	0
	Max-Eigen	None	13.555	14.265	0.065	13.555	0
		At most 1	1.535	3.842	0.215	1.535	0
GDPR	Trace	None	0.617	14.124	15.495	0.080	0
		At most 1	0.196	2.623	3.842	0.105	0
	Max-Eigen	None	0.617	11.501	14.265	0.131	0
		At most 1	0.196	2.623	3.842	0.105	0
IFR	Trace	None	0.736	22.250	15.495	0.004	2
		At most 1	0.407	6.267	3.842	0.012	2
	Max-Eigen	None	0.736	15.983	14.265	0.027	2
		At most 1	0.407	6.267	3.842	0.012	2
EXCR	Trace	None	0.607	17.643	15.495	0.023	2
		At most 1	0.415	6.430	3.842	0.011	2
	Max-Eigen	None	0.607	11.213	14.265	0.144	2
		At most 1	0.415	6.430	3.842	0.011	2
INR	Trace	None	0.589	13.947	15.495	0.084	0
		At most 1	0.239	3.277	3.842	0.070	0
	Max-Eigen	None	0.589	10.670	14.265	0.172	0
		At most 1	0.239	3.277	3.842	0.070	0

Prob. = MacKinnon-Haug-Michelis (1999) p-values. Hypothesis 1 - H_0: there is no co-integration equation. H_1: there is co-integration equation. Hypothesis 2 - H_0: there is at most 1 co-integration equation, H_1: there is at most no co-integration equation. a) If $p < 0.05$, reject H_0 and accept H_1. b) Trace statistic > associated critical statistic, reject H_0 and accept H_1. c) Max-Eigen statistic > associated critical statistic, reject H_0 and accept H_1. d). Significance level is 0.05.
Source: Author Computations, 2016.

The purpose of additional statistical data analysis was to determine individual or joint significance and short-run and long-run associations between the independent variables and the dependent variable. The co-integration tests were conducted on raw data. The results from co-integration tests indicate that there was one co-integration equation between FDI and TAXB in the EAC countries. Further, there were two co-integration equations each between FDI and IFR, and between FDI and EXCR in the EAC countries. Hence, further statistical analysis of the significance and associations between FDI and TAXB, FDI and IFR, FDI and EXCR used Vector Error Correction (VECM) models. In addition, further analysis of the significance and association between FDI and SIZE, OPE, ROI, GDPR used Vector Autoregressive (VAR) models since the data did not have co-integration equations.

4.3 Summary Statistics Results

Results of summary statistics tests are presented in this section. The summary statistics presented are a measure of the central tendency (mean), measures of dispersion (range {maximum, minimum}, and standard deviations) and measures of asymmetry (skewness and kurtosis). Results in Table 4.4 indicate that FDI mean was not close to the range indicating that during the study period there was sharp increases in the FDI inflows, the increases were gradual and consistent. However, there was substantial FDI growth as evidenced by the range and the standard deviation. The FDI range was more than the mean. Skewness for FDI was within the acceptable range of +/-2. However, kurtosis results demonstrate that the values were not within the acceptable range. Tax burden mean was closer to the maximum than to the minimum. This indicates that tax burden was consistently high in the EAC countries during the study period. The tax burden range was narrow as evidenced by the standard deviation. Hence, tax burden was

being maintained within a narrow range. Skewness was within the acceptable range while kurtosis was out of the acceptable range of +/-2. SIZE had a wide range. This demonstrated that SIZE grew almost consistently during the study period. The SIZE standard deviation was high indicating that there was significant growth in the market size during the study period. SIZE skewness and kurtosis were within the acceptable range of +/-2. The mean for HCA was high over one hundred per cent while the range was narrow comparatively. This indicates that there was no significant growth recorded in human capital.

Table 4.4: Summary Statistics, 2000 - 2013

Statistic	FDI	TAXB	SIZE	HCA	OPE	ROI	GDPR	IFR	EXCR	INR
Mean	23.17	15.22	2.56	108.73	53.54	-5.89	5.49	8.59	6.47	17.36
Maximum	45.06	18.04	2.80	116.8	93.6	-5.42	7.08	15.68	6.72	20.16
Minimum	11.88	12.66	2.36	92.2	6.68	-6.56	3.00	3.56	6.2	4.20
Range	33.18	5.38	0.44	24.60	86.92	1.147	4.08	12.12	0.70	15.96
Std. Dev.	10.82	1.47	0.16	8.07	23.53	0.39	1.23	3.43	0.14	1.28
Skewness	0.81	0.18	0.02	-0.96	0.57	-0.18	-1.04	0.50	0.14	0.76
Kurtosis	2.32	2.26	1.4	2.62	1.99	1.64	3.18	2.46	2.44	2.62

Note: Mean, maximum, minimum, range, Standard deviation are in percentage. Skewness and kurtosis are unit-less.
Source: Author Computations, 2016.

Human capital skewness was within the acceptable range while the kurtosis was not. Results for OPE show that country openness improved significantly during the study period as evidenced by the range and standards deviation. Country openness range was more than the mean while skewness and kurtosis were within the acceptable range of +/-2. In addition, results for ROI show that return on investments did not change significantly during the study period as evidenced by the narrow range and the low standard deviation. The skewness and kurtosis were within acceptable range of +/-2.

Further, the GDPR did not vary significantly as indicated by the range and standard deviation. The skewness was within the acceptable range while kurtosis was not. The range for IFR was more than the mean demonstrating that there was seasonality and substantial increase in the inflation rates. IFR skewness was within the acceptable range while kurtosis was not. Results for EXCR show that there was no significant difference between the mean, maximum and the minimum values, hence the range and standard deviation were narrow. Skewness was within the acceptable range while kurtosis was not. Results for INR demonstrate that the mean was close to the range than to the maximum. This indicates that there was no substantial growth in INR. The INR range was narrow. Skewness was within the acceptable range while kurtosis was not within the acceptable range of +/-2 during the tests.

This section presented results of summary statistics of the variables during the study period 2000 to 2013 in EAC countries. The results indicate that the summary statistics varied according to the variable under study. Specifically, FDI, market size and country openness had substantial growth while human capital and return on investment had low growth during the study.

4.4 Variables Movements and Causality Analysis Results

The variables movements and causality analysis were conducted for the independent variables TAXB (tax burden), SIZE (market size), HCA (human capital), OPE (country openness) and ROI (return on investment), GDPR (GDP growth rates), IFR (inflation rates), EXCR (exchange rates) and INR (interest rates) and the dependent variable foreign direct investment (FDI) inflows in this study. The following sections present variables trends, covariance analysis, correlation analysis and Granger-causality tests results in the EAC countries during the study period.

90

4.4.1 Variable's Trends

Data for the independent dependent variable were graphically plotted to enable comparison of the variable's trends in the EAC countries. Graph 4.1 captures the trends for data in Objective One which were tax burden (TAXB) and foreign direct investment (FDI) inflows. The results indicate that in the initial years of the study, FDI and TAXB trends were on positive upward movements though TAXB trends increased at a faster rate than FDI trends. However, by the year 2004, FDI increased at a faster rate than TAXB with the sharpest increase recorded around the year 2009. FDI continued on a rising trend to the end of the study period. TAXB trends did not rise as sharply as FDI trends with the trends lower than the twenty per cent mark throughout the study period. Nonetheless, TAXB and FDI movements were not consistent throughout the study period. Hence, the means and the variances were not consistent. Therefore, the trends for TAXB and FDI were not stationary.

Graph 4.1: FDI Inflows and Tax Burden Trends, 2000 - 2013
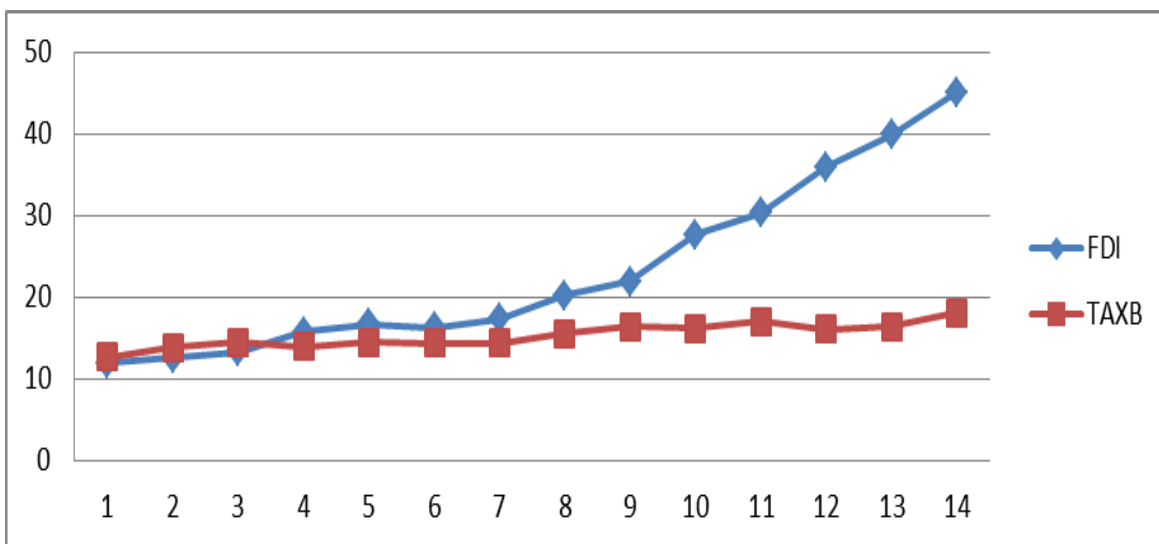
Note: Y represents FDI inflows and TAXB in percentages while X represents years 2000 to 2013.
Source: Author Computations, 2016.

The trends presented in Graph 4.2 are for the variable's data used in Objective Two. The variables were FDI inflows, tax burden (TAXB) and economic development indicators [market size (SIZE), human capital (HCA), country openness (OPE) and return on investment (ROI)]. The results indicate that SIZE consistently increased throughout the study period though there was a decrease in the rate of increase around the year 2009. HCA trend demonstrates that there was consistent increase with no sharp increase or decrease in the rates. OPE had a slow increase throughout the study period which mirrored ROI trend. Therefore, from the variables trends, data stationarity could not be established.

Graph 4.2 presents FDI inflows, TAXB and economic development trends in the EAC countries during the study period.

Graph 4.2: FDI Inflows, Tax Burden and Economic Development Trends, 2000 - 2013
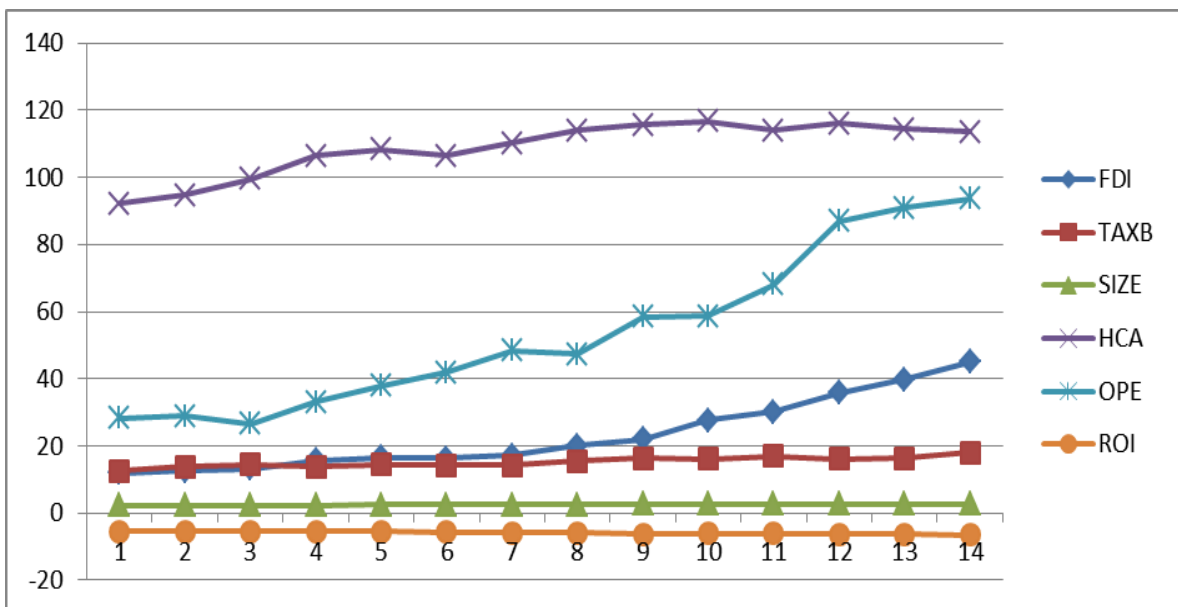
Note: Y represents FDI, TAXB, SIZE, HCA, OPE and ROI in percentages while X represents years 2000 to 2013.
Source: Author Computations, 2016.

Graph 4.3 demonstrates trends in FDI inflows, TAXB and macro-economic factors used in Objective Three. The macro-economic factors were GDP growth rate (GDPR), inflation rate (IFR), exchange rate (EXCR) and interest rate (INR). From the graphical representations, FDI trends were on sharp rise while TAXB trends were consistent throughout the study period. INR trends started high but decreased in the year 2006. The INR trends then rose though at a slow rate to the end of the study period in 2013.

Inflation rate trends were on downward and upward movement throughout the study period displaying no consistency. GDPR trend were on upward movements though the trends were interspersed with downward movements. In IFR trends, there were pronounced seasonality as evidenced by the movements. EXCR and INR trends were consistent throughout the study period. FDI inflows trends, TAXB trends were similar to Graph 4.1 and macro-economic factors of GDPR, IFR, EXCR and INR trends in the EAC during the study period are presented in Graph 4.3.

Graph 4.3: FDI Inflows, Tax Burden and Macro-economic Factors Trends, 2000 - 2013
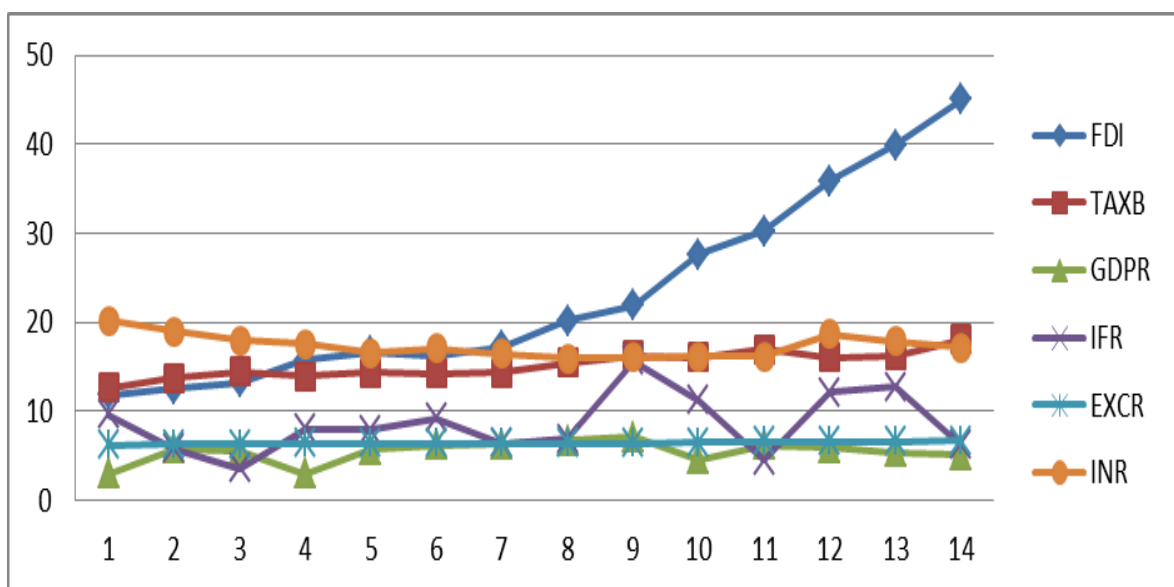
Note: Y represents, FDI, TAXB, GDPR, IFR, EXCR and INR in percentages while X represents years 2000 to 2013.
Source: Author Computations, 2016.

93

The graphical representation is according to the variables in Objective One, Two and Three. Objective Four variables were left out since the variables trends were covered in the other objectives trends. From the three graphical representations of the research variables, there was no consistent movement in the trends. Therefore, data stationarity could not be determined from the trend movements. Therefore, there was need for other tests to be conducted to establish data stationarity.

4.4.2 Covariance Tests Results

This section presents results of covariance tests between the independent and the dependent variable. Covariance tests show the direction of the variables when one of the variables changes. Table 4.5 presents the covariance matrix for FDI inflows with independent variables TAXB, SIZE, HCA, OPE, ROI, GDPR, IFR, EXCR and INR.

Table 4.5: Covariance Matrix, 2000 - 2013

	FDI	TAXB	SIZE	HCA	OPE	ROI	GDPR	IFR	EXCR	INR
FDI	108.68									
TAXB	13.11	2.02								
SIZE	1.51	0.21	0.02							
HCA	56.96	8.96	1.02	60.43						
OPE	231.62	27.97	3.39	132.34	514.29					
ROI	-3.66	-0.49	-0.06	-2.35	-8.20	0.14				
GDPR	1.72	0.68	0.07	4.04	6.70	-0.15	1.40			
IFR	9.06	0.78	0.21	10.18	27.27	-0.50	0.12	10.90		
EXCR	1.34	0.16	0.02	0.81	2.84	-0.04	0.03	0.05	0.02	
INR	-2.14	-0.88	-0.07	-6.89	-5.41	0.16	-0.80	-0.03	-0.05	1.52

Expected sign for FDI covariance with TAXB is -ve, FDI with SIZE is +ve, FDI with HCA is +ve, FDI with OPE is +ve, FDI with ROI is +ve, FDI with GDPR is +ve, FDI with IFR is -ve, FDI with EXCR is -ve and FDI with INR is -ve. Covariance is unit-less.
Source: Author Computations, 2016.

The results presented in Table 4.4 indicate that FDI had the expected positive signs with SIZE, HCA, OPE and GDPR. Hence, the variables move in the same direction. However, FDI did not have the expected positive sign with ROI, the expected negative

sign with IFR and the expected negative sign with EXCR in the EAC countries. This means that the variables move in opposite directions. FDI had the expected negative covariance sign with INR. Contrary to the theoretical expectations, FDI and TAXB, FDI and GDPR, FDI and IFR, and FDI and EXCR had positive signs demonstrating that the variables move in the same direction in the EAC countries. Therefore, the expected covariance signs varied depending of the independent variable.

4.4.3 Correlation Tests Results

The correlations coefficient (r) between the independent variables and FDI inflows were established to measure the strength and direction of the linear relationship between the variables. Any absolute correlation of (r) >/= 0.535 as indicated in Section 3.7.4.3 is considered significant in this study. Test results in Table 4.6 demonstrate that FDI had significant absolute correlations with TAXB, SIZE, HCA, OPE, ROI and EXCR.

Table 4.6: Correlations Matrix, 2000 - 2013

	FDI	TAXB	SIZE	HCA	OPE	ROI	GDPR	IFR	EXCR	INR
FDI	1.00									
TAXB	0.89*	1.00								
SIZE	0.92*	0.92*	1.00							
HCA	0.70*	0.81*	0.80*	1.00						
OPE	0.98*	0.87*	0.97*	0.75*	1.00					
ROI	-0.94*	-0.92*	-1.00*	-0.81*	-0.96*	1.00				
GDPR	0.14	0.40	0.29	0.44	0.25	-0.33	1.00			
IFR	0.26	0.17	0.38	0.40	0.36	-0.41	0.03	1.00		
EXCR	0.93*	0.84*	0.84*	0.76*	0.90*	-0.82*	0.20	0.11	1.00	
INR	-0.17	-0.50	-0.33	-0.72*	-0.19	0.34	-0.55*	-0.01	-0.31	1.00

Note: IrI >2/√n = 0.535. If absolute r = 0.535 or more than the correlation coefficient, then correlation is significant. If absolute r < 0.535, there is no significant correlation (Section 3.7.4.3). Expected significant coefficients for FDI correlation with TAXB, SIZE, HCA, OPE, ROI, GDPR, IFR, EXCR and INR. * indicate that there is significant correlation between FDI inflows and the independent variable.
Source: Author Computations, 2016.

In addition, FDI had insignificant correlation with GDPR, IFR and INR in the EAC countries during the study period. Since FDI inflows had significant absolute correlations with TAXB, SIZE, HCA, OPE, ROI and EXCR, it means that FDI and the independent variables move in same direction and the variables are strongly associated. In addition, the positive correlation between FDI inflows with TAXB, SIZE, HCA, OPE, and EXCR means that when FDI inflows increases, the independent variables increase, there is positive relationship. However, FDI inflows have negative correlation with ROI meaning that when FDI inflows increase, ROI decreases; the variables move in opposite direction.

Further, TAXB had significant correlation with SIZE, HCA, OPE, ROI and EXCR. Moreover, TAXB had insignificant correlation with GDPR, IFR and INR. The other significant correlations were between SIZE and OPE, SIZE and EXCR, HCA and OPE, HCA and ROI, HCA and EXCR, OPE and ROI, OPE and EXCR, and, ROI and EXCR in the EAC countries. Hence, significant correlations varied depending on the variable.

4.4.4 Granger Causality Tests Results

Granger causality tests were conducted between the independent variables (TAXB, SIZE, HCA, OPE, ROI, GDPR, IFR, EXCR and INR) and the dependent variable FDI inflows. Block Exogeneity Wald Tests were used under VAR environment to test for Granger causality for the study period. Test results in Table 4.6 demonstrate that with FDI as the dependent variable, the Chi-square associated p-values for tax burden (TAXB) and market size (SIZE) were less than 0.05. Therefore, tax burden and market size Granger caused FDI inflows into the EAC countries during the study period. However, the Chi-square associated p-values for HCA, OPE, ROI, GDPR, IFR, EXCR

and INR were more than 0.05. Hence, under VAR environment, the variables did not Granger cause FDI inflows into the EAC countries.

Table 4.7: Granger-Causality, 2000 - 2013

VAR Granger Causality/Block Exogeneity Wald Tests			
Dependent variable: FDI			
Variables	Chi-sq	Df	Prob.
TAXB	6.8541	2	0.0325
SIZE	6.6558	2	0.0359
HCA	0.7463	2	0.6886
OPE	0.6175	2	0.7344
ROI	4.4756	2	0.1067
GDPR	3.1591	2	0.2061
IFR	0.0697	2	0.9658
EXCR	4.2010	2	0.1224
INR	0.5925	2	0.7436

Note: H_0: independent variable does not Granger-cause dependent variable. H_1: independent variable Granger-causes the dependent variable. If p-value < 0.05, reject H_0 and accept H_1. Significance level is 0.05.
Source: Author Computations, 2016.

Therefore, only the independent variable TAXB and economic development variable SIZE Granger caused FDI inflows into the EAC. However, none of the macro-economic factors (GDPR, IFR, EXCR and INR) Granger-caused FDI inflows into the EAC.

4.5 Independent Variable's Significance and Association with Dependent Variable

The significances and associations of independent variables with the dependent variable were established during the study. The independent variables were TAXB, SIZE, HCA, OPE, ROI, GDPR, IFR, EXCR and INR while the dependent variable was FDI inflows. The tests were conducted to establish the independent variable's individual and joint significant influence on the dependent variable. In addition, tests were conducted to determine presence of short-run and long-run associations between the independent

variables and the dependent variable. Vector Error Correction (VECM) models were used for TAXB, IFR and EXCR data since the data had been established to have co-integration equations during earlier Johansen co-integration tests in the study.

However, Vector Autoregressive (VAR) models were used for SIZE, OPE, ROI, GDPR and INR data since the data had been established not to have co-integration equations during earlier Johansen co-integration tests. The p-values were used to test the significance of the individual coefficients and the joint coefficients and short-run and long-run associations in the data. Establishing the significance and the associations in the data was important to determine the nature of independent variable influence on the dependent variable.

The following were the system generated models used during the VECM test analysis for the long-run and short-run association between FDI and TAXB, FDI and IFR, and FDI and EXCR.

TAXB model: D(FDI) = C(1)*(FDI(-1) + 4.1923*TAXB(-1) - 87.4324) + C(2)*D(FDI(-1) +

$\quad\quad\quad$ C(3)*D(FDI(-2)) + C(4)*D(TAXB(-1)) + C(5)*D(TAXB(-2)) + C(6)…….…….…….(4.1).

IFR model: D(FDI) = C(1)*(FDI(-1) + 7.4956*IFR(-1) - 90.2824) + C(2)*D(FDI(-1)) +

$\quad\quad\quad$ C(3)*D(FDI(- 2)) + C(4)*D(IFR(-1)) + C(5)*D(IFR(-2)) + C(6)…................................(4.2).

EXCR model: D(FDI) = C(1)*(FDI(-1) - 62.8126*EXCR(-1) + 383.9634) + C(2) *D(FDI(-1)) +

$\quad\quad\quad$ C(3)*D(FDI(-2)) + C(4)*D(EXCR(-1)) + C(5)*D(EXCR(-2)) + C(6)……..………....(4.3).

where:

FDI is FDI inflows, TAXB is tax burden, IFR is inflation rate, EXCR is exchange rate, C(1) is long-run coefficient, C(2) & C(3) and C(4) & C(5) were short-run coefficients. C(6) is coefficient of model constant.

In the tests for the association between FDI and TAXB, FDI and IFR; and FDI and EXCR, the individual significance of the variables were established. For the long-run association, the results demonstrate that in the association between FDI and TAXB, the t-statistic associated p-value for C(1) was less than 0.05.

Table 4.8: Long-run Associations, 2000 - 2013

FDI and TAXB	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.2456	0.0941	2.6098	0.0477
C(2)	-0.6970	0.4072	-1.7116	0.1476
C(3)	-0.2141	0.4552	-0.4702	0.6580
C(4)	0.5178	0.7075	0.7319	0.4971
C(5)	1.1469	0.6433	1.7827	0.1347
C(6)	4.6211	1.8215	2.5370	0.0521
R-squared	0.8260	Adjusted R-squared		0.6518
FDI and IFR	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C(1)	0.0893	0.0464	1.9243	0.1123
C(2)	-0.3103	0.3690	-0.8408	0.4388
C(3)	0.1720	0.3643	0.4720	0.6568
C(4)	-0.3999	0.2467	-1.6210	0.1659
C(5)	-0.3407	0.1729	-1.9707	0.1058
C(6)	3.6192	1.5803	2.2902	0.0706
R-squared	0.7064	Adjusted R-squared		0.4129
FDI and EXCR	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C(1)	0.6471	0.1998	3.2391	0.0230
C(2)	-0.5160	0.4063	-1.2701	0.2599
C(3)	-0.0445	0.3300	-0.1348	0.8980
C(4)	6.2409	12.5557	0.4971	0.6402
C(5)	11.5250	10.8288	1.0643	0.3359
C(6)	3.6090	1.0202	3.5374	0.0166
R-squared	0.8452	Adjusted R-squared		0.6905

Note 1: H_0: the coefficients are not individually significant. H_1: the coefficients are individually significant.
If p - value < 0.05, reject H_0 and accept H_1. Significance level is 0.05.
Source: Author Computations, 2016.

However, the coefficient was not negative. Hence, there was no long-run association between FDI and TAXB. Table 4.8 presents the test results for the independent variables (TAXB, IFR, EXCR) and FDI short-run and long-run association statistics using VECM. In addition, test results between FDI and IFR indicate that the t-statistic associated p-value for C(1) was more than 0.05 thus statistically insignificant. The results for FDI and EXCR show that the t-statistic associated p-value for C(1) was less than 0.05 but positive, hence there was no long-run association. Therefore, there was no long-run association between FDI and TAXB, FDI and IFR and, FDI and EXCR in the EAC countries during the study period.

Further, short-run associations tests were conducted by establishing the p-values from Wald significance tests to determine joint significance between the variables. Table 4.9 presents the test results for short-run associations between the variables.

Table 4.9: Short-run Associations, 2000 - 2013

	Hypothesis	Value	**Df**	**Probability**
TAXB	C(2) = C(3) = 0	3.0941	2	0.2129
	C(4) = C(5) = 0	3.6089	2	0.1646
IFR	C(2) = C(3) = 0	1.2175	2	0.5440
	C(4) = C(5) = 0	3.8979	2	0.1424
EXCR	C(2) = C(3) = 0	1.6195	2	0.4450
	C(4) = C(5) = 0	1.9469	2	0.3778

Note 2: H_0: the coefficients have no short-run associations. H_1: the coefficients have short-run associations. If p-value < 0.05, reject H_0 and accept H_1. Short-run association, C(2) & C(3) are coefficients for FDI (lag 1 and lag 2). C(3) and C(4) are coefficients for TAXB, IFR, EXCR (lag 1 and lag 2). Significance level is 0.05.
Source: Author Computations, 2016.

The test results for short-run association between FDI and TAXB demonstrate that the Chi-square associated p-value for FDI (lag 1 and lag 2) and TAXB (lag 1 and lag 2) were more than 0.05, hence not jointly significant.

In addition, results for short–run association between FDI and IFR indicate that the Chi-square associated p-value for FDI (lag 1 and lag 2) and IFR (lag 1 and lag 2) were more than 0.05, hence not jointly significant. There is no short-run association between FDI and IFR during the study period. The following Table 4.9 presents short-run association for the study period 2000 to 2013.

Further, test results for short-run association between FDI and EXCR demonstrate that the Chi-square associated p-value for FDI (lag 1 and lag 2) and EXCR (lag 1 and lag 2) were more than 0.05. Therefore, there was no short-run association between FDI and FDI (lag 1 and lag 2) and between FDI and EXCR (lag 1 and lag 2) in the EAC countries. Hence, there was no short-run association between FDI and EXCR. Therefore, there was no short-run association between FDI and TAXB, FDI and IFR, and FDI and EXCR in the EAC countries during the study period.

Tests were also carried out using Vector Autoregressive (VAR) models for SIZE, OPE, ROI, GDPR and INR data since the data did not have co-integration equations during Johansen co-integration tests. The following models (4.4 to 4.9) were derived from the VAR tests that were used to establish levels of individual and joint significance between independent variables (SIZE, OPE, ROI, GDPR and INR) and the dependent variable FDI inflows during the study.

SIZE model: FDI = C(1)*FDI(-1) + C(2)*FDI(-2) + C(3)*SIZE(-1) + C(4)*SIZE(-2) + C(5)…..…...(4.4)

HCA model: FDI = C(1)*FDI(-1) + C(2)*FDI(-2) + C(3)*HCA(-1) + C(4)*HCA(-2) + C(5)………..(4.5)

OPE model: FDI = C(1)*FDI(-1) + C(2)*FDI(-2) + C(3)*OPE(-1) + C(4)*OPE(-2) + C(5)…….……(4.6)

ROI model: FDI = C(1)*FDI(-1) + C(2)*FDI(-2) + C(3)*ROI(-1) + C(4)*ROI(-2) + C(5)…..……...(4.7)

GDPR model: FDI = C(1)*FDI(-1) + C(2)*FDI(-2) + C(3)*GDPR(-1) + C(4)*GDPR(-2) + C(5)……(4.8)

INR model: FDI = C(1)*FDI(-1) + C(2)*FDI(-2) + C(3)*INR(-1) + C(4)*INR(-2) + C(5)..................(4.9)

where:

FDI is FDI inflows, SIZE is market size, HCA is human capital, OPE is country openness, ROI is return on investments, GDPR is GDP growth rate and INR is interest rate. C(1), C(2), C(3) and C(4) are coefficients individual and joint significance. β - regression coefficients in the long-run model.

The test results presented in Table 4.10 for the t-statistic associated p-values for SIZE, HCA, OPE, ROI, GDPR and INR demonstrate that all the p-values were more than 0.05 hence not statistically significant.

Table 4.10 presents individual significances between the independent variables and FDI inflows during the study period.

Table 4.10: Individual Significance, 2000 - 2013

FDI and SIZE	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.3058	0.3700	0.8265	0.4358
C(2)	0.6711	0.3732	1.7982	0.1152
C(3)	-8.7406	15.4792	-0.5647	0.5899
C(4)	28.9941	19.8100	1.4637	0.1867
C(5)	-46.0457	17.5273	-2.6271	0.0341
R-squared	0.9914	Adjusted R-squared		0.9865
FDI and HCA	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C(1)	0.6039	0.4660	1.2960	0.2361
C(2)	0.6454	0.5716	1.1291	0.2961
C(3)	0.2246	0.3088	0.7272	0.4907
C(4)	-0.1443	0.2788	-0.5175	0.6208
C(5)	-10.4153	11.2249	-0.9279	0.3844
R-squared	0.9849	Adjusted R-squared		0.9762

FDI and OPE	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.7546	0.3848	1.9612	0.0907
C(2)	0.2334	0.4575	0.5103	0.6255
C(3)	0.0966	0.1247	0.7748	0.4638
C(4)	-0.0047	0.1240	-0.0381	0.9707
C(5)	-1.3106	1.4697	-0.8918	0.4021

R-squared	0.9846	Adjusted R-squared		0.9758

FDI and ROI	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.5326	0.3795	1.4034	0.2033
C(2)	0.4622	0.3942	1.1725	0.2793
C(3)	-2.8680	4.9141	-0.5836	0.5778
C(4)	-4.2386	6.3335	-0.6692	0.5248
C(5)	-37.5152	18.3363	-2.0460	0.0800

R-squared	0.9900	Adjusted R-squared		0.9839

FDI and GDPR	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.8060	0.3890	2.0723	0.0770
C(2)	0.3909	0.4575	0.8544	0.4211
C(3)	0.3720	0.4836	0.7694	0.4668
C(4)	0.5252	0.3801	1.3817	0.2096
C(5)	-5.7920	2.9387	-1.9709	0.0894

R-squared	0.9885	Adjusted R-squared		0.9818

FDI and INR	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.8292	0.3676	2.2557	0.0587
C(2)	0.3919	0.4269	0.9180	0.3892
C(3)	-0.2422	0.6878	-0.3522	0.7351
C(4)	-0.1164	0.5817	-0.2002	0.8470
C(5)	4.8705	8.2656	0.5893	0.5742

R-squared	0.984545	Adjusted R-squared		0.975714

Note 1: H_0: the coefficients are not individually significant. H_1: the coefficients are individually significant. If p - value < 0.05, reject H_0 and accept H_1. C(1) and C(2) are coefficients for FDI (lag 1 and lag 2) while C(3) and C(4) are coefficients for SIZE, HCA, OPE, ROI, GDPR and INR (lag 1 and lag 2). Significance level is 0.05.
Source: Author Computations, 2016.

Therefore, SIZE, HCA, OPE, ROI, GDPR and INR were not individually significant in

influencing FDI inflows into the EAC countries. Additional tests were conducted for the

joint significant influence by SIZE, HCA, OPE, ROI, GDPR and INR on FDI inflows into the EAC countries. The test results demonstrate that the p-values for coefficients C(1) & C(2) in SIZE, HCA, OPE, ROI, GDPR and INR were less than 0.05 hence statistically significant. Table 4.11 presents joint significances for SIZE, HCA, OPE, ROI, GDPR and INR in the EAC countries during the study period.

Table 4.11: Joint Significance, 2000 - 2013

	Coefficients Hypothesis	Chi-square	Df	p-values
SIZE	C(1) = C(2) = 0	42.5298	2	0.0000
	C(3) = C(4) = 0	6.0062	2	0.0496
HCA	C(1) = C(2) = 0	152.9779	2	0.0000
	C(3) = C(4) = 0	0.7463	2	0.6886
OPE	C(1) = C(2) = 0	8.4886	2	0.0143
	C(3) = C(4) = 0	0.6175	2	0.7344
ROI	C(1) = C(2) = 0	59.4704	2	0.0000
	C(3) = C(4) = 0	4.4756	2	0.1067
GDPR	C(1) = C(2) = 0	499.3954	2	0.0000
	C(3) = C(4) = 0	3.1590	2	0.2061
INR	C(1) = C(2) = 0	340.6037	2	0.0000
	C(3) = C(4) = 0	0.5924	2	0.7436

Note 2: H_0: the coefficients are not jointly significant. H_1: the coefficients are jointly significant. If p-value < 0.05, reject H_0 and accept H_1. C(1) and C(2) are coefficients for FDI (lag 1 and lag 2) while C(3) and C(4) are coefficients for lag 1 and lag 2 in SIZE, HCA, OPE, ROI, GDPR and INR variables. The p-values are chi-square associated. Significance level is 0.05.
Source: Author Computations, 2016.

Therefore, FDI(lag 1) and FDI(lag 2) jointly influenced FDI inflows into the EAC countries in presence of SIZE, HCA, OPE, ROI, GDPR and INR. In addition, the chi-square associated p-values for the coefficient C(3) & C(4) in SIZE was less than 0.05 hence statistically significant. Hence, SIZE(lag 1and lag 2) jointly influenced FDI

inflows into the EAC countries. However, the chi-square associated p-values for C(3) & C(4) in HCA, OPE, ROI, GDPR and INR were more than 0.05, hence statistically insignificant. Therefore, HCA (lag 1 and lag 2), OPE(lag 1 and lag 2), ROI(lag 1 and lag 2), GDPR(lag 1 and lag 2) and INR(lag 1 and lag 2) did not have joint association with FDI in the EAC countries. Hence, the data analysis results varied depending on the variables under study in the EAC countries during the study period. Specifically, there was one year FDI inflows lag effect on current years FDI inflows and tax burden, exchange rate and FDI inflows (lag 1) had long-run association with current years FDI inflows into the EAC countries during the study period.

4.6 Discussions of Data Analysis Results

This section presents discussions of data analysis results in the research study. The discussions are on data diagnostics (auto-correlation, unit roots and co-integration), summary statistics (mean, range {maximum, minimum}, standard deviations, skewness and kurtosis), variable's movements and causality (trends, covariance analysis, correlation analysis and Granger-causality tests). The chapter also presents independent variable's significances and associations with the dependent variable during the study period. The independent variables were tax burden (TAXB), human capital (HCA), GDP growth rates (GDPR), inflation rates (IFR), exchange rates (EXCR) and interest rates (INR) and the dependent variable was foreign direct investment (FDI) inflows. The discussions are on how well the results conform to theory and how the results are comparable with similar studies elsewhere in the world.

From autocorrelation test results, the TAXB, HCA, GDPR, IFR, EXCR and INR and FDI inflows data were not auto-correlated. This means that the time series data did not have repeating patterns across the study period. Hence, the data were not influenced by

their historical values. From theoretical expectations, data may be influenced by its historical values. The tests were consistent with Leonard and Wolfe (2005) who found that time series data may be influenced by historical values hence the autocorrelation tests were necessary. The results of unit root tests indicated that TAXB, HCA, GDPR, IFR, EXCR and INR data did not have unit roots at level. Hence, the data were stationary time series where the statistical properties such as variance and mean were constant over a period of time and were independent of time. The data were not affected by past events in the data series. From theoretical perspectives, data may be affected by past events and this affects data stationarity. However, all the data was stationary and did not need to be differenced to convert it to stationary format. According to Maradiaga, Pujula and Zapata (2013), the purpose of converting data to stationary is to cause the mean to revert to long-term average and have a variance that is time independent. Hence, the data was integrated of $O(1(0))$ level of significance as evidenced by the p-values. It was important to establish stationarity of the data before further statistical analysis.

Co-integration results established that there was data with co-integration equations and data without co-integration equations. According to Boef and Granato (1999), it is important to establish presence of co-integration equations when testing theories because of the requirement to make assumptions about the memory of the time series data. The results demonstrates that TAXB, IFR and EXCR data had co-integration equations while FDI inflows, HCA, SIZE, OPE, ROI, GDPR and INR did not have co-integration equations during the tests.

Summary statistic results indicated that the FDI mean demonstrated that on average, FDI inflows into the EAC countries was almost a quarter of the real GDP. The range

indicated that there was consistent increase in FDI inflows into the EAC countries as further evidenced by the standard deviations. From theoretical expectations, FDI is expected to flow to where FDI has previously gone. Therefore, a large amount of FDI was expected to flow into the EAC countries. The findings support Campos and Kinoshita (2003) who found that in 25 transition economies, FDI was determined by the agglomeration of economies. In addition, the results show that there was high TAXB as indicated by the mean and a narrow range and was further evidenced by the small standard deviation. Theoretical expectations are that FDI inflows have an inverse relationship with TAXB. Therefore, FDI inflows were expected to be influenced negatively by the high TAXB in the EAC countries. The findings are consistent with Demirhan and Masca (2008) who found that tax had statistically significant negative signs when exploring determining factors of FDI inflows in developing countries.

The results for SIZE indicate that market size consistently grew over the study period. SIZE had high standard deviation. Therefore, SIZE seeking FDI would have been attracted to the EAC countries. Theoretical expectations are that high volumes of FDI flow to regions with large market sizes especially market seeking FDI. The findings support Akin (2009), who found that FDI is concerned with aggregate size than on per capita basis of market size in developing countries. The results of HCA indicate that human capital increased minimally over the study period. The increase created minimal noticeable attraction for HCA seeking FDI. The standard deviation was narrow. The research supports Kubicova (2013), who found that HCA did not have influence on FDI inflows from the data analysis.

OPE results show that EAC countries openness improved over the study period as evidenced by the range and standard deviation. From theoretical expectations, OPE

seeking FDI would have been attracted to the EAC countries. This findings support Okpara (2012) who found that trade openness attracts FDI to Nigeria. In addition, ROI results demonstrate that in the EAC countries, return on investment did not grow substantially during the research period as evidenced by the range and standard deviations. However, the narrow range and standard deviation demonstrate stable ROI. Hence, the region was a preferred destination for ROI seeking FDI. From theoretical perspectives, ROI and FDI have positive relationship. Therefore, high volumes of FDI were expected to flow into the EAC countries. The research findings are consistent with Okafor et al. (2013) who found that return on capital was a factor that determined FDI in Sub-Saharan Africa (SSA) during the study period.

The results also demonstrate that in the EAC countries, there were high GDPR mean, a wide range and narrow standard deviation. Hence, the region was a preferred destination for GDPR seeking FDI. From theoretical expectations, FDI and GDPR have positive relationship. Therefore, more GDPR seeking FDI was expected to the EAC countries since the region had potential markets. The study findings are consistent with Kersan-Skabic (2015) who found that growth rate was a strong determinant of FDI inflows into South East European (SEE) countries. The EAC countries had high and unstable IFR with wide range and standard deviation. Therefore, the EAC countries could not attract FDI inflows that were sensitive to IFR. However, according to theoretical expectations, FDI and IFR have negative relationship. The findings support Cung and Hua (2013) who found that IFR was a significant factor in attracting FDI inflows into Vietnam.

The results indicate that EXCR had narrow range and standard deviation. Hence, EXCR seeking FDI would have been attracted to the EAC countries. There was favourable EXCR rate and a narrow range. However, theoretical expectations, FDI and EXCR have

inverse relationship. The research findings support Mughal et al. (2011) who found that exchange rates had negative impact on long and short-run FDI in low income developing countries. The results for INR indicate that the EAC countries had a low difference between the maximum and range. The position is evidenced by the low standard deviation. Hence, the EAC countries were a preferred destination for INR seeking FDI. From theoretical expectations, INR and FDI have inverse relationship. Hence, the EAC countries were not an attractive destination for INR seeking FDI. The findings support Arbatli (2011) who found that INR was not significant in attracting FDI into the countries under study. Hence, from summary statistics, SIZE, OPE, ROI and EXCR were favourable variables for FDI inflows into the EAC countries.

The results of variables trends indicated that the general FDI movements were positive upward movements at varying degrees in the EAC countries. TAXB movements exhibited combined upward and downward movements throughout the study period while there was consistent increase in SIZE in the region. HCA had patterns of increase and decreases over the study period while OPE continuously increased from the start of study period to end of the study period. There was general decrease in ROI movements over the study period. GDPR trends exhibited upward and downward sharp movements. EXCR had general stable positive upward movements while INR movements were upward and downward trends with sharp relatively stable movements. INR movements presented an unstable investment environment with high risk despite the consistent increase in FDI during the study period. From the graphical representations, stationarity of the data could not be established since the variable's movements were not consistent.

The covariance signs demonstrated that FDI had positive expected signs with TAXB, SIZE, HCA, OPE, GDPR, IFR, and EXCR in the EAC countries. This means that the

variables move in the same direction with high FDI inflow volumes associated with high TAXB, SIZE, HCA, OPE, GDPR, IFR, and EXCR in the EAC countries. The findings are consistent with Kersan-Skabic, (2014) who demonstrated that market size attracts FDI inflows. HCA had the expected positive covariance sign consistent with Tshepo (2014) and Iqbal et al. (2014) who found that human capital is among the factors that attract FDI inflows. In addition, Ho et al. (2013) demonstrated that trade openness was among the important determining factors of FDI inflows in BRICS and Malaysia. IFR had positive covariance signs. The study's findings support Basemera et al. (2012) who found that inflation rates were a significant factor in attracting FDI inflos into the East Africa.

ROI had negative covariance signs consistent with Wenkai et al. (2009) who found that high returns attracted FDI into China. GDPR had the theoretical expected positive covariance signs and the findings support Demirhan and Masca (2008) who found that growth rates were statistically significant in attracting FDI inflows into developing countries. EXCR had the expected negative covariance sign. The findings are consistent with Mughal et al. (2011) who found that EXCR negatively impacts on FDI inflows in the short-run and long-run. INR had the expected negative covariance and the findings support Vijayakumar et al. (2010). In addition, TAXB did not have the theoretical expected negative covariance sign in the EAC countries. The findings are consistent with Kubicova (2013), Mughal et al. (2011) and, Hunady and Orviska (2014) who found that TAXB did not have negative relationship with FDI for the study period.

The correlation tests results indicated that FDI had absolute significant correlations with TAXB, SIZE, HCA, OPE, ROI and EXCR. In addition, FDI had insignificant correlation with GDPR, IFR and INR in the EAC countries during the study period. The

findings are consistent with Zirgulis (2014), Cung and Hua (2013) and Ang (2008). Further, INR had significance correlation with FDI and the findings are consistent with Vijayakumar et al. (2010) and Arbatli (2011). Moreover, GDPR and IFR had significant correlations consistent with Kersan-Skabic (2015).

Granger causality tests results conducted between the independent and dependent variables indicated that TAXB and SIZE Granger-caused FDI inflows in the EAC countries. The relationship between TAXB and FDI is further evidenced by the covariance sign. A large market assures the investors of a potential future market. The findings are consistent with Iqbal et al. (2014), Kersan-Skabic (2015), Tshepo (2014) and Wenkai et al. (2009). The results of the significance and association of independent variable on the dependent variable FDI inflows show that FDI (lag 1 and lag 2) had joint significance with FDI inflows in market size, human capital, country openness, return on investment, GDP growth rate and interest rate in the EAC countries. In addition, SIZE (lag 1 and lag 2) had joint significance on FDI in the EAC countries.

From the results, previous year's FDI inflows influence current year FDI inflows. The findings are consistent with Murphy and Bhasin (2013), Raudonen and Freytag (2013), Vijayakumar et al. (2010) and Kersan-Skabic (2015). Therefore, the results of the diagnostic tests, summary statistics, significances and association tests varied depending on the variable and the tests. There were no consistent results. However, the variables contributed to the attraction of FDI inflows in different ways as evidenced by the continued FDI inflows into the EAC countries.

4.7 Chapter Summary

This Chapter presented data analysis, results and discussions. The results and discussions of data diagnostic tests comprised auto-correlation tests, unit root tests and co-integration tests were presented. In addition, summary statistics test results consisting of measures of central tendency, measures of dispersion and measures of asymmetry were presented. Further, test results for individual and joint significance, and short-run and long-run associations between the independent and the dependent variables were presented. The chapter summary is also included.

CHAPTER FIVE

HYPOTHESES TESTS

5.1 Introduction

This Chapter presents test results of the four hypotheses in the study. The test results for H_1: tax burden has significant negative effect on foreign direct investment inflows into the EAC countries are presented (Objective One). In addition, test results for H_2: economic development (market size, human capital, country openness, return on investment) has significant influence on the relationship between the tax burden and foreign direct investment inflows into the EAC countries are presented (Objective Two). Further, test results for H_3: macro-economic factors (GDP growth rates, inflation rates, exchange rates, interest rates) have significant influence on the relationship between the tax burden and foreign direct investment inflows into the EAC countries are presented (Objective Three). Moreover, test results for H_4: there is significant joint effect of the tax burden, economic development (market size, human capital, country openness, and return on investment) and macro-economic factors (GDP growth rates, inflation rates, exchange rates, and interest rates) on foreign direct investment inflows into the EAC countries are presented (Objective Four). Discussions of the test results and chapter summary are included.

The results of the four hypothesis are based on tests of the relationships between the independent and the dependent variables. The independent variables were TAXB (tax burden), SIZE (market size), HCA (human capital), OPE (country openness), ROI

(return on investment), GDPR (GDP growth rate), IFR (inflation rates), EXCR (exchange rates), and INR (interest rates). The dependent variable was FDI inflows. The tests were conducted using data from five EAC countries of Burundi, Tanzania, Uganda, Kenya and Rwanda for the fourteen years of study from 2000 to 2013; hence there were seventy observations in each hypotheses test.

5.1.1 Effect of Tax Burden on Foreign Direct Investment Inflows

Objective One was to determine the effect of the tax burden on foreign direct investment inflows into the EAC countries. The Hypothesis was H_1: tax burden has significant negative effect on FDI inflows into the EAC countries. A univariate regression model was used to establish the relationship between the independent variable tax burden (TAXB) and the dependent variable foreign direct investment (FDI) inflows. FDI inflows were regressed on TAXB. The significance of the relationship was indicated by the coefficient of the TAXB. The following univariate model was used during the tests:

$$FDI_{it} = \alpha_1 + \beta_{T1}TAXB_{it} + \varepsilon_1 \ \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (5.1).$$

where:

α_1 is model constant. FDI is foreign direct investment inflows and TAXB is tax burden. β_{T1} is regression coefficient. i denotes EAC countries, t denotes time, ε_1 is error term.

The test results in Table 5.1 demonstrate that TAXB explains a low level of the variations in the FDI inflows in the EAC countries (Adjusted R-squared = 0.014, p-value < 0.05) with a high standard error of 26.2152. Hence, TAXB alone is insignificant in explaining the variations in the FDI inflows in the EAC countries. Therefore, there are other factors that explain a large proportion of the FDI inflows into the EAC

114

countries. In addition, ANOVA tests results indicate that the overall model was statistically insignificant (F-statistic = 1.964, p-value > 0.05), the linear model is not a good fit. Table 5.1 presents the regression statistics in Objective One.

Table 5.1: Regression Statistics in Objective One, 2000 - 2013

MODEL SUMMARY					
R Square	0.028				
Adjusted R Square	0.014				
Standard Error	26.215				
Observations	70				
ANOVA					
	df	Sum of Squares	Mean of Squares	F	Significance F
Regression	1	1349.667	1349.667	1.964	0.166
Residual	68	46732.156	687.238		
Total	69	48081.823			
COEFFICIENTS					
	Unstandardized Coefficients		Standardized Coefficients		
	Coefficients	Standard Error	Beta	t Stat	P-value
Constant	39.719	12.217		3.251	0.002
TAXB	-1.087	0.776	0.168	-1.401	0.166

Note: H_0: There is no significant relationship between TAXB and FDI inflows into the EAC countries. H_1: There is significant   relationship between TAXB and FDI inflows into the EAC countries. Dependent variable: FDI. Predictors: Constant, TAXB. Significance level is 0.05.
Source: Author Computations, 2016.

The regression tests were conducted to generate coefficients for the TAXB and FDI inflows into the EAC countries. The test results indicate that the coefficient for TAXB was negative while the t-statistic associated p-value > 0.05 thus statistically insignificant. Hence, there was insignificant negative relationship between TAXB and FDI inflows into the EAC countries. Therefore, though the coefficient for tax burden was not significant, the univariate equation for the relationship between TAXB and FDI inflows into the EAC countries is as follows:

FDI = 39.719 - 1.087TAXB………..……..……...……………………………………. (5.2).

Therefore, in Objective One, TAXB had insignificant negative effect on FDI inflows into the EAC countries during the study period. Hence, H_1 is not confirmed. There was no significant negative relationship between the tax burden and foreign direct investments inflows into the EAC countries during the period under study.

5.1.2 Moderating Influence of Economic Development on the Relationship between the Tax Burden and Foreign Direct Investment Inflows

Objective Two was to investigate the influence of economic development (market size, human capital, country openness and return on investment) on the relationship between the tax burden and foreign direct investment inflows into the EAC countries. The hypothesis was H_2: economic development (market size, human capital, country openness, return on investment) has significant moderating influence on the relationship between tax burden and foreign direct investment inflows into the EAC countries.

Since the moderating variable is a third variable that may affect the correlation between the independent variable and the dependent variable, there are several short coming that have been identified when using moderation process. There may be a problem of multi-colineality in regression equation resulting in the coefficients being assessed with higher standard errors thus initiating high indistinctness. This research used correlation matrix with centred data thus minimising the problem of multicolinearity.

The investigations for moderating influence were conducted in two sections. In Section One, tests were conducted using composite economic development (CED) as an independent variable. In CED, all the economic development indicators were combined using weighted averages. In Section Two, individual economic development indicators

116

(EDI) were used as independent variables. In each of the sections, four steps were followed according to Baron and Kenny (1986) and Section 3.7.6.2 of this study. In every step, a model summary was established, and ANOVA tests and regression analysis were conducted for the study period.

5.1.2.1 Composite Economic Development as an Independent Variables

In Section One, investigations were conducted using composite economic development as an independent variable on the relationship between the tax burden and foreign direct investment inflows into the EAC countries using the four step method: Step One: FDI inflows were regressed on tax burden (similar to Objective One). Step Two: composite economic development (CED) variable was introduced into the regression equation in Step One as an ordinary independent variable. Step Three: a product of tax burden and composite economic development variables was introduced into the equation in Step Two as the moderator variable (TAXB*CED). Step Four: comparisons of TAXB coefficients in Step One, Step Two and Step Three. The significance of the moderator variable was examined to determine any moderating influence as indicated by the coefficient of the moderator variable.

In Step One, FDI inflows were regressed on tax burden (similar to Objective One). The test results are as presented in Table 5.1. The following model was used during the tests in Step One.

$$FDI_{it} = \alpha_{211} + \beta_{T211}TAXB_{it} + \varepsilon_{211} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots.(5.3).$$

where:

α_{211} is regression constant. FDI and TAXB are defined in (5.1), β_{T211} is regression coefficients. i denotes EAC countries, t denotes time, ε_{211} is error term.

In Step Two, **c**omposite economic development (CED) was introduced into the regression equation in Step One as an ordinary independent variable. The following model was used:

$$FDI_{it} = \alpha_{212} + \beta_{T212}TAXB_{it} + \beta_{CED212}CED_{it} + \varepsilon_{212} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \text{ (5.4.)}$$

where:

α_{212} is regression constant. FDI and TAXB are defined in (5.1), CED is composite economic development. β_{T212} and β_{CED212} are regression coefficients, i denotes EAC countries, t denotes time. ε_{212} is error term.

Table 5.2 presents results of composite economic development as an independent variable.

Table 5.2: Composite Economic Development as an Independent Variable, 2000 - 2013

MODEL SUMMARY							
R Square	0.232						
Adjusted R Square	0.210						
Standard Error	23.470						
Observations	70						
ANOVA							
	df	Sum of Squares	Mean of Squares	F	Significance F		
Regression	2	11176.963	5588.482	10.146	0.000		
Residual	67	36904.860	550.819				
Total	69	48081.823					
COEFFICIENTS							
	Unstandardized Coefficients		Standardized Coefficients				
	Coefficients	Standard Error	Beta			t Stat	P-value
Constant	-0.227	14.459				-0.016	0.987
TAXB	-2.095	0.734	-0.323			-2.852	0.006
CED	0.348	0.082	0.478			4.224	0.000

H_0: There is no significant influence of composite economic development as an independent variable on the relationship between TAXB and FDI inflows into the EAC countries. H_1: There is significant influence of composite economic development as an independent variable on the relationship between TAXB and FDI inflows into the EAC countries. Dependent variable: FDI. Predictors: Constant, TAXB, CED. Significance level is 0.05.
Source: Author Computations, 2016.

The results presented in Table 5.2 indicate that the tax burden and composite economic development explain the variations in the FDI inflows (Adjusted R-Squared = 0.210, p-value < 0.05). The model is significant (F-statistic = 10.146, p-value < 0.05) and hence a good fit. In addition, the results demonstrate that the coefficient for tax burden is negative while the t-statistic associated p-value is significant. Moreover, the coefficient for composite economic development is positive and the p-value is significant. Therefore, composite economic development as an independent variable had statistically significant positive influence on the relationship between tax burden and FDI inflows into the EAC countries. Hence, the multivariate equation is interpreted as follows:

$$FDI = -0.227 - 2.095TAXB + 0.348CED \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (5.5).$$

In Step Three, a product of the tax burden and composite economic development was introduced into the regression equation in Step Two as a moderator variable (TAXB*CED). This was to determine the moderating influence of composite economic development on the relationship between the tax burden and FDI inflows into the EAC countries. Regression analyses were conducted with TAXB*CED as the moderator variable using the following model.

$$FDI_{it} = \alpha_{213} + \beta_{T213}TAXB_{it} + \beta_{CED213}CED_{it} + \beta_{TCED213}TAXB*CED + \varepsilon_{213}\ldots\ldots\ldots\ldots\ldots\ldots (5.6).$$
[model according to Dearing and Hamilton (2006)]

where:

α_{213} is regression constant. FDI and TAXB are defined in (5.1). CED is composite economic development. TAXB*CED is the product of tax burden and composite

economic development. β_{T213}, β_{CED213} and $\beta_{TCED213}$ are regression coefficients, i denotes EAC countries, t denotes time, ε_{213} is error term.

The results of the moderating influence of composite economic development on the relationship between tax burden and FDI inflows are presented in Table 5.3.

Table 5.3: Composite Economic Development as Moderator Variable, 2000 - 2013

MODEL SUMMARY							
R Square	0.237						
Adjusted R Square	0.202						
Standard Error	23.583						
Observations	70						
ANOVA							
	df	Sum of Squares	Mean of Squares	F	Significance F	
Regression	3	11374.987	3791.662	6.818	0.000	
Residual	66	36706.836	556.164			
Total	69	48081.823				
COEFFICIENTS						
	Unstandardized Coefficients		Standardized Coefficients			
	Coefficients	Standard Error	Beta		t Stat	P-value
Constant	-27.794	48.429			-0.574	0.568
TAXB	-0.453	2.849	-0.070		-0.159	0.874
CED	0.520	0.301	0.715		1.730	0.088
TAXB*CED	-0.010	0.017	-0.404		-0.597	0.553

H_0: There is no significant moderating influence by composite economic development on the relationship between TAXB and FDI inflows into the EAC countries. H_1: There is significant moderating influence by composite economic development on the relationship between TAXB and FDI inflows into the EAC countries. Dependent variable: FDI. Predictors: Constant, TAXB, CED and TAXB*CED. Significance level is 0.05.
Source: Author Computations, 2016.

The results demonstrate that tax burden, composite economic development and the moderator variable TAXB*CED explain variation in FDI inflows into the EAC countries (Adjusted R-Squared = 0.202, p-value < 0.05). In addition, the model was statistically significant (F-Statistic = 6.818, p-value < 0.05). Further, a product of tax

burden and composite economic development (TAXB*CED) was introduced into the regression equation in Step Two during the tests.

The tests in Table 5.3 indicate that the coefficient for the tax burden was negative while the t-statistic associated p-value was insignificant. In addition, the coefficient for composite economic development was positive but the p-value was insignificant. Further, the coefficient for the moderator variable TAXB*CED was negative while the p-value was insignificant.

Therefore, composite economic development had insignificant negative moderating influence on the relationship between tax burden and FDI inflows into the EAC countries. Hence, though the coefficients for TAXB, CED and TAXB*CED were not significant, the multivariate equation is interpreted as follows:

FDI = - 27.794 - 0.453TAXB + 0.520CED - 0.010TAXB*CED …………........................ (5.7). Therefore, H_2 is not confirmed in Objective Two Section One. Composite economic development does not have significant influence of the relationship between tax burden and foreign direct investment inflows into the EAC countries.

In Step Four, comparison of TAXB coefficients in Step One, Step Two and Step Three to determine the significance of the moderating influence by composite economic development on the relationship between the tax burden and FDI inflows into the EAC countries was conducted. The significance of the moderating influence was established by examining the coefficients of the TAXB*CED.

The results demonstrate that in Step Two when composite economic development (CED) was introduced into the regression equation in Step One as an independent

variable, TAXB coefficient decreased but remained negative while the t-statistic associated p-value became significant but remained positive. However, composite economic development had statistically significant positive coefficient. Therefore, composite economic development had statistically significant positive influence as an independent variable on the relationship between the tax burden and FDI inflows into the EAC countries. Table 5.4 presents comparison of TAXB, CED and TAXB*CED coefficients in Step One, Step Two and Step Three.

Table 5.4: Comparison of Tax Burden Coefficients in Section 5.1.2.1, 2000 - 2013

	Coefficient	Std. Error	t-test	P-value
TAXB[1]	-1.087	0.776	-1.401	0.166
TAXB[2]	-2.095	0.734	-2.852	0.006
CED[1]	0.348	0.082	4.224	0.000
TAXB[3]	-0.453	2.849	-0.159	0.874
CED[2]	0.520	0.301	1.730	0.088
TAXB*CED	-0.010	0.017	-0.597	0.553

TAXB[1] is TAXB coefficient in Step One. TAXB[2] is TAXB coefficient in Step Two with composite economic development as an independent variable. TAXB[3] is TAXB coefficient in Step Three with the product of tax burden and composite economic development as moderator variable. CED[1] is composite economic development introduced as an independent variable. CED[2] is composite economic development introduced in the moderating equation. TAXB*CED is the product of tax burden and composite economic development introduced as moderator variable. Significance level is 0.05.
Source: Author Computations, 2016.

However, in Step Three, the product of tax burden and composite economic development (TAXB*CED) was introduced into the regression equation in Step Two as the moderator variable. TAXB coefficient decreased but remained negative while the t-statistic associated p-value became significant. The coefficient for composite economic development became insignificant and remained positive. However, the coefficient for

the moderator variable (TAXB*CED) was insignificant and negative. Therefore, composite economic development had insignificant negative moderating influence on the relationship between tax burden and FDI inflows into the EAC countries. Hence, H_2 was not confirmed during the study.

5.1.2.2 Economic Development Indicators as Independent Variables

In Section Two, investigations were conducted using economic development indicators (EDI) as independent variables on the relationship between the tax burden and FDI inflows into the EAC countries. The economic development indicators were market size (SIZE), human capital (HCA), country openness (OPE) and return on investments (ROI). The moderating influence of the economic development indicators was investigated using a four-step method: Step One: FDI inflows were regressed on tax burden (similar to Objective One). Step Two: economic development indicators were introduced into the regression equation in Step One as ordinary independent variables. Step Three: a product of tax burden and individual economic development indicators variable were introduced into the regression equation in Step Two as moderator variable (TAXB*EDI). Step Four: comparisons of tax burden (TAXB) coefficients in Step One, Step Two, Step Three were conducted. The significance of the moderating influence was determined by examining the coefficient of the moderator variable.

In Step One, FDI inflows were regressed on tax burden (similar to Objective One). The test results are as presented in Table 5.1 in Objective One. The following model was used in Step One.

$\text{FDI}_{it} = \alpha_{221} + \beta_{T221}\text{TAXB}_{it} + \varepsilon_{221}$…………………………………………...……. (5.8).

where:

α_{221} is regression constant. FDI and TAXB are defined in (5.1), β_{T221} is regression coefficients, i denotes EAC countries, t denotes time, ε_{221} is error term.

In Step Two, tests were conducted on the influence of economic development indicators (EDI) of market size (SIZE), human capital (HCA), country openness (OPE) and return on investment (ROI) as independent variables on the relationship between tax burden and foreign direct investment inflows into the EAC countries. The following model was used in the analysis in Step Two:

$$FDI_{it} = \alpha_{222} + \beta_{T222}TAXB_{it} + \beta_{S222}SIZE_{it} + \beta_{H222}HCA_{it} + \beta_{O222}OPE_{it} + \beta_{R222}ROI_{it} + \varepsilon_{222}\dots.(5.9).$$

where:

α_{222} is regression constant. FDI and TAXB are defined in (5.1). SIZE is market size, HCA is human capital, OPE is country openness and ROI is return on investments. β_{T222}, β_{S222}, β_{H222}, β_{O222}, β_{R222} are regression coefficients. i denotes EAC countries, t denotes time. ε_{222} is error term.

The results indicate that tax burden, market size, human capital, country openness and return on investment explain the variations in the FDI inflows (Adjusted R-Squared = 0.767, p-value < 0.05). The ANOVA results show that the model is statistically significant (F-statistic = 46.4188, p-value < 0.05). Hence, the model is a good fit. The regression analysis demonstrates that the coefficient for tax burden (TAXB) was negative while the p-value was significant. In addition, the coefficient for human capital (HCA) was negative while the p-value was significant.

Therefore, HCA had statistically significant negative independent influence on the relationship between tax burden and FDI inflows into the EAC countries. In addition, the coefficient for country openness (OPE) was positive with the p-value being

significant. Hence, OPE had statistically significant positive independent influence on the relationship between tax burden and FDI inflows into the EAC countries. However, the coefficients for market size (SIZE) and return on investments (ROI) were insignificant but negative. Therefore, HCA and OPE had statistically significant influence as independent variables on the relationship between tax burden and FDI inflows into the EAC countries.

Table 5.5 Economic Development Indicators as Independent Variables, 2000 - 2013

MODEL SUMMARY					
R Square	0.784				
Adjusted R Square	0.767				
Standard Error	12.743				
Observations	70				
ANOVA					
	df	Sum of Squares	Mean of Squares	F	Significance F
Regression	5	37689.058	7537.812	46.419	0.000
Residual	64	10392.765	162.387		
Total	69	48081.823			
COEFFICIENTS					
	Unstandardized Coefficients		Standardized Coefficients		
	Coefficients	Standard Error	Beta	t Stat	P-value
Constant	79.908	19.997		3.996	0.000
TAXB	-4.382	0.449	-0.675	-9.757	0.000
SIZE	28.420	41.500	0.280	0.685	0.496
HCA	-0.541	0.087	-0.401	-6.245	0.000
OPE	0.740	0.074	0.866	9.927	0.000
ROI	7.394	16.729	0.177	0.442	0.660

Note: H_0: There is no significant influence of SIZE, HCA, OPE, ROI as independent variables on the relationship between TAXB and FDI inflows in The EAC countries. H_1: There is significant influence of SIZE, HCA, OPE, ROI as independent variables on the relationship between TAXB and FDI inflows in the EAC countries. Dependent variable: FDI. Predictors: Constant, TAXB, SIZE, HCA, OPE, ROI. Significance level is 0.05.
Source: Author Computations, 2016.

Hence, the multivariate model is expressed as follows:

FDI = 79.908 - 4.382TAXB - 0.541HCA + 0.740OPE …..……………………........ (5.10).

In Step Three, investigation of the moderating influences of individual economic development indicators on the relationship between the tax burden and FDI inflows into the EAC countries was conducted. The FDI inflows were regressed on the independent variables among them the moderator variables. The following model was used to determine the significance of moderating influence.

$$FDI_{it} = \alpha_{223} + \beta_{T223}TAXB_{it} + \beta_{S223}SIZE_{it} + \beta_{H223}HCA_{it} + \beta_{O223}OPE_{it} + \beta_{R223}ROI_{it} + \beta_{TS223}TAXB*SIZE_{it} +$$
$$\beta_{TH223}TAXB*HCA_{it} + \beta_{TO223}TAXB*OPE_{it} + \beta_{TR223}TAXB*ROI_{it} + \varepsilon_{223}\ldots\ldots\ldots\ldots\ldots\ldots\ldots (5.11)$$

[model according to Dearing and Hamilton (2006)]

where:

α_{223} is regression constant. FDI and TAXB are defined in (5.1), SIZE, HCA, OPE and while ROI are defined in (5.9). TAXB*SIZE is the product of tax burden and market size, TAXB*HCA is the product of tax burden and human capital, TAXB*OPE is the product of tax burden and country openness, and TAXB*ROI is the product of tax burden and return on investment. β_{T223}, β_{S223}, β_{H223}, β_{O223}, β_{R223}, β_{TS223}, β_{TH223}, β_{TO223} and β_{TR223} are regression coefficients, i denotes EAC countries, t denotes time, ε_{223} is error term.

TAXB*SIZE was excluded in the main analysis since the data was non-linear. The test results for the variable are presented in Table 5.6b. The test results in Table 5.6 demonstrate that TAXB, SIZE, HCA, OPE, ROI, TAXB*HCA, TAXB*OPE and TAXB*ROI explain variations in the FDI inflows (Adjusted R-Square = 0.802, p-value < 0.05), a significant level of explanation. The ANOVA test results indicate that the model is statistically significant (F-Statistic = 35.912, p-value < 0.05), hence a good fit.

In addition, the results from the regression analysis show that the coefficient for tax burden was positive while the p-value was significant. Additionally, the coefficient for TAXB*ROI was positive while the p-value was significant. The coefficients of all the other variables were insignificant. The following Table 5.6 presents results of economic development indicators as moderating variables in the tests in Step Three.

Table 5.6: Economic Development Indicators as Moderating Variables, 2000 - 2013

MODEL SUMMARY					
R Square	0.825				
Adjusted R Square	0.802				
Standard Error	11.749				
Observations	70				
ANOVA					
	df	Sum of Squares	Mean of Squares	F	Significance F
Regression	8	39660.798	4957.600	35.912	0.000
Residual	61	8421.025	138.050		
Total	69	48081.823			
COEFFICIENT					
	Unstandardized Coefficients		Standardized Coefficients		
	Coefficients	Standard Error	Beta	t Stat	P-value
Constant	-264.771	112.104		-2.362	0.0214
TAXB	14.329	6.235	2.207	2.298	0.0250
SIZE	61.015	43.212	0.602	1.412	0.1630
HCA	-0.081	0.369	-0.060	-0.218	0.8281
OPE	0.486	0.331	0.570	1.471	0.1464
ROI	-30.232	26.885	-0.726	-1.125	0.2652
TAXB*HCA	-0.026	0.025	-0.494	-1.057	0.2947
TAXB*OPE	0.016	0.021	0.404	0.748	0.4575
TAXB*ROI	2.799	1.206	3.045	2.320	0.0237

H_0: There is no significant influence by TAXB*HCA, TAXB*OPE, and TAXB*ROI on the relationship between TAXB and FDI inflows into the EAC countries. H_1: There is significant influence by TAXB*HCA, TAXB*OPE, and TAXB*ROI on the relationship between TAXB and FDI inflows into the EAC countries. Dependent variable: FDI. Predictors: Constant, TAXB, SIZE, HCA, OPE, ROI, TAXB*HCA, TAXB*OPE, TAXB*ROI. Significance level is 0.05.
Source: Author Computations, 2016.

Table 5.6b presents test results for the moderator variable TAXB*SIZE that was excluded during the tests in Table 5.6 due linearity problems. In Table 5.6b, the results for TAXB*SIZE show that the t-statistic associated p-value is less than 0.05 thus significant and positive. Hence, the results from Table 5.6b demonstrate that market size had significant moderating influence on the relationship between tax burden and FDI inflows. The following Table 5.6b presents results for TAXB*SIZE.

Table 5.6b: Excluded Variable

Model	Beta	t-Stat	Sig.	Partial Correlation	Collinearity Statistics
					Tolerance
TAXB*SIZE	22.037	2.197	.032	.273	2.685E-05

Note: H_0: There is no significant influence by TAXB*SIZE on the relationship between TAXB and FDI inflows into the EAC countries. H_1: There is significant influence by TAXB*SIZE on the relationship between TAXB and FDI inflows into the EAC countries. Dependent variable: FDI. Predictors: Constant, TAXB*SIZE. TAXB*SIZE is the product of tax burden and market size. Significance level is 0.05.
Source: Author Computations, 2016.

Hence, TAXB*SIZE and TAXB*ROI had statistically significant positive coefficients. Therefore, from the results in Table 5.6 and Table 5.6b, market size and return on investments had statistically significant moderating influence on FDI inflows into the EAC countries during the study period.

In Step Four, comparisons of TAXB coefficients from Step One, Step Two and Step Three were conducted. In addition, examination of the significance of the coefficient in the product of tax burden and individual economic development indicators on the relationship between the tax burden and foreign direct investment inflows into the EAC countries was conducted. The results in Table 5.7 demonstrate that in Step Two, with the introduction of economic development indicators as independent variables, TAXB coefficients reduced but remained negative while the t-statistic associated p-value

became significant but positive. In addition, human capital and country openness had statistically significant coefficients. Hence, human capital and country openness had statistically significant positive independent influence on the relationship between tax burden and FDI inflows into the EAC countries during the study period.

In Step Three after the moderator variable was introduced in the regression equation in Step Two, the coefficient for tax burden increased and became positive while the p-value from the t-statistic remained significant and positive. In addition, TAXB*SIZE and TAXB*ROI had significant positive coefficients. This demonstrated that market size and return on investment had statistically significant moderating influence on the relationship between tax burden and FDI inflows into the EAC countries.

Table 5.7 presents comparisons TAXB coefficients and the independent variables in the EAC countries.

Table 5.7: Comparison of Tax Burden Coefficients in Section 5.1.2.2, 2000 - 2013

	Coefficient	Std. Error	t-test	P-value
TAXB[1]	-1.087	0.776	-1.401	0.166
TAXB[2]	-4.382	0.449	-9.757	0.000
HCA	-0.541	0.087	-6.245	0.000
OPE	0.740	0.075	9.927	0.000
TAXB[3]	14.326	6.235	2.298	0.025
TAXB*SIZE	46.638	21.259	2.194	0.032
TAXB*ROI	22.005	8.832	2.491	0.016

TAXB[1] is TAXB coefficient in Step One. TAXB[2] is TAXB coefficient in Step Two with economic development indicators as independent variables. TAXB[3] is TAXB coefficient in Step Three with the product of tax burden and economic development indicators as moderator variable. HCA and OPE are defined in (5.9). TAXB*SIZE and TAXB*ROI are defined in (5.11). Significance level is 0.05.
Source: Author Computations, 2016.

Therefore, in summary, the results indicate that in Section Two when economic development indicators were included as independent variables on the relationship between TAXB and FDI inflows, human capital and country openness had statistically significant independent influence on the relationship between tax burden and FDI inflows into the EAC countries. However, when the product of tax burden and economic development indicators of market size, human capital, country openness and return on investment were introduced as moderator variables, market size and return on investment had statistically significant positive moderating influence on the relationship between tax burden and FDI inflows into the EAC countries during the study period. Hence, H_2 was confirmed for market size and return on investment.

5.1.3 Mediating Influence of Macro-economic Factors on the Relationship between Foreign Direct Investment Inflows and Tax Burden

Objective Three was to establish the influence of macro-economic factors (GDP growth rates, inflation rates, exchange rates, interest rates) on the relationship between tax burden and foreign direct investment inflows into the EAC countries. The hypothesis was H_3: macro-economic factors (GDP growth rates, inflation rates, exchange rates, interest rates) have significant mediating influence on the relationship between tax burden and foreign direct investment inflows into the EAC countries.

The macro-economic factors were introduced as mediator variables in the relationship between the tax burden and FDI inflows into the EAC countries. This was a four-step method: Step One, FDI inflows were regressed on tax burden (similar to Objective One) Step Two: the mediator variables (macro-economic variables of GDPR, IFR, EXCR and INR) were regressed on the independent variable TAXB. Step Three, the dependent variable was regressed on the independent and mediator variables that had significant

coefficients in Step One. In Step Four, TAXB coefficients in Step One were compared with TAXB coefficients in Step Three. The significance of the mediating influence was established by examining the coefficients of the mediator variables.

In Step One, FDI inflows were regressed on tax burden (similar to Objective one). The results are as presented in Table 5.1. The following was the model used in Step One.

$$FDI_{it} = \alpha_{31} + \beta_{T31}TAXB_{it} + \varepsilon_{31} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (5.12).$$

where:

α_{31} is regression constant, FDI and TAXB are defined in (5.1). β_{TI31} is regression coefficient. i denotes country, t denotes time. ε_{31} is error term.

In Step Two, the mediator variables (macro-economic variables of GDPR, IFR, EXCR and INR) were regressed on the independent variable (TAXB) to determine the mediators with significant coefficients to be included in additional statistical analyses in Step Three. The following models were used:

$$GDPR_{it} \quad = \quad \alpha_{G32} + \beta_{TG32}TAXB_{it} + \varepsilon_{G32}\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (5.13).$$

$$IFR_{it} \quad = \quad \alpha_{IF32} + \beta_{TIF32}TAXB_{it} + \varepsilon_{IF32}\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (5.14).$$

$$EXCR_{it} \quad = \quad \alpha_{E32} + \beta_{TE32}TAXB_{it} + \varepsilon_{TE32}\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (5.15).$$

$$INR_{it} \quad = \quad \alpha_{I32} + \beta_{TI32}TAXB_{it} + \varepsilon_{TI32}\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (5.16).$$

[model according to Mackinnon, Lockwood, Hoffman, West and Sheets (2002).]

where:

α_{G32}, α_{IF32}, α_{E32} and α_{I32} are regression constants, FDI and TAXB are defined in (5.1). GDPR is GDP growth rate, IFR is inflation rate, EXCR is exchange rate and INR is interest rate. β_{TG32}, β_{TIF32}, β_{TE32} and β_{TI32} are regression coefficients. i denotes EAC countries, t denotes time. ε_{G32}, ε_{IF32}, ε_{TE32} and ε_{TI32} are error terms.

[Mediating variable's coefficients (β_{TG32}, β_{TIF32}, β_{TE32} and β_{TI32}) in 5.13, 5.14, 5.15 and 5.16 must be significant for the mediator variable to be included in Step Three.

Table 5.8 presents the regression statistics in the GDP growth rate equation. The results demonstrate that the coefficient for TAXB was negative while the p-value was significant. Therefore, GDPR was included in statistical analysis in Step Three.

Table 5.8: Regression Statistics in GDP Growth Rate Equation, 2000 - 2013

MODEL SUMMARY							
R Square	0.194						
Adjusted R Square	0.182						
Standard Error	2.298						
Observations	70						
ANOVA							
	df	Sum of Squares	Mean of Squares	F	Significance F		
Regression	1	86.251	86.251	16.332	0.000		
Residual	68	359.120	5.281				
Total	69	445.371					
COEFFICIENTS							
	Unstandardized Coefficients		Standardized Coefficients				
	Coefficients	Standard Error	Beta			t Stat	P-value
Constant	9.672	1.071				9.031	0.000
TAXB	-0.275	0.068	0.440			-4.041	0.000

Note: H_0: The independent variable is not significant. H_1: The independent variable is significant. Dependent variable: GDPR. Predictors: Constant, TAXB. Significance level is 0.05.
Source: Author Computations, 2016.

Table 5.8 presents test results for GDP growth rate as a mediator variable. GDPR was regressed against TAXB which was the independent variable. The results indicate that tax burden explain a low level of GDPR (Adjusted R-squared = 0.182, p-value < 0.05)

in the EAC countries. However, the standard error is low and the p-value < 0.05, hence significant. The model is statistically significant (F-statistic $= 16.332$, p-value < 0.05), thus a good fit.

The following Table 5.9 presents results of regression statistics in the inflation rate equation during the period of study.

Table 5.9: Regression Statistics in Inflation Rate Equation, 2000 - 2013

MODEL SUMMARY					
R Square	0.041				
Adjusted R Square	0.027				
Standard Error	4.012				
Observations	70				
ANOVA					
	df	Sum of Squares	Mean of Squares	F	Significance F
Regression	1	46.787	46.787	2.906	0.093
Residual	68	1094.779	16.100		
Total	69	1141.566			
COEFFICIENTS					
	Unstandardized Coefficients		Standardized Coefficients		
	Coefficients	Standard Error	Beta	t Stat	P-value
Constant	13.888	0.916		15.159	0.000
TAXB	0.155	0.091	0.264	1.705	0.093

Note: H_0: The independent variable is not significant. H_1: The independent variable is significant. Dependent variable: IFR. Predictors: Constant, TAXB. Significance level is 0.05.
Source: Author Computations, 2016.

Table 5.9 presents results for inflation rate as a mediator variable. Inflation rate as a mediator variable was regressed against the tax burden. The test results demonstrate that tax burden explains a low level of the inflation rate (Adjusted R-squared $= .027$, p-value > 0.05). Therefore, tax burden is not a good independent of inflation rate. In

addition, the ANOVA tests results indicate that the model is not statistically significant (F-statistic = 0.0928, p-value > 0.05). Hence, the model is not a good fit. The regression results demonstrate that the coefficient for TAXB was positive while the p-value was insignificant. Hence, inflation rate was not included in regression analysis in Step Three.

Table 5.10 presents results for exchange rate as a mediator variable.

Table 5.10: Regression Statistics in Exchange Rate Equation, 2000 - 2013

MODEL SUMMARY					
R Square	0.305				
Adjusted R Square	0.294				
Standard Error	0.969				
Observations	70				
ANOVA					
	df	Sum of Squares	Mean of Squares	F	Significance F
Regression	1	27.985	27.985	29.802	0.000
Residual	68	63.853	0.939		
Total	69	91.838			
COEFFICIENTS					
	Unstandardized Coefficients		Standardized Coefficients		
	Coefficients	Standard Error	Beta	t Stat	P-value
Constant	8.848	0.452		19.594	0.000
TAXB	-0.157	0.029	-0.157	-5.459	0.000

Note: H_0: The independent variable is not significant. H_1: The independent variable is significant. Dependent variable: EXCR. Predictors: Constant, TAXB. Significance level is 0.05.
Source: Author Computations, 2016.

Exchange rate as a mediator variable was regressed against the tax burden. The results show that tax burden explained the variation in the exchange rates (Adjusted R-Squared

= 0.249, p-value < 0.05). In addition, the model was statistically significant (F-statistic 27.802, p-value < 0.05). Thus the model was fit. The regression results show that the coefficient for TAXB in the exchange rate equation was negative while the p-value was significant. Therefore, exchange rate was included for further statistical analysis in Step Three.

Table 5.11 present tests results for interest rates as a mediator variable.

Table 5.11: Regression Statistics in Interest Rates Equation, 2000 - 2013

MODEL SUMMARY					
R Square	0.023				
Adjusted R Square	0.008				
Standard Error	2.971				
Observations	70				
ANOVA					
	df	Sum of Squares	Mean of Squares	F	Significance F
Regression	1	13.927	13.927	1.577	0.213
Residual	68	600.376	8.829		
Total	69	614.303			
COEFFICIENTS					
	Unstandardized Coefficients		Standardized Coefficients		
	Coefficients	Standard Error	Beta	t Stat	P-value
Constant	19.044	1.385		13.753	0.000
TAXB	-0.110	0.088	-0.151	-1.256	0.213

Note: H_0: The independent variable is not significant. H_1: The independent variable is significant. Dependent variable: INR. Predictors: Constant, TAXB. Significance level is 0.05.
Source: Author Computations, 2016.

Interest rate was regressed against the tax burden which was the independent variable. The test results demonstrate that TAXB explained a low level of INR (Adjusted R-Squared = 0.008, p-value > 0.05). The model was not statistically significant (F-statistic

= 1.577, p-value > 0.05), hence model was not a good fit. However, the results demonstrate that the coefficient for TAXB was positive while the p-value was insignificant. Hence, INR was not included in further statistical tests in Step Three.

Therefore, of the four macro-economic variables of GDP growth rate, inflation rate, exchange rate and interest rate tested as mediator variables with tax burden as the independent variable, only the coefficients of tax burden in the GDP growth rate and exchange rate equations were significant. Therefore, GDP growth rate and exchange rate were included in further statistical tests in Step Three. However, the coefficients for tax burden in the inflation rate and interest rate equations were insignificant, hence the mediator variables were not included in further statistical tests in Step Three.

In Step Three, GDP growth rate and exchange rate were included as mediator variables from results obtained in Step One. The following model was used in the regression analysis in Step Three:

$$FDI_{it} = \alpha_{33} + \beta_{T33}TAXB_{it} + \beta_{G33}GDPR_{it} + \beta_{E33}EXCR_{it} + \varepsilon_{33}\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (5.17).$$

where:

α_{33} is regression constant, FDI and TAXB are defined in (5.1). GDPR and EXCR are defined in (5.13 to 5.16). β_{T33}, β_{G33} and β_{E33} are regression coefficients. i denotes country, t denotes time, ε_{33} is error term

The results in Table 5.12 demonstrate that TAXB, GDPR and EXCR explain the variations in the FDI inflows (Adjusted R-Squared = 0.213, p-value < 0.05). ANOVA results demonstrate that the model is statistically significant (F-statistic = 7.221, p-value < 0.05). Hence, a good fit. Additionally, the regression test results demonstrate that the

coefficient for TAXB was positive while the p-value was insignificant. The coefficient for GDPR was positive while the p-value was insignificant. However, the coefficient for EXCR was positive but the p-value was significant. Hence, EXCR had statistically significant positive mediating influence on the relationship between tax burden and FDI inflows into the EAC countries. Therefore, the multivariate equation for the mediation test is expressed as follows:

FDI = - 85.431 + 1.329TAXB + 1.943GDPR + 12.020EXCR……...…………….....…….. (5.18).

Table 5.12 presents test results of the analysis in Step Three.

Table 5.12: GDP Growth Rate and Exchange Rate as Mediator Variables, 2000-2013

MODEL SUMMARY					
R Square	0.247				
Adjusted R Square	0.213				
Standard Error	23.420				
Observations	70				
ANOVA					
	df	Sum of Squares	Mean of Squares	F	Significance F
Regression	3	11881.826	3960.609	7.221	0.000
Residual	66	36199.997	548.485		
Total	69	48081.823			
COEFFICIENTS					
	Unstandardized Coefficients		Standardized Coefficients		
	Coefficients	Standard Error	Beta	t Stat	P-value
Constant	-85.431	30.641		-2.788	0.007
TAXB	1.329	0.899	0.205	1.478	0.144
GDPR	1.943	1.236	0.187	1.572	0.121
EXCR	12.020	2.931	0.525	4.101	0.000

Note: H_0: The mediator variables are not significant. H_1: The mediator variables are significant. Dependent variable: FDI. Predictors: Constant, TAXB, GDPR, EXCR. Significance level is 0.05.
Source: Author Computations, 2016.

In Step Four, comparisons of the TAXB coefficients in Step Two and Step Three to determine mediating influence on the relationship between the tax burden and FDI inflows into the EAC countries were conducted. The significance of the mediating influence was established by examining the coefficients of the mediator variables. The results in Table 5.13 indicate that after the mediator variables GDPR and EXCR were introduced into the regression equation in Step Three, the coefficient for TAXB increased and became positive while the p-value remained insignificant but positive. However, the coefficient for the GDPR was insignificant but positive while the coefficient for EXCR was significant and positive. Table 5.13 presents comparisons of TAXB coefficients in Step One, and Step Three during the tests.

Table 5.13: Comparison of Tax Burden Coefficients in Objective Three, 2000 - 2013

	Coefficient	Std. Error	t-test	P-value
TAXB[1]	-1.087	0.776	-1.401	0.166
TAXB[3]	1.329	0.899	1.478	0.144
GDPR	1.943	1.236	1.572	0.121
EXCR	12.020	2.931	4.101	0.000

Note: TAXB[1] is the coefficient for TAXB in Step One. TAXB[3] is the coefficient for TAXB in Step Three. TAXB is defined in (5.1). GDPR and EXCR are defined in (5.12 to 5.15). Significance level is 0.05.
Source: Author Computations, 2016.

The results demonstrate that EXCR had statistically significant positive partial mediation influence on the relationship between tax burden and FDI inflows into the EAC countries. This means that exchange rate accounts for some but not all the relationship between tax burden and FDI inflows in the EAC countries. There is a significant relationship between the exchange rate and FDI inflows and, a direct

relationship between the tax burden and FDI inflows. Therefore, H_3 was confirmed for macro-economic variable EXCR.

However, it should be noted that there are several criticisms of the mediation process among them the power to influence and determine a mediating variable. This weakness of the process was overcome by quantifying the mediating variable without intrusion of the test results and the mediator variable determined a paradigm rationality of influence. In addition, the statistical tools that were used to measure FDI inflows and exchange rates were diverse. Further, the exchange rate and tax burden did not interrelate.

5.1.4 Joint Effect of Tax Burden, Economic Development and Macro-economic Factors on Foreign Direct Investment Inflows

Objective Four was to determine the joint effect of the tax burden, economic development (market size, human capital, country openness, return on investment) and macro-economic factors (GDP growth rates, inflation rates, exchange rates, interest rates) on foreign direct investment inflows into the EAC countries. The hypothesis in Objective Four was H_4: there is significant joint effect of tax burden, economic development (market size, human capital, country openness, return on investment) and macro-economic factors (GDP growth rates, inflation rates, exchange rates, interest rates) on foreign direct investment inflows into the EAC countries.

Statistical analysis of the joint effect of TAXB, SIZE, HCA, OPE, ROI, GDPR, IFR, EXCR and INR on FDI inflows into the EAC countries were conducted. This was a three-step method. In Step One, FDI inflows were regressed on tax burden (similar to Objective One). In Step Two, the independent variables (TAXB, SIZE, HCA, OPE, ROI, GDPR, IFR, EXCR and INR) were introduced into the equation in Step One. In

Step Three: comparisons of tax burden coefficients in Step One and Step Two were conducted. To determine presence of significant joint effect, the coefficients of the independent variables were examined.

In Step One, FDI inflows were regressed on tax burden (similar to Objective One). The results are presented in Table 5.1. The following model was used in the tests.

$$FDI_{it} = \alpha_{41} + \beta_{T41}TAXB_{it} + \varepsilon_{41} \ \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots \ (5.19).$$

where:

α_{41} is model constant. FDI and TAXB are defined in (5.1). β_{T41} is regression coefficient, i denotes EAC countries while t denotes time, ε_{41} is error term.

In Step Two, the independent variables were introduced to determine joint effect on FDI inflows into the EAC countries. The following model was used in the regression analysis:

$$FDI_{it} = \alpha_{42} + \beta_{T42}TAXB_{it} + \beta_{S42}SIZE_{it} + \beta_{H42}HCA_{it} + \beta_{O42}OPE_{it} + \beta_{R42}ROI_{it} + \beta_{G42}GDPR_{it} +$$
$$\beta_{F42}IFR_{it} + \beta_{E42}EXCR_{it} + \beta_{I42}INR_{it} + \varepsilon_{42}\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots \ (5.20).$$
[model according to Fairchild and Mackinnon (2009)]

where:

α_{42} is model constants. FDI and TAXB are defined in (5.1). SIZE, HCA, OPE and ROI are defined in (5.9). GDPR, IFR, EXCR and INR are defined in (5.12 to 5.15). β_{T42}, β_{S42}, β_{H42}, β_{O42}, β_{R42}, β_{G42}, β_{F42}, β_{E42} and β_{I42} are regression coefficients. i denotes EAC countries while t denotes time. ε_{42} is error term.

In Table 5.14, the test results demonstrates that the independent variables explain the variations in the dependent variable (Adjusted R Square = 0.881, p-value < 0.05). In

addition, the ANOVA test results show that the overall model was statistically significant (F-statistic = 57.622, p-value = < 0.05), hence a good fit.

The regression test results demonstrate that the coefficient for tax burden was negative while the p-value was significant. In addition, the coefficient for human capital was negative while the p-value was significant during the study period. Further, the coefficient for market size was positive while the p-value was significant.

Table 5.14: Joint Effect Results, 2000 - 2013

MODEL SUMMARY					
R Square	0.896				
Adjusted R Square	0.881				
Standard Error	9.116				
Observations	70				
ANOVA					
	df	Sum of Squares	Mean of Squares	F	Significance F
Regression	9	43095.817	4788.424	57.622	0.000
Residual	60	4986.006	83.100		
Total	69	48081.823			
COEFFICIENTS					
	Unstandardized Coefficients		Standardized Coefficients		
	Coefficients	Standard Error	Beta	t Stat	P-value
Constant	-114.885	29.125		-3.945	0.000
TAXB	-1.667	0.487	-1.667	-3.423	0.001
SIZE	77.913	30.732	77.889	2.535	0.014
HCA	-0.641	0.065	-0.641	-9.869	0.000
OPE	0.378	0.074	0.378	5.131	0.000
ROI	10.351	12.119	10.342	0.854	0.396
GDPR	-0.407	0.582	-0.407	-0.698	0.488
IFR	-0.156	0.223	-0.156	-0.698	0.488
EXCR	13.168	1.745	13.167	7.548	0.000
INR	-0.416	0.449	-0.417	-0.928	0.357

H_0: There is no significant joint effect of TAXB, SIZE, HCA, OPE, ROI, GDPR, IFR, EXCR and INR on FDI inflows in the EAC countries. H_1: There is significant effect of TAXB, SIZE, HCA, OPE, ROI, GDPR, IFR, EXCR and INR on FDI inflows in the EAC countries. Dependent variable: FDI. Predictors: Constant, TAXB, SIZE, HCA, OPE, ROI, GDPR, IFR, EXCR and INR. Significance level is 0.05.

Source: Author Computations, 2016.

Additionally, the coefficient for country openness was positive whereas the p-value was significant. Moreover, the coefficient for exchange rate was positive while the p-value was significant. However, the coefficient for the return on investment was positive while the p-value was insignificant during the study period. However, the coefficient for GDP growth rate was negative and the p-value was insignificant while the coefficient for interest rate was negative but the p-value was insignificant. Therefore, tax burden and human capital had statistically significant negative joint effect on FDI inflows into the EAC countries during the study period.

In addition, market size, country openness and exchange rates had statistically significant positive joint effect on FDI inflows into the EAC countries during the study. Therefore, the associated multivariate regression equation is as follows:

$$FDI = - 114.885 - 1.667TAXB + 77.913SIZE - 0.641HCA + 0.378OPE + 10.351ROI -$$
$$0.407GDPR - 0.156IFR + 13.168EXCR - 0.416INR………………..…..……... (5.21).$$

In Step Three, comparisons of tax burden coefficients in Step One and Step Two were conducted to determine whether there was significant joint effect by TAXB, SIZE, HCA, OPE, ROI, GDPR, IFR, EXCR and INR on FDI inflows into the EAC countries. After the introduction of the independent variables into the regression equation in Step One, the coefficient for TAXB reduced but remained negative. However, the p-value became significant. The significance of the joint effect was established by examining the coefficients of the independent variables. The results in Table 5.15 demonstrate that the coefficient for human capital was significant but negative; the coefficients for market size, country openness and exchange rates were significant and positive. Table 5.15 presents comparisons of TAXB coefficients in Objective Four.

Table 5.15: Comparisons of TAXB Coefficients in Objective Four, 2000 - 2013

	Coefficient	Std. Error	t-statistics	P-value
TAXB[1]	-1.087	0.776	-1.401	0.166
TAXB[2]	-1.667	0.487	-3.423	0.001
SIZE	77.913	30.732	2.535	0.014
HCA	-0.641	0.065	-9.869	0.000
OPE	0.378	0.074	5.131	0.000
EXCR	13.168	1.745	7.548	0.000

Note: TAXB[1] is coefficient for TAXB in Step One. TAXB[2] is the coefficient for TAXB in Step Two. TAXB is defined in (5.1), SIZE is market size, HCA is human capital, OPE is country openness while EXCR is exchange rate. Significance level is 0.05.
Source: Author Computations, 2016.

Therefore, tax burden and human capital had statistically significant negative joint effect on the FDI inflows in the EAC countries. Additionally, market size, country openness and exchange rates had statistically significant positive joint effects on the FDI inflows into the EAC countries. Therefore, H_4 was confirmed for TAXB, SIZE, HCA, OPE and EXCR but not confirmed for ROI, GDPR, IFR and INR.

5.2 Discussion of Hypotheses Test Results

This section discusses results of the four hypotheses that were tested. The results discussed relate to Objective One, Objective Two, Objective Three and Objective Four. The discussions are on how well the results conform to theory and how the results are comparable with similar studies elsewhere in the world. Objective One was to determine the effect of tax burden on FDI inflows into the EAC countries. H_1: tax burden has significant negative effect on FDI inflows into the EAC countries. The expected results was that tax burden (TAXB) had significant negative effect on foreign direct investment (FDI) inflows into the EAC countries. The model summary indicated that tax burden

explained a low level (Adjusted R-square = .014) of FDI inflows variation into the EAC countries during the study period.

In addition, the regression test results demonstrated that tax burden in the EAC countries had insignificant negative relationship with FDI inflows. The findings do not conform to the theoretical expectations. However, the findings are consistent with Kinda (2014) who found that in Sub-Saharan Africa, taxation was not a significant driver for location of international investments in the region and Kubicova (2013) who found that effective tax rates and statutory corporate tax rates (components of TAXB) were not significant determinants of FDI into European Union (EU) member states. Hence, in the EAC countries, the effect of tax burden alone on FDI inflows was insignificant and negative during the study period.

In addition, the findings demonstrate that FDI inflows into the EAC countries may be determined by other factors such as push factors from home countries. This assertion gives credence to Saad, Noor and Nor (2014) who found that outside push investments factors enable companies to move into new markets outside home country, import raw materials and foreign technology at lower prices, consolidate drive as transitional corporations and growing desires for international competition. Further, the findings support Cerrutti, Claessens and Puy (2015) who asserts that countries that rely heavily on global banks and international funds are sensitive to push factors.

Moreover, the findings are consistent with Talpos and Ludosean (2012) who found that FDI was not discouraged by the level of tax in Romania. Therefore, from the research findings, tax burden alone is not a critical determinant of FDI inflows into the EAC countries. Therefore, tax competition theory is weak in explaining Objective One since

144

tax burden does not fully account for the FDI inflows into the EAC countries. The other two theories equity and political power theory may explain FDI inflows into the EAC countries during the study period.

Objective Two was to investigate the influence of economic development on the relationship between the tax burden and FDI inflows into the EAC countries. H_2: economic development has significant influence on the relationship between the tax burden and FDI inflows into the EAC countries. From theoretical perspectives, economic development was expected to have significant positive coefficients in the relationship between tax burden and FDI inflows. The tests were undertaken in two sections. In Section One, composite economic development was used as an ordinary independent variable. The results indicated that the adjusted R-squared for composite economic development explained more than 21 % variation in FDI inflows. The results are supported by ANOVA results which show that the coefficients for tax burden were significant and positive in the EAC countries.

The regression analysis demonstrated that composite economic development as an independent variable had significant positive influence on the relationship between tax burden and foreign direct investment inflows into the EAC countries. This means that presence of economic development reduces the expected negative effect of TAXB on FDI inflows. Hence, FDI inflows are not negatively affected by TAXB in presence of composite economic development in the EAC countries.

Therefore, composite economic development as an independent variable attracts FDI inflows which results in collection of higher taxes. This means that the tax revenues collected as a percentage of real GDP will be higher, hence a higher tax burden. The

145

findings are consistent with Murthy and Bhasin (2013) who found that FDI inflows were determined by macro-economic variables including tax treaties and policies; the FDI inflows being market and efficiency seeking. This position is further supported by Iamsiraroj and Doucouliagos (2015) who concluded that economic development had positive and significant effect on FDI inflows. Therefore, FDI inflows in EAC countries are influenced to a large extent by composite economic development as independent variables. Hence, composite economic developments as independent variables had significant influence on the relationship between tax burden and FDI inflows into the EAC countries during the study period.

However, composite economic development as a moderating variable had insignificant negative coefficients. The findings are consistent with Hunady and Orviska (2014) who found that corporate tax, labour costs and economic openness were not significant in attracting FDI inflows in European Union. From the test results, H_2 is not confirmed for composite economic development in the EAC countries.

In Section Two of Objective Two, economic development indicators of market size (SIZE), human capital (HCA), country openness (OPE) and return on investment (ROI) were included in the regression equations. The economic development indicators were theoretically expected to have significant positive moderating influence on the relationship between TAXB and FDI inflows into the EAC countries. The results demonstrate that adjusted R-squared results for TAXB, SIZE, HCA, OPE and ROI explained more than 76.7 % of FDI inflows into the EAC countries. Hence, the models were significant.

However, the results demonstrate that HCA had significant negative coefficient. From the insignificant negative results in Objective One between TAXB and FDI inflows into the EAC countries, human capital enhanced the insignificant negative influence increasing the negative effect by tax burden and hence attracting less FDI inflows into the EAC countries. Hence, HCA had negative influence on FDI inflows into the EAC countries. Country openness had significant and positive coefficient. Hence, country openness had significant positive influence in the relationship between tax burden and FDI inflows. This means that country openness would result in increased FDI inflows and higher tax burden which would have effect since it is significant and negative.

Therefore, human capital and country openness as independent variables significantly influenced the relationship between tax burden and foreign direct investments inflows into the EAC countries. The effect of human capital and country openness significantly enhanced the negative effect of tax burden on FDI inflows into the EAC countries. The research results are consistent with Ho et al. (2013) who found trade openness was an important determinant of FDI in Brazil, Russia, India, China and South Africa (BRICS) and Okafor et al. (2013) who found that FDI inflows in Sub-Saharan Africa (SSA) were determined by trade openness and literacy levels during the study period.

With the introduction of the product of tax burden and economic development indicators (SIZE, HCA, OPE and ROI) in the regression equation as moderator variables, the model summary results indicated that the adjusted R-squared explained more than 80.2 % variation in FDI inflows in the EAC countries. This is a departure from the low level of explanation of FDI inflows by TAXB of 1.4 per cent in Objective One. However, market size and return on investment had significant positive coefficients as moderating variables.

147

The coefficient of TAXB changed from significant negative to significant positive. Hence, market size and return on investment had significant moderating influence on the relationship between tax burden and foreign direct investment inflows into the EAC countries. A large market size and high consistent return on investments would result in lower effect of tax burden on FDI inflows. The study results are consistent with Anyanwu (2011) who found that market size and country openness attracts FDI in Africa and Wenkai et al. (2009) who found that ROI was an important FDI determinant in China during the study.

From the test results, H_2 is confirmed for market size and return on investments in the EAC countries. In addition, the results are consistent with the political power theory proposals that international investors are able to reduce their tax burden and hence tax burden is not an important factor in their international investment decisions. Economic developments are some of the factors that account for increased and consistent volumes of FDI inflows into the EAC countries.

Objective Three sought to establish the influence of macro-economic factors on the relationship between the tax burden and FDI inflows into the EAC countries while H_3: macro-economic factors (GDP growth rates, inflation rates, exchange rates, interest rates) have significant influence on the relationship between the tax burden and FDI inflows into the EAC countries. From theoretical expectations, the mediator variables (macro-economic factors of GDPR, IFR, EXCR and INR) were expected to have significant mediating influence on the relationship between the tax burden and FDI inflows into the EAC countries during the study period.

However, the results demonstrated that after the macro-economic factors were regressed against TAXB, the coefficients for TAXB in GDPR and EXCR equations were significant and positive. Hence, GDPR and EXCR were included in further mediation tests. In addition, TAXB, GDPR and EXCR were regressed against FDI inflows to determine presence of mediation. EXCR had significant positive coefficient. This means that EXCR had significant positive partial mediating influence on the relationship between tax burden and foreign direct investment inflows into the EAC countries. This is an indication that exchange rate reduced the negative though insignificant tax burden coefficients to insignificant positive coefficients thus minimising the effect of TAXB on FDI inflows into the EAC countries during the study period.

The study results are consistent with Murphy and Bhasin (2013) who found that macro-economic variables including tax treaties were significant in attracting FDI inflows into India and Arbatli (2011) who found that reducing trade tariffs and rates of corporate taxes while managing the exchange rate policies related to FDI inflows. The results are also consistent with Vijayakumar et al. (2010) who found that foreign currency was a determinant of FDI into Brazil, Russia, India, China and South Africa (BRICS). Therefore, in Objective Three, only exchange rate mediated on the relationship between tax burden and FDI inflows in the EAC countries. Hence, H_3 was confirmed for exchange rate in the EAC countries. This finding validates political power theory which postulates that since international investors have huge resources they are able to manage their tax burdens and pay only the minimum. Hence, tax burden is not a critical factor in international investment decisions. There are other factors that influence FDI inflows into the EAC countries. Macro-economic factors are some of those factors.

Objective Four was to determine the joint effect of tax burden, economic development (market size, human capital, country openness, return on investment) and macro-economic factors (GDP growth rates, inflation rates, exchange rates, interest rates) on FDI inflows into the EAC countries. Hypothesis H_4 was there is significant joint effect of tax burden, economic development (market size, human capital, country openness, return on investment) and macro-economic factors (GDP growth rates, inflation rates, exchange rates, interest rates) on FDI inflows into the EAC countries.

The theoretical perspectives indicate that market size (SIZE), human capital (HCA), country openness (OPE), return on investment (ROI) and GDP growth rate (GDPR) were expected to have significant positive joint effects on FDI inflows. In addition, tax burden (TAXB), inflation rates (IFR), exchange rates (EXCR) and interest rates (INR) were expected to have significant negative joint effect on FDI inflows into the EAC countries. However, results of model summary demonstrated that the independent variables explained more than 88.1 % of the variations in the FDI inflows into the EAC countries during the study.

This percentage of explanation is significant compared to 1.4 per cent in Objective One. Hence, the variables explained a large proportion of the FDI inflows into the EAC countries. In addition, TAXB and HCA had significant negative coefficients while SIZE, OPE and EXCR had significant positive coefficients. Therefore, tax burden, human capital, market size, country openness and exchange rate had significant joint effect on FDI inflows into the EAC countries. The research findings in Objective Four are consistent with Okpara (2012) who found that exchange rate, fiscal incentives and trade openness attracted FDI in Nigeria; Basemera (2012) who found that FDI was influenced by economic openness and GDP per capita in East Africa; Demirhan and Masca (2008)

who concluded that growth rate, degree of openness and tax rates determined foreign direct inflows in developing countries.

Therefore, FDI inflows were influenced by many factors into the EAC countries during the study period. Hence, H_4 was confirmed for tax burden, market size, human capital, country openness and exchange rate in the EAC countries. The research findings in Objective Four may be explained by equity theory which proposes that input in a relationship should be commensurate with the output from the relationship. EAC countries apart from using tax burdens have also developed the region economically and stabilised the macro-economic regimes to attract increased and consistent volumes of FDI inflows in the current and the future.

5.3 Chapter Summary

This Chapter presented results of the four Hypotheses tested. H_1: tax burden has significant negative effect on FDI inflows into the EAC countries was for Objective One. In addition, H_2: economic development (market size, human capital, country openness, return on investment) has significant influence on the relationship between the tax burden and FDI inflows into the EAC countries was for Objective Two. Further, H_3: macro-economic factors (GDP growth rates, inflation rates, exchange rates, interest rates) have significant influence on the relationship between the tax burden and FDI inflow into the EAC countries was for Objective Three.

Additionally, H_4: there is significant joint effect of tax burden, economic development (market size, human capital, country openness, return on investment) and macro-economic factors (GDP growth rates, inflation rates, exchange rates, interest rates) on FDI inflows in EAC countries was for Objective Four. Table 5.16 is a summary of the

hypotheses tests results. However, a detailed summary of the hypotheses test results is presented in Appendix 6.

Table 5.16: Summary of Test Results

Objective One: To determine the effect of tax burden on FDI inflows into the EAC countries.	
H$_1$: Tax burden has significant negative effect on FDI inflows into the EAC countries	
Regress FDI inflows against TAXB.	Adjusted R^2 > 0.014, F-statistic =1.964, p-value < 0.05. Tax burden had insignificant negative coefficient in the EAC countries. H$_1$ is not confirmed in the EAC countries.
Objective Two: To investigate the influence of economic development (market size, human capital, country openness and return on investment) on the relationship between the tax burden and FDI inflows into the EAC countries.	
H$_2$: Economic development (market size, human capital, country openness and return on investment) has significant moderating influence on the relationship between the tax burden and FDI inflows into the EAC countries.	
Section One: Composite economic development is included as a variable.	
Composite economic development as an independent variable.	Adjusted R^2 > .210. F-statistic = 10.146, p-value < 0.05 TAXB coefficient was significant and negative. Composite economic development coefficient was significant and positive.
Product of tax burden and composite economic development as moderator variable (TAXB*CED).	Adjusted R^2 > .202, F-statistic = 6.818, p-value > 0.05 TAXB coefficient is insignificant and negative. CED coefficient is insignificant and positive. TAXB*CED coefficient is insignificant and negative. H$_2$ is not confirmed for composite economic development as moderating variables in the EAC countries.
Section Two: Economic development indicators of SIZE, HCA, OPE and ROI are included as variables.	
Economic development indicators as independent variables.	Adjusted R^2 > 0.767. F-statistic = 46.419, p-value, 0.05.

|	TAXB coefficient is significant but negative.
	SIZE coefficient is insignificant and positive.
	HCA coefficient is significant but negative.
	OPE coefficient is significant but positive.
	ROI coefficient is insignificant but positive.
Product of tax burden and economic development indicators as moderators TAXB*SIZE, TAXB*HCA, TAXB*OPE TAXB*ROI.	Adjusted R^2 > .814. F-statistic = 34.452.418, p-value < 0.05. TAXB coefficient is insignificant but positive. SIZE and HCA coefficients are insignificant and positive. OPE and ROI coefficients are insignificant and negative. Coefficients for TAXB*SIZE and TAXB*ROI as moderator variables are significant and positive. Coefficients for TAXB*HCA and TAXB*OPE moderator variables are insignificant and negative. H_2 is confirmed for market size and return on investment.
Objective Three: To establish the influence of macro-economic factors (GDP growth rates, inflation rates, exchange rates and interest rates) on the relationship between the tax burden and FDI inflows into the EAC countries.	
H_3: Macro-economic factors (GDP growth rates, inflation rates, exchange rates and interest rates) have significant influence on the relationship between the tax burden and FDI inflows into the EAC countries.	
Macro-economic variables (GDPR, IFR, EXCR and INR) as mediators are regressed on TAXB.	Adjusted R^2 for GDPR > .182, IFR > .027, EXCR > .294, INR > .008. F-statistic for GDPR=16.332, p-value < 0.05; IFR = 2.906, p-value >0.05; EXCR = 29.802, p-value < 0.05; INR = 1.578, p-value > 0.05. In GDPR equation - TAXB coefficient is significant and negative. In EXCR equation - TAXB coefficient is significant and negative.
Regress FDI inflows on the TAXB and GDPR and EXCR.	Adjusted R^2 is > .213. F-statistic = 7.221, p-value < 0.05. TAXB coefficient is insignificant and positive. GDPR coefficient is insignificant and positive. EXCR coefficient is significant and positive. H_3 was confirmed for EXCR in the EAC countries.

Objective Four: To determine the joint effect of the tax burden, economic development (market size, human capital, country openness and return on investment) and macro-economic factors (GDP growth rates, inflation rates, exchange rates and interest rates) on FDI inflows into the EAC countries.	
H_4: There is significant joint effect of the tax burden, economic development (market size, human capital, country openness and return on investment) and macro-economic factors (GDP growth rates, inflation rates, exchange rates and interest rates) on FDI inflows into the EAC countries.	
FDI inflows was regressed on the independent variables (TAXB, SIZE, HCA, OPE, ROI, GDPR, IFR, EXCR and INR).	Adjusted $R^2 > .881$. F-statistic = 57.622, p-value < 0.05. TAXB and HCA coefficients are significant and negative. SIZE, OPE, EXCR coefficients significant and positive. H_4 is confirmed for TAXB, SIZE, HCA, OPE and EXCR.

FDI and TAXB are defined in (5.1). CED is defined in (5.4). TAXB*CED is defined in (5.6). SIZE, HCA, OPE and ROI are defined in (5.9). TAXB*SIZE, TAXB*HCA, TAXB*OPE and TAXB*ROI are defined in (5.11). GDPR, IFR, EXCR and INR are defined in (5.12 to 5.15).
Source: Author Computations, 2016.

Therefore, the hypotheses test results in Table 5.16 demonstrate that H_1 was not confirmed in Objective One, H_2 was confirmed in Objective Two for market size and return on investment, H_3 was confirmed in Objective Three for exchange rate while H_4 was confirmed in Objective Four for tax burden, market size, human capital, country openness and exchange rate in the EAC countries. The results demonstrate that some of the research results were according to the theoretical expectations. In addition, some of the research results were consistent with research conducted elsewhere in the world. From the study findings, the conceptual framework is revised. The study found that tax burden had insignificant negative effect on FDI inflows and hence H_1 was not confirmed. Therefore, H_1 is removed. For the moderating variable, human capital and country openness indicators of economic development were removed since they did not have significant coefficients as moderating variables hence do not explain the correlation between tax burden and FDI inflows into the EAC countries. Figure 5.1 presents the revised conceptual model.

Figure 5.1 Revised Conceptual Model

Mediating Variable
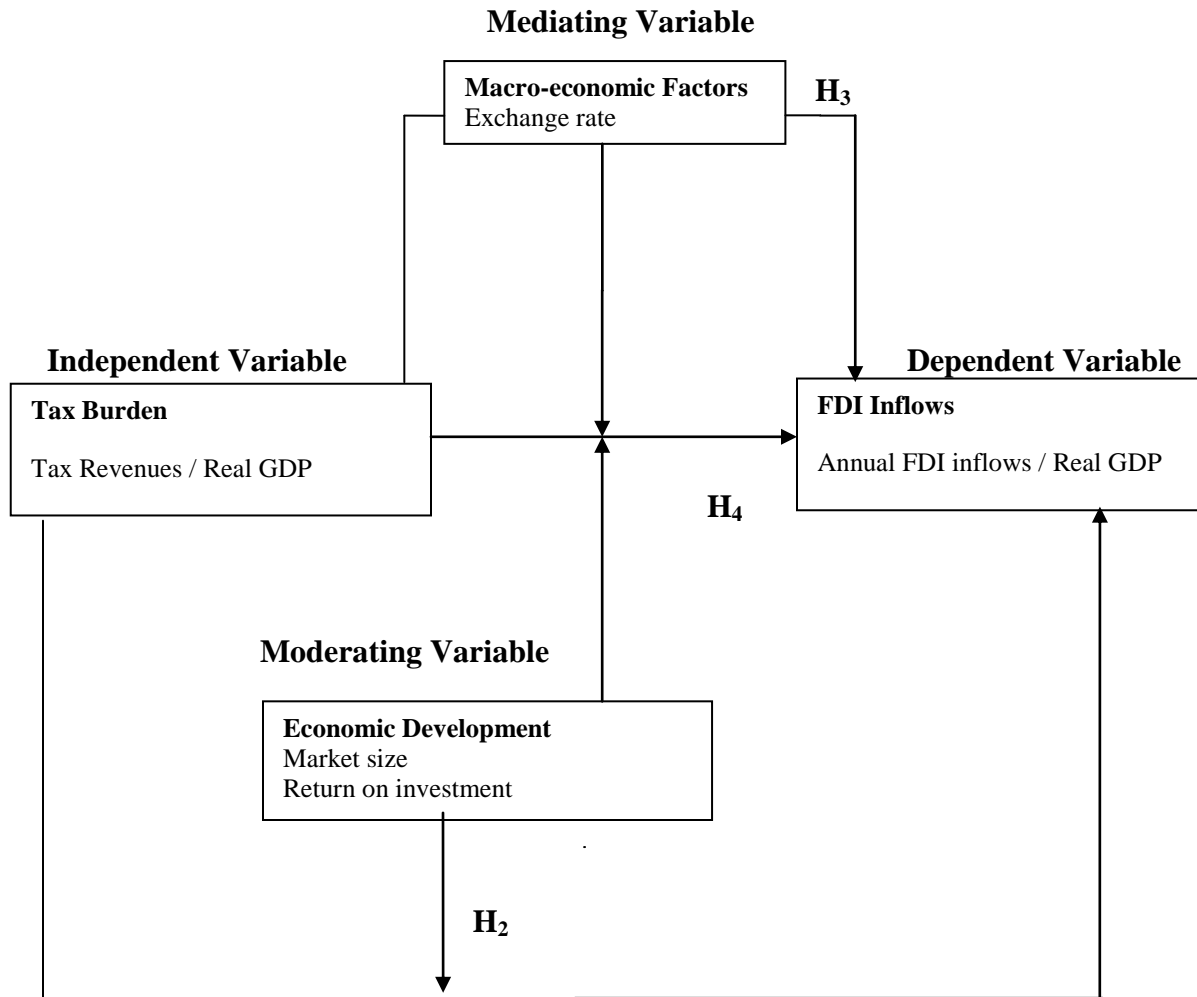
Source: Author, 2016.

Human capital had been established as the gross primary school enrolment while country openness was established as the ratio of exports plus imports to real GDP. The findings demonstrate that the type of FDI inflows into the EAC countries may not be seeking low levels of education. In addition, country openness which explains the ease of importation and exportation did not explain the correlation between tax burden and FDI inflows. Hence, the FDI inflows into the EAC may not be seeking ease of importation and exportation of raw materials, machinery and finished goods.

However, market size and return on investment significantly moderates the relationship between tax burden and FDI inflows into the EAC countries. This means that the FDI inflows into the EAC countries are market–seeking FDI as evidenced by the insignificance of country openness coefficients. The results indicate that the FDI inflows into the EAC countries may be for production for local consumption. In addition, return on investment explains the correlation between tax burden and FDI inflows into the EAC countries. Hence, the international investors seek markets and profitability in the EAC countries.

Results for the mediation process demonstrated that GDP growth rate, inflation and interest rates did not mediate in the relationship between tax burden and FDI inflows: the three factors did not influence the relationship. This means that the FDI inflows into the EAC countries are not influenced by the GDP growth rate, the inflation and interest rates hence the factors were removed from the conceptual model. However, exchange rate had significant coefficients meaning that the FDI inflows into the EAC countries were affected by the exchange rate. FDI inflows are normally dominated in foreign currency and hence any FDI inflows will be affected by the exchange rate. Thus, the FDI inflows into the EAC countries were affected by only one macro-economic factor.

CHAPTER SIX

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

This chapter presents summary of findings, conclusions and recommendations of the study. The summary of findings and conclusions are presented for diagnostic tests, summary statistics, variable's trends, independent and independent variables significance and associations with the dependent variable and hypotheses testing. In addition, the contributions of the study, policy implications, limitations of the study and recommendations for further research are presented in this chapter.

6.2 Summary of Study Findings

The study determined the effect of tax burden on FDI inflows into the EAC countries according to Objective One. Hypothesis H_1: tax burden has significant negative effect on FDI inflows into the EAC countries. Objective Two investigated moderating influence of economic development (market size, human capital, country openness and return on investment) on the relationship between the tax burden and FDI inflows into the EAC countries. Hypothesis H_2: economic development (market size, human capital, country openness and return on investment) has significant moderating influence on the relationship between the tax burden and FDI inflows into the EAC countries during the study period. In addition, Objective Three was to establish the mediating influence of macro-economic factors (GDP growth rates, inflation rates, exchange rates and interest rates) on the relationship between the tax burden and FDI inflows into the EAC countries. Hypothesis H_3: macro-economic factors (GDP growth rates, inflation rates,

exchange rates, interest rates) have significant mediating influence on the relationship between the tax burden and FDI inflows into the EAC countries. Further, the study determined the joint effects of the tax burden, economic development (market size, human capital, country openness and return on investment), and macro-economic factors (GDP growth rates, inflation rates, exchange rates and interest rates) on FDI inflows into the EAC countries according to Objective Four. Hypothesis H_4: there is significant joint effect of tax burden, economic development (market size, human capital, country openness, return on investment) and macro-economic factors (GDP growth rates, inflation rates, exchange rates and interest rates) on FDI inflows into EAC countries.

The study used correlational research design which involved data analyses and hypotheses tests using time series data. The study population was five East African Community (EAC) countries of Burundi, Tanzania, Uganda, Kenya and Rwanda. The unit of analysis was the country. Publicly available secondary data for the period 2000 to 2013 was used with the FDI inflows data from UNCTADdatastat., and trade data from UNStat. Data for other variables was drawn from the EAC DataStats., and the World Bank.

For FDI inflows, annual FDI inflows and real GDP data were required and for the tax burden, annual tax revenues and real GDP data were required. In addition, the data required for economic development were market size data (real GDP per capita), human capital (rate of gross primary schools enrolment), country's openness, (annual imports, annual exports and real GDP) and ROI (real GDP per capita data). Further, the data required for macro-economic factors were annual average GDP growth rate, annual

average inflation rate, annual average exchange rate and annual average interest rate data for the study in the EAC countries.

Data analyses were conducted using diagnostic tests (auto-correlation tests, unit root tests and co-integration tests), summary statistics (central tendency tests [mean], data dispersions tests [range {minimum, maximum} and standard deviation] and data asymmetry tests [skewness and kurtosis]), variables movements and causality (variables trends, covariance analysis, correlation analysis and Granger-causality) and independent variable significance and associations with the dependent variables using Vector Error Models (VAR) and Vector Error Correction (VECM) Models. The data analyses used yearly average data from Burundi, Tanzania, Uganda, Kenya and Rwanda for the study period 2000 to 2013. Hypotheses tests were conducted using model summaries, Analysis of Variance (ANOVA) and regression analyses. Data for hypotheses tests was seventy observations from combined data for the five EAC countries during the fourteen years of study. Hence, there were seventy observations used in the regression analyses.

Data analysis results indicated that for autocorrelation tests, FDI inflows, tax burden, market size, human capital, country openness, return on investment, GDP growth rate, inflation rate, exchange rate and interest rate data did not have autocorrelations. Unit root tests results from Augmented Dickey-Fuller (ADF) tests indicated that FDI inflows, tax burden, market size, human capital, country openness, return on investment, GDP growth rate, inflation rate, exchange rate and interest rate data did not have unit roots hence the data was stationary. Johansen co-integration analysis results indicated that FDI inflows and tax burden; FDI inflows and inflation rate; FDI inflows and exchange rate had co-integration equations. The summary statistics varied across the region with FDI inflows and inflation rates having data ranges that were more than the mean. FDI

inflows and country openness had wide range and standard deviations while variables such as market size, return on investments and exchange rate had narrow range and standard deviation. The variables trends were on upward movements during the study period. However, the movements were not consistent but the increases were interspersed by decreases. Therefore, data stationarity could not be ascertained in the EAC countries. Results of covariance tests indicated that FDI inflows had the expected positive signs with market size, human capital and country openness and GDP growth rate.

In addition, FDI inflows had the expected negative covariance sign with interest rate. However, FDI inflows did not have the expected positive sign with return on investments, the expected negative sign with inflation rate and the expected negative sign with exchange rate. The correlations coefficient (r) between the independent and dependent variable inflows show that FDI inflows had significant correlations with tax burden, market size, human capital, country openness, return on investment and exchange rate. However, FDI inflows had insignificant correlation with GDP growth rate, inflation and interest rate. Test results for Granger-causality demonstrate that with FDI inflows as the dependent variable, tax burden and market size Granger caused FDI inflows into the EAC countries during the study period.

Tests for the short-run and long-run associations indicated that FDI inflows (lag 1 and lag 2) had significant joint influence on market size, human capital, country openness and return on investment, GDP growth rate and interest rate with FDI inflows in the EAC. Further, market size (lag 1 and lag 2) had joint significant with FDI inflows in the EAC countries during the study period. The results for Hypotheses tests indicated that in Objective One, the coefficient for tax burden was insignificant and negative. In Objective Two, hypotheses tests were conducted in two sections. In Section One,

Hypothesis tests were conducted using composite economic development (CED) as an independent variable. When composite economic development was tested as an independent variable, the coefficients were significant and positive. However, when composite economic development was tested as a moderating variable, the coefficient for the moderator variable (TAXB*CED) was insignificant and negative.

In Section Two, Hypotheses tests were conducted using individual economic development indicators (market size, human capital, country openness and return on investments) as independent variables. When economic development indicators were tested as independent variables, human capital and country openness had significant positive coefficients. However, when the products of tax burden and the economic development indicators were tested as moderator variables, the product of tax burden and market size (TAXB*SIZE) and product of tax burden and return on investment (TAXB*ROI) had significant positive coefficients during the study.

In Objective Three, tests were conducted for the macro-economic factors mediating influence in the relationship between tax burden and FDI inflows into the EAC countries. The mediation variables (GDP growth rate, inflation rate, exchange rate and interest rate) were regressed against the tax burden. The results demonstrated that tax burden had significant coefficients in the GDP growth rate and exchange rate equations. Additional mediation tests indicated that exchange rate had significant positive coefficient. In Objective Four, the test results for the joint effect of tax burden, market size, human capital, country openness, return on investment, GDP growth rate, inflation rate, exchange rate and interest rate on the FDI inflows in the EAC countries demonstrated that tax burden and human capital had significant and negative

coefficients. In addition, market size, country openness, and exchange rate had significant and positive coefficient in the EAC countries during the study.

6.3 Conclusions of the Study

The main argument in this study is that economic development and macro-economic factors significantly influence the relationship between the tax burden and FDI inflows into the EAC countries. Hence, this study was to determine answers to the question of the influence of economic development (market size, human capital, country openness, return on investment) and macro-economic factors (GDP growth rates, inflation rates, exchange rates and interest rates) on the relationship between the tax burden and FDI inflows into the EAC countries during the study period.

From the results of the hypotheses tests, the following are the study conclusions. In Objective One, tax burden had insignificant negative influence on FDI inflows in the EAC countries. Hence, H_1 is not confirmed; tax burden does not have significant negative effect on FDI inflows into the EAC countries. The findings are consistent with the results of positive covariance sign, the high correlation, FDI inflows Granger-causality by tax burden, joint significance of FDI (lag 1 and lag 2) and market size (lag 1 and lag 2) with FDI inflows into the EAC countries. The anchor theory was tax competition where tax burden is expected to have inverse relationship with FDI inflows. From the results of the study in Objective One, tax burden alone does not have significant negative effect on FDI inflows into the EAC. Hence, tax competition theory is not applicable in EAC countries when tax burden alone is tested with FDI inflows.

In Objective Two, Section One, composite economic development as an independent variable had significant positive influence on the relationship between the tax burden

162

and FDI inflows into the EAC countries. However, composite economic development has insignificant negative moderating influence on the relationship between the tax burden and FDI inflows into the EAC countries. H_2 is not confirmed; composite economic development does not have significant moderating influence on the relationship between tax burden and FDI inflows into the EAC countries.

In Objective Two, Section Two, the conclusion is that when individual economic development indicators (market size, human capital, country openness and return on investment) were tested for moderating influence, market size and return on investments had significant positive moderating influence on the relationship between tax burden and FDI inflows in the EAC countries. Hence, H_2 was confirmed for market size and return on investment. The findings are consistent with results of covariance tests, correlations tests, Granger-causality and the independent and independent variables significance and associations with the dependent variable. Political power theory supported H_2 in Objective Two. The theory does not fully support the study findings. However, the applicability of the theory depends on the variable under study.

In Objective Three, exchange rate had significant positive mediating influence on the relationship between the tax burden and FDI inflows into the EAC countries. Hence, H_3 was confirmed for exchange rate in the EAC countries. The research findings are consistent with the results of covariance tests, correlations tests, Granger-causality and independent and independent variable's significance and association with the dependent. Political power theory supported H_3. The theory does not fully support the findings of the study since the results show that only one macro-economic factor significantly mediates on the relationship between the tax burden and FDI inflows into the EAC countries during the study.

In Objective Four, the conclusion is that tax burden and human capital had significant negative joint effect on FDI inflows into the EAC countries. In addition, market size, country openness, and exchange rate had significant positive joint effect on the FDI inflows into the EAC countries. Hence, H_4 was confirmed for tax burden, human capital, market size, country openness and exchange rate in the EAC countries. The research findings are consistent with the results of covariance tests, correlations tests, Granger-causality and the independent and independent variable's joint association of FDI(lag 1 and lag 2) and market size (lag 1 and lag 2) with FDI inflows into the EAC countries. The results of Granger causality were that tax burden and market size Granger-caused FDI inflows into the EAC countries, results that are consistent with the study's findings in Objective Four. Therefore, only the independent variable TAXB and economic development variable SIZE Granger caused FDI inflows into the EAC. However, none of the macro-economic factors (GDPR, IFR, EXCR and INR) Granger-caused FDI inflows into the EAC. Equity theory supported H_4. The theory is applicable in the EAC countries.

Therefore, the hypotheses test results demonstrated that tax burden alone had insignificant negative influence on FDI inflows into the EAC. However, when tax burden is regressed on independent variables (market size, human capital, country openness, return on investment, GDP growth rate, inflation rate, exchange rate and interest rate); it has significant positive effect on FDI inflows into the EAC countries. Hence, from the research findings, the answer to the research question is that economic development and macro-economic factors influences the relationship between tax burden and FDI inflows into the EAC countries. However, the significance of the moderating influence, mediating influence and joint effects depends on the variable.

164

6.4 Contributions of the Study

The following are the theory, policy, knowledge, practice and economic contributions of this study.

6.4.1 Theory Contributions

This research contributes to theory of finance in that from a theoretical perspective, tax burden is expected to impede FDI inflows. However, the study results indicate that tax burden alone had insignificant negative effect on FDI inflows into the EAC countries. Therefore, theoretical expectations of the relationship between tax burden and FDI inflows do not hold in the EAC countries when FDI inflows are regressed on the tax burden alone. In addition, in Objective Two, theoretical expectations indicate that composite economic development as an independent variable had significant positive influence on the FDI inflows. This position was confirmed by the research findings of significant positive independent influence on the relationship between tax burden and FDI inflows into the EAC countries during the study period.

However, the moderating tests indicated that the composite economic development had insignificant negative moderating influence on the relationship between tax burden and FDI inflows into the EAC countries contrary to the theoretical expectations. In addition, economic development indicators demonstrated that market size and return on investment had significant positive moderating influence on the relationship between tax burden and FDI inflows. This was in conformity with the theoretical expectations for market size and return on investments. Hence, the theoretical expectations for some of the individual economic development indicators hold in the EAC countries while other do not hold. Further, in Objective Three, theory suggests that macro-economic factors of GDP growth rate, inflation rate, exchange rate have significant mediating

influence on the relationship between the tax burden and FDI inflows in the EAC countries. However, research results demonstrate that it was only exchange rate that had significant mediating influence on the relationship between the tax burden and FDI inflows in the EAC. Therefore, theoretical expectation for GDP growth rate, inflation rate and interest rate do not hold in the EAC countries. Moreover, in Objective Four, theory suggests that tax burden, economic development and macro-economic factors have significant joint effect on the FDI inflows. However, the results demonstrate that tax burden, human capital, market size, country openness and exchange rate had significant joint effect on the FDI inflows into the EAC countries. Hence, the theoretical expectation did not hold for return on investment, GDP growth rate, inflation and interest rate during the study period.

Therefore, theory contribution of this study is that some of the theoretical expectations were found not to hold in the EAC countries. In addition, the expected significant negative relationship between tax burden and FDI inflows was achieved in tests for joint effect in presence of the independent variables (market size, human capital, country openness, return on investments, GDP growth rate, inflation rate, exchange rate and interest rates) during the study period.

6.4.2 Policy Contributions

The research study contributes to tax and international investments policies. First, tax burden results from the policies that are set according to theoretical expectations with the understanding that there is inverse relationship between FDI inflows and tax burden as evidenced by the different domestic tax rates in the EAC countries. However, from the research findings, tax burden when tested alone had insignificant negative relationship with FDI inflows into the EAC countries. Hence, tax burden was not a

major determinant of FDI inflows into the EAC countries during the study period according to Objective One. However, the tax burden and FDI exist in economic environments where the variables interact with other factors. Hence, when setting up policies to attract FDI inflows into the EAC, it is important to consider other factors apart from tax burden.

In Objective Two, composite economic development had significant positive influence on the relationship between tax burden and FDI inflows into the EAC. Therefore, when setting up tax mobilisation policies and policies for increased and consistent volumes of FDI inflows, the EAC governments should have economic development policies that will lead to growth of market size, human capital, country openness and return on investment. This will benefit the governments inform of increased tax revenues and FDI inflows and also the international investor in the short-run and in the long-run.

The policy contribution in Objective Three is that exchange rate had significant mediating influence on the relationship between tax burden and FDI inflows in the EAC. Therefore, the EAC governments should have in place policies that encourage favourable macro-economic stability for increased and consistent volumes of FDI inflows. Objective Four results bring to the fore the significant negative effect of tax burden on FDI inflows into the EAC countries in presence of independent variables. Therefore, there is need for the EAC countries to devise policies that are not tax burden based to attract FDI inflows into the region. Moreover, the region should re-consider use of tax burden to attract FDI inflow since lower tax burdens affect domestic tax mobilisation. In addition, according to theoretical expectations, FDI inflows are expected to be attracted by market size, human capital, country openness, return on investment, GDP growth rates, inflation rates, exchange rates and interest rates.

However, tax burden, human capital, market size, country openness and exchange rate had significant joint effect on the FDI inflows into the EAC countries. This means that the policy measures set to attract FDI inflows into the EAC countries are aligned to the reality on the ground. Therefore, EAC countries should give more attention to factors such as market size, human capital, country openness, return on investment, GDP growth rates, inflation rates, exchange rates and interest rates while exploring other factors to attract increased and consistent volumes of FDI inflows.

6.4.3 Knowledge Contributions

The study contributes to creation of knowledge in finance research in that this is one of the few research studies covering the EAC countries on aspects of tax burden and FDI inflows. The study forms a base for further research in this area of finance. Moreover, most of the theoretical expectations in the relationships between tax burden, economic development indicators (market size, human capital, country openness, return on investment) and macro-economic factors (GDP growth rates, inflation rates, exchange rates and interest rates), and FDI inflows were found not to hold in the EAC countries. Therefore, this brings into question the applicability of the some of the theoretical expectations in the EAC countries. The main knowledge contribution is that tax competition theory has been tested in the EAC countries with the results being that tax burden alone has insignificant negative relationship with FDI inflows in the EAC countries. However, in presence of other variables such as market size, human capital, country openness and exchange rate, tax burden had significant negative joint effect on FDI inflows into the EAC countries. Hence, tax competition theory is applicable in the five EAC countries of Burundi, Tanzania, Uganda, Kenya and Rwanda.

6.4.4 Practice of Finance Contributions

The study was in the area of finance and its findings contribute to the practice of finance specifically the study contributes to the practice of tax and international investments. The results of the study demonstrate that tax burden had a negative effect on FDI inflows in presence of economic development and macro-economic development in the EAC countries. Therefore, this finding informs the finance practitioners that when time tax burden increases, FDI inflows will decrease. This will adversely affect financial management practices. The findings in the study may be used by business consultants to identify and advice their clients accordingly on the effects of lowering or increasing the tax burden by the governments on their clients international investments.

6.4.5 Economic Contributions

The study contributes to studies on economic development in that the results confirm the inverse relationship between tax burden and FDI inflows into the EAC countries. There is need for resources for economic development into the EAC countries. The study results indicate that by lowering the tax burden, there will be higher volumes of FDI inflows into the EAC countries. Hence, the countries should be encouraged to lower the tax burden as long as it will not result in tax revenue loss. The study contributes to the importance of fostering policies that result in increased consistent volumes of FDI inflows which will contribute to economic development. The study also revealed the link between tax burden and FDI inflows into the EAC countries. Balancing of revenue raising activities and attracting FDI inflows will result in economic development in the EAC countries in the long run.

6.5 Policy Implications

In past years, studies indicate that competition for FDI inflows in the EAC countries was based on tax competition which is grounded on the premise that tax burden impedes FDI inflows. This has led the EAC countries offering tax incentives such as tax exemptions and tax concessions. From the research findings, tax burden alone in the EAC countries had insignificant negative relationship with FDI inflows contrary to theoretical expectations. However, tax burden had significant negative joint effect on FDI inflows into the EAC in presence of independent variables (market size, human capital, country openness, return on investment, GDP growth rate, inflation rate, exchange rate and interest rate). The policy implication is that the research findings confirm that for FDI to inflow into the EAC countries, the tax burden must be low relative to other regions across the world. However, the host governments should take care that lowering of tax burden does not result in tax revenue loss.

Therefore, measures by the EAC countries to attract FDI inflows are according to theoretical expectations and the reality in the economic environment. Consequently, the region should refocus from use of tax burden alone to attract FDI inflows and seek other measures that will attract increased consistent volumes FDI inflows while mobilizing adequate tax revenues. In addition, since most of the theoretical expectations on the factors that attract FDI do not hold in the EAC countries, strategies should be developed to re-focus economic development in the region for increased and consistent volumes of FDI inflows. Hence, the EAC countries should put policies in place to economically develop the region and stabilise the macro-economic environment to attract more FDI inflows into the region in the short-run and in the long-run.

6.6 Limitations of the Study

During the study, there were several limitations experienced. There was dearth of information on the subject from the EAC countries perspectives since there are few studies on taxation and international investments. Therefore, literature review references were based on studies conducted elsewhere such as the EU which is a developed region. In addition, the secondary data used was not obtained from one secondary data sources due to unavailability of complete data sets. Data availability was an issue since not one single institution had all the required data for the study. Hence, data were used from several sources. Common data was compared from the different sources to ensure there were no errors. Though the data was similar it took time to trace some of the data such as trade data. Further, inclusion of exploitation of natural resources in the EAC countries as a variable would have provided key insights in FDI inflows considering the recent discoveries of oil and gas in the region. However, the variable was not included due to incomplete and unavailable public data covering the study period.

Some variables that could have provided important insight into FDI inflows into the EAC countries were left out such as infrastructure development and natural resources exploitation. Infrastructure development as a variable was left out due to incomplete data and lack of a proper proxy. In previous studies, fixed telephone lines were used as proxies for infrastructure development but they were always criticised for being available with no service access. The data for natural resources exploitation was incomplete. Further, after conducting Johansen co-integration tests, some variables had co-integration equations while others did not have. Therefore, statistical analysis on the independent variable's significance and associations with the dependent variable were

conducted using VAR and VECM models. Hence, comparison of the variables was hindered by the issue of presence of co-integration equations.

Further, the study data was for five EAC countries (Burundi, Tanzania, Uganda, Kenya and Rwanda) which are developing countries with numerous differing aspects such as levels of economic and national developments; natural resources endowments; political instability such as in Burundi; size and composition of countries; and colonial heritage where specific country's economic policies are influenced by the former colonial powers. These characteristics limit generalization of the research findings to other regions across the world. However, though there were limitations experienced as explained above during this study, the quality of the study was not compromised since the study used publicly available secondary data from reputable organisations.

Moreover, the research study was a census of the EAC countries. Testing the conceptual framework for individual countries would have produced results that can be compared. However, this research used regression analysis tests with specific observation requirements. The data were from year 2000 to 2013, hence the data observations for regression analysis were not adequate. Hence the hypotheses could not be tested on individual country data sets and comparisons made.

6.7 Suggestions for Future Research

The study focused on tax burden, economic development, macro-economic factors and FDI inflows into the EAC countries from the year 2000 to 2013. From the results of the study, the following are the recommendations for further research. A similar study is recommended after a specific time period to cover the period from 2013 onwards to enable comparisons of the research findings. The study should include the new members

such as South Sudan and Ethiopia. In addition, same study may be repeated with the dependent variable being FDI outflows instead of FDI inflows into the EAC countries. The reason for this recommendation is that FDI is both in inflow and outflow forms and. There are factors that attract FDI inflows and there are factors which results in FDI outflows. Therefore, it is important to have a study on the FDI outflows. Further, another potential research is to conduct several studies based on the dependent variable (FDI inflows) and a single independent variable such as infrastructure, natural resources endowment, inflation rates and exchange rates in the EAC countries.

A study may also be conducted on a dependent variable (FDI inflows) and economic development individual indicators or FDI inflows and macro-economic factors in the EAC countries for same period or a different study period. Several economic indicators and macro-economic factors should be studied together with the dependent variable. In addition, this will enable the researcher study exhaustively the inter-relationships between FDI inflows and economic development and between FDI inflows and macro-economic factors.

Further, a study with FDI as the dependent variable with tax burden and other independent variables instead of economic development and macro-economic variables may also be conducted. This will enable identification of other variables that may affect the relationship between FDI inflows and tax burden. Additionally, same study can be repeated but instead of using tax burden, use components of tax burden such as tax rates, tax bases, tax incentives (concessions and exemptions). This will enable identification of the tax burden components that have direct effect on FDI inflows. Moreover, this study was based on the EAC countries. Hence, an African-wide study can be conducted using same variables and basing the research on various economic

blocks and the results compared with findings in current study. The rate of FDI inflows into African is different, hence there is need to establish the relationship between FDI inflows and tax burden.

The study was conducted in a developing region. Same study can be repeated with the unit of analysis being region instead of country to enable comparisons. The regions may be developing, transition or developed regions. In addition, a study on FDI inflows to the various economic sectors in each of the EAC countries is recommended. Further, most of the theoretical expectations do not hold on the relationship between FDI inflows and the dependent variables in the EAC countries. Therefore, it is suggested that future research be undertaken to develop theories that are relevant and applicable in the EAC countries. It is also recommended that in future studies may be undertaken covering each of the five EAC countries individually. There are many other studies that can be conducted based on similar variables in the EAC countries, Africa and across the world to inform on the relationship between tax burden and FDI inflows into the EAC countries and elsewhere in Africa.

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APPENDICES

Appendix 1: FDI Inflows to Africa, 2000 - 2013

Adjusted FDI Inflows by Region and Economy (Billions US dollars)														
Region	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
North Africa	3.3	5.4	3.9	5.3	6.4	11.6	21.5	23.0	22.2	18.1	15.7	7.6	17.2	13.6
West Africa	2.1	2.1	2.9	3.4	3.7	7.2	7.1	9.6	12.4	14.7	12.0	19.0	16.3	14.2
Central Africa	0.6	1. 6	2.2	2.7	1.5	2.1	1.4	4.8	4.4	5.5	8.1	7.5	9.3	8.8
East Africa	0.6	0.6	0.6	0.6	0.7	1.4	1.1	2.2	2.3	2.0	2.6	2.6	3. 9	4.0
Southern Africa	2.5	9.8	4.7	5.6	4.7	6.7	2.1	8.8	14.2	12.0	3.5	8.8	8.0	11.0
Other	0.05	9.7	0.4	0.6	0.7	0.5	1.3	1.8	2.3	2.1	2.2	2.2	1.7	2.4
Africa	9.6	19.9	14.7	18.2	17.7	29.5	34.5	50.2	57.8	54.4	44.1	47.7	56.4	54.0
Percentage of East Africa to Africa Inflows	6.5	3.1	4.1	3.3	4.0	4.7	3.2	4.4	4.0	3.7	5.9	5.5	6.9	7.4

Source: UNCTAD (www.unctad.org/fdistatistics), 2016.

Appendix 2: Real GDP in EAC Countries (millions US dollars), 2000 - 2013

Year	Burundi	Tanzania	Uganda	Kenya	Rwanda	Total
2000	558.4	10,001.0	6,261.6	12,904.7	1,754.7	31,480.4
2001	645.6	9,676.0	6,388.5	13,058.5	1,674.5	31,443.1
2002	661.9	9,405.7	6,672.1	13,082.5	1,732.6	31,554.8
2003	537.9	9,358.0	6,488.8	13,918.1	1,534.2	31,837.0
2004	627.8	9,625.2	7,437.0	13,948.5	1,504.3	33,142.8
2005	1,117.1	10,749.2	8,319.6	15,514.2	1,669.1	37,369.2
2006	1,237.8	10,289.3	8,659.1	17,259.8	1,790.4	39,236.4
2007	1,218.2	11,195.6	9,943.5	19,842.0	4,747.3	46,946.6
2008	1,165.6	12,395.2	11,000.1	19,613.6	5,212.1	49,386.6
2009	1,166.3	11,907.4	9,705.5	18,026.5	5,795.2	46,600.9
2010	1,225.6	11,941.1	9,611.2	18,619.8	5,929.6	47,327.3
2011	1,246.7	11,396.3	8,830.3	17,346.1	6,410.1	45,229.5
2012	1,135.7	12,149.3	9,210.3	19,054.6	6,721.5	48,271.4
2013	1,103.0	12,825.0	9,338.1	19,578.4	6,670.8	49,515.3

Source: EAC Data Stat, 2016.

Appendix 3: GDP Growth Rates, Interest Rates and Inflation Rates, 2000 - 2013

	Burundi	Tanzania	Uganda	Kenya	Rwanda
GDP Growth Rates					
Lowest	-1.2	4.9	3.6	0.6	0.3
Highest	5.4	7.8	10.4	7.0	6.5
Range	6.6	2.9	6.8	6.4	6.2
Inflation Rates					
Lowest	-5.1	3.5	-0.3	4.1	0.0
Highest	27	16	18.7	16.2	15.4
Range	32.1	12.5	19	12.1	15.4
Interest Rates					
Lowest	15.5	13.7	18.2	12.7	15.8
Highest	21.2	21.6	26.7	20.2	17.1
Range	5.7	7.9	8.5	7.5	1.3

Source: EAC Data Stat, 2016.

Appendix 4: FDI Inflows into the EAC Countries, 2000 - 2013

EAC Region	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Millions of US dollars															
Burundi	11.7	0.0	0.0	0.0	0.0	0.6	0.0	0.5	3.8	0.3	0.8	3.4	0.6	6.7	32.0
Rwanda	8.1	18.5	1.5	2.6	10.9	14.3	30.6	82.3	103.4	118.7	42.3	106.0	159.8	257.6	267.7
Kenya	110.9	5.3	27.6	81.7	46.1	21.2	50.7	729.1	95.6	115.0	178.1	335.2	258.6	505.0	989.0
Uganda	180.8	151.5	184.6	202.2	295.4	379.8	644.3	792.3	728.9	841.6	543.9	894.3	1721.2	1 096.0	1 146.6
Tanzania	282.0	467.2	387.6	308.2	330.6	935.5	403.0	581.5	1383.3	952.6	1813.3	1229.4	1706.0	2 130.9	2 141.6
EAC Total	603.5	642.5	601.3	594.4	683.0	1351.8	1128.6	1704.2	2314.0	2028.2	2578.4	2568.3	3846.2	3996.2	4576.9

Source: UNCTAD (www.unctad.org/fdistatistics), 2016.

Appendix 5: Required Secondary Data, 2000 - 2013

	Variable	How Variables were measured	Data Required	Source of Data
Dependent	FDI inflows	Ratio of FDI to real GDP	Annual FDI, Real GDP	UNCTAD
Independent	Tax burden	Ratio of annual tax revenues to real GDP	Annual tax revenues, Real GDP	EAC Data Stats
Economic Development				
Moderating	Market size	Real GDP per capita	Real GDP per capita	EAC Data Stats
Moderating	Human capital	Ratio of gross primary school enrolment to total population primary school age group.	Rate of gross primary school enrolment	World Bank Data Stats
Moderating	Country openness	Ratio of trade (import plus export) to real GDP	Annual imports, annual exports and real GDP	UNCTAD Datastat.
Moderating	Return on Investment	Natural log of inverse of real GDP per capita.	Real GDP per capita.	EAC Data Stats
Macro-economic Factors				
Mediating	GDP growth rate	Average annual GDP growth rates	Average annual GDP real growth rate	EAC Data Stats
Mediating	Inflation rate	Average annual inflation rates	Average annual headline inflation rate	EAC Data Stats
Mediating	Exchange rates	Average annual exchange rates	Average annual exchange rates to one US dollar unit	EAC Data Stats
Mediating	Interest rates	Average annual interest rates	Average annual bank lending rate	EAC Data Stats

Source: Author, 2016.

Appendix 6: Detailed Summary of Hypotheses Tests, 2000 - 2013

Objective One: To determine the effect of tax burden on FDI inflows into the EAC countries.	
H1: Tax burden has significant negative on FDI inflows into the EAC countries	
Model Summary and ANOVA Results	Regression Analysis Results
$FDI_{it} = \alpha_1 + \beta_{T1}TAXB_{it} + \varepsilon_1$ Adjusted $R^2 > 0.014$, F-statistic $=1.964$, p-value < 0.05.	Tax burden had insignificant negative coefficient in the EAC countries. H_1 is not confirmed in the EAC countries.
Objective Two: To investigate the influence of economic development (market size, human capital, country openness and return on investment) on the relationship between the tax burden and FDI inflows into the EAC countries.	
H_2: Economic development (market size, human capital, country openness and return on investment) has significant moderating influence on the relationship between the tax burden and FDI inflows into the EAC countries.	
Model Summary and ANOVA Results	Regression Analysis Results
Section One: Composite economic development is included as an independent variable.	
Step One: $FDI_{it} = \alpha_{211} + \beta_{T211}TAXB_{it} + \varepsilon_{211}$	As per Objective One.
Step Two: Composite economic development included as independent variables. $FDI_{it} = \alpha_{212} + \beta_{T212}TAXB_{it} + \beta_{CED212}CEDit + \varepsilon_{212}$ Adjusted $R^2 > .210$. F-statistic $= 10.146$, p-value < 0.05	TAXB coefficient was significant and negative. Composite economic development coefficient was significant and positive.

Step Three: Composite economic development included as moderating variable. The product of tax burden and composite economic development as moderator variable (TAXB*CED) was included in the equation in Step Two. $FDI_{it} = \alpha_{213} + \beta_{T213}TAXB_{it} + \beta_{CED213}CED_{it} + \beta_{TED213}TAXB*CED + \varepsilon_{213}$ [model according to Dearing & Hamilton (2006)] Adjusted $R^2 > .202$, F-statistic = 6.818, p-value > 0.05	TAXB coefficient is insignificant and negative. CED coefficient is insignificant and positive. TAXB*CED coefficient is insignificant and negative.
Step Four: Comparison of TAXB coefficients in Step One, Step Two and Step Three and determine significance of moderating influence of composite economic development on the relationship between the tax burden and the FDI inflows into the EAC.	Step One: TAXB coefficient was insignificant and negative. Step Two: TAXB coefficient was significant and negative. Step Three: TAXB coefficient was insignificant and negative. TAXB*CED had insignificant negative coefficients. H_2 is not confirmed for economic development.
Section Two: Economic development indicators of SIZE, HCA, OPE and ROI are included as variables.	
Step One: $FDI_{it} = \alpha_{212} + \beta_{T212}TAXB_{it} + \varepsilon_{212}$	As per Objective One.
Step Two: Introduce economic development indicators as independent variable. $FDI_{it} = \alpha_{221} + \beta_{T221}TAXB_{it} + \beta_{S221}SIZE_{it} + \beta_{H221}HCA_{it} + \beta_{O221}OPE_{it} + \beta_{R221}ROI_{it} + \varepsilon_{221}$ Adjusted $R^2 > 0.767$. F-statistic = 46.419, p-value, 0.05. H_2 is confirmed for SIZE, HCA and OPE.	TAXB coefficient is significant but negative. SIZE coefficient is insignificant and positive. HCA coefficient is significant but negative. OPE coefficient is significant but positive.

	ROI coefficient is insignificant but positive.
Step Three: The product of tax burden and economic development indicators as moderating variables are included in Step Two equation. $FDI_{it} = \alpha_{223} + \beta_{T223}TAXB_{it} + \beta_{S223}SIZE_{it} + \beta_{H223}HCA_{it} + \beta_{O223}OPE_{it} + \beta_{R223}ROI_{it} + \beta_{TS223}TAXB*SIZE_{it} + \beta_{TH223}TAXB*HCA_{it} + \beta_{TO223}TAXB*OPE_{it} + \beta_{TR223}TAXB*ROI_{it} + \varepsilon_{223}$ Adjusted $R^2 > .814$. F-statistic = 34.452.418, p-value < 0.05.	TAXB coefficient is insignificant but positive. SIZE and HCA coefficients are insignificant and positive. OPE and ROI coefficients are insignificant and negative. Coefficients for TAXB*SIZE and TAXB*ROI as moderator variables are significant and positive. Coefficients for TAXB*HCA and TAXB*OPE moderator variables are insignificant and negative.
Step Four: Comparison of TAXB coefficients in Step One, Step Two and Step Three to determine moderating influence of economic development indicators on the relationship between the tax burden and the FDI inflows into the EAC.	In Step Two: TAXB coefficient was insignificant and positive. In Step Three: TAXB coefficient was insignificant but positive. Coefficients for TAXB*SIZE and TAXB*ROI as moderator variables were significant. H_2 is confirmed for market size and return on investment.
Objective Three: To establish the effect of macro-economic factors (GDP growth rates, inflation rates, exchange rates and interest rates) on the relationship between the tax burden and FDI inflows into the EAC countries.	
H_3: Macro-economic factors (GDP growth rates, inflation rates, exchange rates and interest rates) have significant effect on the relationship between the tax burden and FDI inflows into the EAC countries.	
Model Summary and ANOVA Results	**Regression Analysis Results**
Step One:	As per Objective One.

$FDI_{it} = \alpha_{31} + \beta_{T31}TAXB_{it} + \varepsilon_{31}$	
Step Two: Macro-economic variables as mediating variables. Regress the mediator on the independent variable TAXB. $GDPR_{it} \quad = \quad \alpha_{G32} + \beta_{TG32}TAXB_{it} + \varepsilon_{G32}$ $IFR_{it} \quad = \quad \alpha_{IF32} + \beta_{TIF32}TAXB_{it} + \varepsilon_{IF32}$ $EXCR_{it} \quad = \quad \alpha_{E32} + \beta_{TE32}TAXB_{it} + \varepsilon_{TE32}$ $INR_{it} \quad = \quad \alpha_{I32} + \beta_{TI32}TAXB_{it} + \varepsilon_{TI32}$ [model according to Mackinnon, Lockwood, Hoffman, West and Sheets (2002).] Adjusted R^2 for GDPR > .182, IFR > .027, EXCR > .294, INR > .008. F-statistic for GDPR=16.332, p-value < 0.05; IFR = 2.906, p-value >0.05; EXCR = 29.802, p-value < 0.05; INR = 1.578, p-value > 0.05.	In GDPR equation - TAXB coefficient is significant and negative. In EXCR models - TAXB coefficient is significant and negative.
Step Three: Regress the dependent variable on the independent and mediating variables. $FDI_{it} = \alpha_{33} + \beta_{T33}TAXB_{it} + \beta_{G33}GDPR + \beta_{E33}EXCR_{it}, + \varepsilon_{33}$ Adjusted R^2 is > .213. F-statistic = 7.221, p-value < 0.05.	TAXB coefficient is insignificant and positive. GDPR coefficient is insignificant and positive. EXCR coefficient is significant and positive.

Step Four: Comparison of TAXB coefficients in Step One and Step Three and determine whether there was mediating influence.	Step Two: TAXB coefficient insignificant and negative. Step Three: TAXB coefficient insignificant and positive. EXCR coefficient is significant and positive. H_3 was confirmed for EXCR in the EAC countries.

Objective Four: To determine the joint effect of the tax burden, economic development (market size, human capital, country openness and return on investment) and macro-economic factors (GDP growth rates, inflation rates, exchange rates and interest rates) on FDI inflows into the EAC countries.

H_4: There is significant joint effect of the tax burden, economic development (market size, human capital, country openness and return on investment) and macro-economic factors (GDP growth rates, inflation rates, exchange rates and interest rates) on FDI inflows into the EAC countries.

Model Summary and ANOVA Results	Regression Analysis Results
Step One: $FDI_{it} = \alpha_{41} + \beta_{T41}TAXB_{it} + \varepsilon_{41}$	As per Objective One.
Step Two: Include independent variables into the equation in Step One. $FDI_{it} = \alpha_{42} + \beta_{T42}TAXB_{it} + \beta_{S42}SIZE_{it} + \beta_{H42}HCA_{it} + \beta_{O42}OPE_{it} + \beta_{R42}ROI_{it} + \beta_{G42}GDPR_{it} + \beta_{F42}IFR_{it} + \beta_{E42}EXCR_{it} + \beta_{I42}INR_{it} + \varepsilon_{42}$ [model according to Fairchild & Mackinnon (2009)] Adjusted $R^2 > .881$. F-statistic = 57.622, p-value < 0.05.	TAXB and HCA coefficients are significant and negative. SIZE, OPE, EXCR coefficients significant and positive.

Step Three: Comparison of TAXB coefficients in Step One and Step Two and establish significance of the joint effect on FDI inflows.	Step One: TAXB coefficient insignificant but negative. Step Two: TAXB and HCA coefficients are significant but negative. SIZE, OPE and EXCR coefficients are significant and positive. ROI, GDPR, IFR and coefficients insignificant. H_4 is confirmed for SIZE, HCA, OPE and EXCR.

FDI and TAXB are defined in (5.1). CED is defined in (5.4). TAXB*CED is defined in (5.6). SIZE, HCA, OPE and ROI are defined in (5.9). TAXB*SIZE, TAXB*HCA, TAXB*OPE and TAXB*ROI are defined in (5.11). GDPR, IFR, EXCR and INR are defined in (5.12 to 5.15).

Source: Author, 2016.