RESEARCH AND DEVELOPMENT SPENDING, FOREIGN DIRECT INVESTMENT AND ECONOMIC GROWTH: A MODERATION ANALYSIS

BY

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CERTIFICATION

I, the undersigned certify that I have read and hereby recommend for acceptance by Institute of Accountancy Arusha the dissertation entitled: "**Research and Development Spending, Foreign Direct Investment and Economic Growth: A Moderation Analysis**" in fulfilment of the requirements for the degree of Masters of Business Administration offered at the Institute of Accountancy Arusha.

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(Supervisor Signature)

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Date ………………………………

DECLARATION

I, **NEEMA RINGO**, declare that this dissertation is my own original work and that it has not been presented and will not be presented to any university for similar or any other degree award.

Signature………………………………………

Date…………………………………

DEDICATION

This research is dedicated to my father Ephraim Ringo, a great believer in education. During my childhood, he supported me in everything about education. I dedicate this research to my mother Rose Lyatuu for her encouragement and interminable prayers. May God keep on blessing you.

ACKNOWLEDGEMENT

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LIST OF ABBREVIATIONS

DWH   Durbin-Wu-Hausman

FDI   Foreign direct investment

GDP   Gross Domestic Product

GNP   Gross National Product

OECD   Organisation for Economic Co-operation and Development

PFMOLS   Panel Fully Modified Least Squares

PP   Phillips Perron

R&D   Research and Development

SPSS   Statistical Package for the Social Sciences

UNCTAD   United Nations Conference on Trade and Development

US   United States

USA   United States of America

VAR   Vector Auto Regression

ABSTRACT

This study sought to determine the influence of research and development and Foreign Direct investment on economic growth. Specific objectives of this study were to determine the interconnectedness between Research and Development Spending and Foreign Direct Investment; to determine the influence of Research and Development Spending on economic growth and to determine the influence of foreign direct investment on economic growth. This study adopted the neoclassical Theory and the theory on the impact of Research and Development. Casual research design was employed in this research. The research approach was quantitative. The study population covered all countries around the globe and for the purpose of this study, the sample was taken from all countries in the globe for yearly range data of 1999 to 2018. The method of data collection was from secondary data. The data was analysed hierarchical multiple regression with help of SPSS computer software. Result showed that Research and Development Spending has moderate relationship with economic growth. Results revealed that Foreign Direct Investment has moderate relationship with economic growth. Also, findings showed Research and Development Spending had moderate relationship with Foreign Direct Investment. Moreover, findings indicated that Foreign Direct Investment had moderate the relationship with Research and Development Spending. This study concluded that the countries should concentrate on Research and Development Spending to achieve the sustained economic growth and Foreign Direct Investment is integral to the economy growth of countries. Also, this study concludes that if a country's Research and Development Spending is high, in that situation, the national competitiveness and investment of this country would be much higher than in other countries. The study concludes that Foreign Direct Investment on R&D spending speed up their high-tech development and the R&D stock in the host country. The study recommends that future researchers may investigate the effect of omitted variables to establish their real impact on Research and Development Spending, Foreign Direct Investment and Economic growth for instance, the effect of inflation and institutional quality on economic growth. Additionally, assessment should be done to address the challenges that are faced by developing countries in their attempts to improve their economies.

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CHAPTER ONE

INTRODUCTION

1.1 Introduction

This chapter highlights the main reasons for the study. It also gives the background to the research problem, statement of the problem, research objectives, research questions, and significance of the study.

1.2 Background to the Study

Research and development (R&D) is a process intended to create new or improved technology that can provide a competitive advantage at the business, industry, or national level. While the rewards can be very high, the process of technological innovation is complex and risky (Arrow, 2019). According to Blackburn (2017), R&D leads to inventions and innovation, this improves the quality of manufacturing and updating of existing technologies. Lucas (2018) emphasized that research and development (R&D) is an important contributor to economic growth. R&D spending is likely to lead to growth through its positive effect on innovation and total factor productivity. As Grossman and Helpman (2017) note, improvements in technology through industrial innovation have been the driving force behind the inexorably rising standards of living in the developed world over the long run. When a country invests in R&D, it is expected that new ideas, intermediate goods, methods to reduce costs, and final consumer products will be developed, allowing the country to become more efficient and profitable. Given the great importance of R&D for development in the long run, this study attempts to quantify the effects that R&D spending has on economic growth and

productivity. Understanding the role that R&D plays as a determinant of productivity, and consequently economic growth, is important for policymakers. As noted by Cincera (2017), studying the impact of R&D spillovers is necessary to identify effective science and technology policies that could lead to higher productivity and competitiveness across nations and industrial sectors.

Foreign direct investment are the net inflows of investment to acquire a lasting management interest (10 percent or more of voting stock) in an enterprise operating in an economy other than that of the investor (World Bank, 2013). It is the sum of equity capital, reinvestment of earnings, other long-term capital, and short-term capital as shown in the balance of payments. Foreign direct investment (FDI) plays an important role in economic growth. The growth of international production is driven by economic and technological forces. It is also driven by the ongoing liberalization of foreign direct investments and trade policies. Globalization offers an unprecedented opportunity for developing countries to achieve faster economic growth through trade and investment. It is accomplished through opening up of the local economic sector as well as domestic capital for foreign investors to establish business, within the economy. Historically, technological advancement led to the emergence of better means of transport and communication. These in turn led to the movement of investors beyond political boundaries, especially during the post-colonial period (Pritchard, 2017).

Shearer (2017) defines Economic growth is an increase in the production and consumption of goods and services. Its measures entail increasing population and/or per capita consumption and an increasing gross domestic product (GDP). Economic growth literally refers to an economy that is expanding in size. Economic growth leads to economic development, it is a

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process whereby an economy's real national income as well as per capita income increases over a long period of time. Here, the process implies the impact of certain forces which operate over a long period and embody changes in dynamic elements. It contains changes in resource supplies, in the rate of capital formation, in demographic composition, in technology, skills and efficiency, in institutional and organizational set-up. It also implies respective changes in the structure of demand for goods, in the level and pattern of income distribution, in size and composition of population, in consumption habits and living standards, and in the pattern of social relationships and religious dogmas, ideas and institutions. Economic growth can be measured in nominal terms, which include inflation, or in real terms, which are adjusted for inflation.

The relationship between research and development and FDI and economic growth has attracted major attention from academics and the governments of developing countries. Since economic growth is one of their main focuses, research and FDI attraction-related policies have been prioritized during the process of economic growth and development in these countries (Vo et al. 2019). It is widely observed that research and development and FDI mitigates the saving-investment imbalance and provides technology which is used for the production of goods and services. Buckley et al. (2017) asserted that research and development and FDI is one of the crucial factors for the process of economic integration, since it increases long-term benefits and connections between different countries. On one hand, various positive effects research and development and FDI provides for an economy have been discussed among scholars. Not only does research and development and FDI diversify the capital structure of the recipient but it also provides positive externalities such as technology and knowledge diffusion (Blomström et al. 2018; Blomström and Kokko 2018). On

the other hand, it is the claim of previous studies that in the short-run, the impact of research and development and FDI on economic growth is negative (Schoors and Tol 2017), but in the long-run the effect of FDI on economic growth is positive (Bosworth et al. 2018). It is against this background; thus, study sought to determine the influence of research and development and Foreign Direct investment on economic growth.

1.3 Statement of the Problem

Despite the general perception of the positive contribution of research and development and Foreign direct investment towards economic growth, information on the actual impact to the economic growth has been unsatisfactory. Yet, successive governments have laid emphasis on the need to improve research and development and investment climate in bids to spur economic growth. However, the real contribution of research and development and Foreign direct investment on economic growth as well as the specific conditions under which research and development and Foreign direct investment boosts economic growth are still not known. Previous studies in these areas have yielded mixed results. Given the level of importance accorded to research and development and Foreign direct investment to economic growth, it is necessary to empirically determine the influence of research and development and Foreign direct investment and the economic growth nexus. The researcher then sought to explore the relationship between research and development and Foreign Direct investment and identify their impacts on economic growth.

1.4 Research Objectives

1.4.1 General objective

To determine the influence of research and development and Foreign Direct investment on economic growth

1.4.2 Specific Objectives

i. To examine the interconnectedness between Research and Development Spending and Foreign Direct Investment

ii. To ascertain the influence of Research and Development Spending on economic growth

iii. To evaluate the influence of Foreign direct investment on economic growth

1.5 Research Questions

i. Does Research and Development Spending influence the economic growth?

ii. Does Foreign Direct Investment influence the economic growth?

iii. Does Research and Development Spending moderate the relationship between Foreign Direct Investment and economic growth?

1.6 Scope of the Study

This study examined the influence of research and development and Foreign Direct investment on economic growth; to make this analysis the study used data for the period (1999-2018). Hence the scope of this study was confined all countries of the world for a period of 19 years.

1.7 Limitation of the Study

Major limitation which the researcher faced was time dimension. The period within which this research work has to be completed for submission is less than one academic year. However, much efforts were done by the researcher to ensure this work was done on time.

1.8 Significance of the Study

The study is important to the following groups: The study will be used by the government and policy makers to understand the influence of research and development spending and Foreign Direct investment on economic growth and ensure that the regulations that exist cover all the innovations and no gaps exist. The outcome of this enquiry will inform policy decisions with respect to research and development and Foreign Direct investment stance. If the complementary factors positively affect the impact in economic growth, policy makers may device ways to encourage, avail or facilitate the provision of these factors to attract more countries' economic growth. The study will benefit scholars by adding to the body of knowledge and form as a basis for further studies. Moreover, the study is undertaken majorly as partial fulfilment of the requirements for the Award of my Master's degree in Business Administration (MBA), offered at the Institute of Accountancy Arusha.

1.9 Organization of the Study

This research dissertation comprised five chapters. Chapter one unveils the problem which informs the study and its context. It provides the justification for the study. Chapter two presents a review of relevant literature, synthesis and research gap to the study. Chapter three describes the research methodology and procedures of data collection and analysis.

Chapter four will deal with presentation, analysis and discussion of research findings and lastly Chapter five will consist of summary, conclusion and recommendation.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter aimed at reviewing important literatures related to research topic. It consists of theoretical, empirical review and Conceptual framework. In theoretical literature review the researcher used the theoretical review on how different authors have defined them and empirical literature review which provided the different findings from different researcher who has done similar study. Conceptual framework explained relationship between independent variables and dependent variable.

2.2 Theoretical Literature review

2.2.1 Definition of Concepts

a) Research and Development

Research and development (R&D) include activities that companies undertake to innovate and introduce new products and services. It is often the first stage in the development process. The goal is typically to take new products and services to market and add to the company's bottom line. Expenditures for research and development are current and capital expenditures (both public and private) on creative work undertaken systematically to increase knowledge, including knowledge of humanity, culture and society (Cincera 2017). Aghion and Howitt (2017) stated that R&D implies for activities of corporate or governmental innovation. R&D is a component of innovation and also an aimless invention effort. Innovation builds on R&D and commercializing complete the phase. Basic characteristics of R%D are taking long periods

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with high costs and uncertain results with chance of failure. However, that risk of failure could be reduced to minimum level by organizing R&D activities very effectively and planned.

b) Foreign Direct Investment

From the UNCTAD (2015) report, FDI (Foreign Direct Investment) is likely to possess a positive effect on export earnings. It refers to most export earnings rates and to each period being considered. Experience in several countries shows that, FDI is a major contributor to the export composition transformation. For example, it has been well recorded that FDI inflows into Singapore or, more recently, China, have helped significantly increase export technology content by strongly encouraging the growth of export supply capability, including knowledge-based industries, thereby improving export earnings. FDI contributes to the export sector's technical upgrade and structural growth, the sector's architecture is an important component of export success both at an early stage of export sector development and at a later stage. Ultimately, the study points to the conclusion that supply capacity constraints could also be resolved by increasing the export sector's technical content as shown by the positive impact of the FDI contribution on export earnings on capital formation (Fugazza, 2014).

c) Economic Growth

Economic growth is an increase in the production of economic goods and services, compared from one period of time to another. It can be measured in nominal or real (adjusted for inflation) terms. Traditionally, aggregate economic growth is measured in terms of gross national product (GNP) or gross domestic product (GDP), although alternative metrics are sometimes used (Fugazza, 2014).

2.3 Theoretical Framework

2.3.1 Neoclassical Theory

Early neoclassical theories explain international capital flows with differentiated rates of return across countries that lead to capital arbitrage, with capital seeking the highest return. Cockcroft and Riddell (1991) argue that the future investment flows are directly related to the package of incentives, which influence the expected rate of return; the security of the investment; the scope and speed with which companies are able to disinvest. The tax regime; investment code or guidelines; and overall macroeconomic policies are all elements affecting FDI. Despite these changes, there is still need for action for improvement of factors that inhibited investment. These factors include lack of formal legislation, lack of legal infrastructure such as patents, price controls, labour legislation, taxation policy and foreign exchange controls. Cockcroft and Riddell (1991) suggest that addressing these problems would certainly help improve the foreign investment climate.

According to neoclassical theory, FDI influences economic growth of a country by increasing the amount of capital per person. It spurs long-run growth through such variables as research and development (R&D) and human capital. Through technology transfer to their affiliates and technological spillovers to unaffiliated firms in the host economy, Countries across the world can speed up the development of new intermediate product varieties, raise product quality, facilitate international collaboration on R&D, and introduce new forms of human capital (Ikiara, 2003). According to Meier (1994), the major supply-side determinant of FDI in developing countries is the expectation of higher returns or higher profits by firms. Developed countries will tend to invest in poorer countries that have higher rate of return (Ekpo, 1996). This theory

assisted the researcher in determining the influence of research and development and Foreign Direct investment on economic growth.

2.3.2Theory on the impact of R&D

Solow's (1956) neoclassical growth model, which treats productivity, capital accumulation, and population growth as the main sources of economic growth, has been modified by later authors to add R&D as a central determinant of economic growth. Griliches (1979) introduced the idea that productivity growth is the consequence of expenditures on R&D. In the endogenous growth model developed by Romer (1986), firms' expenditure on R&D results in greater aggregate output because private R&D leads to spillovers through its contribution to the public stock of knowledge. R&D expenditures are central to economic growth because technological change is the result of conscious economic investment, and sustained growth would not be possible without the R&D spillovers (Griliches, 1992).

Grossman and Helpman (1994), in their review of growth theory and endogenous innovation, argue forcefully that technological progress has been the main driver of growth in the world, where "most technological progress requires, at least at some stage, an intentional investment of profit-seeking firms or entrepreneurs." Thus, under this view, industrial innovationresulting from R&D investment is the chief engine of economic growth.

According to Grossman and Helpman (1994), a large investment of resources is required in order to reap benefits from the development of scientific ideas. Countries have an incentive to invest in R&D if there is an opportunity for them to increase profits. Therefore, if the profitability of R&D is raised (for example, through policy that promotes investment) and more

investment goes into private-sector R&D, the innovation process accelerates, resulting in higher productivity of the country. This theory assisted the researcher in determining the influence of research and development and Foreign Direct investment on economic growth.

2.4 Empirical Literature Review

2.4.1 Interconnectedness between Research and Development Spending and Foreign Direct Investment

Empirical studies on the impact of R&D can be classified based on the unit or level of analysis: the firm, industry, region, or country. Firm level analyses, beginning with the early work of Griliches (2018) focus on the impact that a firm's R&D expenditure has on its own productivity. Some of these analyses also measure spill overs from one firm's R&D expenditure to other firms and industries. Analyses at the industry level also look at how R&D in a specific industry leads to higher productivity in that industry and other industries as well. Empirical analyses at the regional or country (Griliches 2020) level study the impact that R&D expenditure has on productivity and growth on the specific region or country where R&D expenditure originates, and some studies also look for spillovers to other areas or countries.

According to Bayoumi et al. (2017), besides the impact that domestic R&D has on a country's productivity in the long run, R&D spillovers can result from international trade. Under this view, a country could achieve higher productivity by trading with other countries that have a large stock of knowledge. Bayoumi et al. (2017) show empirically that the degree to which a country benefits from R&D spillovers would be determined by the size of trade between the country and its trading partners. Furthermore, Coe et al. (2018) argue that developing countries

benefit more from the R&D spillovers derived from trading with developed countries than from investing in R&D themselves.

2.4.2 Influence of Research and Development Spending on Economic Growth

Ildırar et al. (2016) examined the effect of different types of R&D expenditures on economic growth for the selected OECD countries is examined in this study by utilizing from GMM framework using the data belonging the period of 2003-2014. Income and different R&D expenditure data used to analyze that obtained from OECD Stat. As a conclusion, it is found that all of the R&D expenditures have positive and significant effect on economic growth in selected OECD countries but magnitudes are various.

Blanco et al. (2017) estimated the impact of R&D on Economic growth and output in the private sector at the state level in the US. R&D has a large effect on both output and TFP at the state level in the long run. The R&D elasticity in a state averages 0.056 to 0.143, implying returns to state GDP from R&D spending of 83% to 213%. There are also positive R&D spillovers, with 77% of the total returns accruing to other states. The R&D elasticities are either stable or increase slightly after 1993. The effects of R&D are dependent on the levels of human capital and development. States with more human capital have higher own- and other-R&D elasticities. States in the lowest tier of economic development have the least own-state R&D elasticity but the highest other-R&D elasticity. We discuss implications for policy in the US and in developing countries.

Lichtenberg (2020) examined the relationship between the private and public sector R&D expenditures and economic growth by incorporating 74 countries into the analysis. In the

study, it is concluded that while private sector R&D expenditures affect growth in a positive way, public sector R&D expenditures do not create any positive effect on economic growth and even sometimes they have a negative impact on it.

Wang (2017) expressed that the countries which employ R&D expenditures effectively will achieve a better economic growth performance with the data of 30 countries. In their study covering USA data, Goel, Pay and Ram (2018) investigated if a relationship exists between federal and non-federal R&D expenditures and economic growth and concluded that the relationship between economic growth and federal R&D expenditures is much stronger than the other. Kue and Yang (2018) made a research upon the effects of the knowledge capital and technological diffusion on regional economic growth for China and emphasized that R&D capital and technology imports contribute significantly to economic growth. Samimi and Alerasoul (2019) used panel data method in their research for the period 2000-2016 and 30 developing countries and the findings have shown that because of low R&D expenditures in these countries, economic growth and R&D expenditures do not exhibit a mutual causal relationship.

2.4.3 Influence of Foreign Direct Investment on Economic Growth

Blomstrom et al. (2016) found that FDI exerts a positive effect on economic growth but there seems to be a threshold level of income above which FDI has extra effect on economic growth. The explanation to this was countries that have reached certain level of threshold income can absorb technologies and benefit from technology diffusion. In another study by, De Mello (1999) and Borensztein et al. (1998) they found that the interaction of FDI and

human capital had important effect on economic growth; this explains differences in technological absorptive ability.

As noted by Kyrkilis and Moudatsu (2019), FDI impacts positively on economic growth although Granger-causality between the two variables has not been explored comprehensively. Albert Wijeweera (2010) agrees about the positive FDI-economic growth proposition but cautions that existing evidence on this nexus does not eliminate uncertainty. According to (Sumner 2018), the mixed findings arise possibly from differences in analytical methods and conceptual factors, including: differences in policy environments; FDI characteristics and hostcountry factors; data comparability challenges and different methodologies applied in various studies. The need to empirically understand the economic growth-FDI inflows nexus in host countries is therefore inevitable.

Erdala (2018) attempted to investigate the effects of FDI on R&D and innovation using the panel causality and cointegration methods in 10 developing countries (China, South Korea, India, Iran, Pakistan, Malaysia, Singapore, Thailand, Saudi Arabia and Turkey) in Asia for the 1996-2013 periods. The Fisher-type tests using ADF and PP tests and Breitung and unit root have been identified in observed series. Causal relationships between the series have been searched using Granger and Dumitrescu and Hurlintests. The cointegration relationships between the series were determined by Fisher-type tests using Johansen's test. Cointegration coefficients were estimated by Panel Fully Modified Least Squares (PFMOLS). Findings unveiled that FDI inflows increase countries' R&D and innovation activities.

De Gregorio (2017) in his contribution on FDI, he noted that FDI may allow a country to bring technologies and knowledge that are not readily available to domestic investors hence increase productivity growth throughout the economy. FDI may also bring expertise that the country does not possess and foreign investors may have access to global markets. De Gregorio found out that increasing aggregate investments by 1 percent point of GDP increased economic growth of Latin America by 0.1 to 0.2 percent a year, but increasing FDI by same amount increased growth by approximately 0.6 percent a year.

Furthermore, Li and Liu (2017) examines whether FDI affects the economic growth of the host economy. The study utilize data from 84 countries and employ single as well as simultaneous equation techniques in order to test the relationship between FDI and economic growth. In order to achieve the desired result endogeneity is tested using the Durbin-Wu-Hausman (DWH) test, and result show for the sample as whole endogeneity is not significant but when the period is split, show a significant relationship between FDI and Gross Domestic Product (GDP). Further, Phillips Perron (PP) was employed to test for stationary of the variables and the variables were found to be stationary. The study suggests a strong complimentary connection between FDI and economic growth.

In a survey by Ilhan (2017) of over 50 empirical investigations on the relationship between FDI and economic growth, 40 of such studies have showed a positive relationship with only 2 reporting negative and the rest demonstrating no effect. These empirical evidences point to the fact that most FDI's are associated to growth. Furthermore, Lumbila (2016) test a hypothesis whether FDI has an overall effect on economic growth and the results revealed a statistically significant difference that a 10 percent increase in FDI can bring about 0.34

percent growth. In another study, Feridun and Sissoko (2016) examines the relationship between FDI and economic growth in Singapore using Granger causality and vector auto regression (VAR). Their findings revealed a unidirectional causation running from FDI to economic growth.

2.5 Research Gap

The empirical review above has shown the relationship between research and development, foreign direct investment and economic development of different countries. But these studies were done in different environments and hence the results may not be generalized to all countries around the globe. There is therefore a gap in literature as regards the research and development, foreign direct investment and the economic growth. In the final analysis, the empirical literature on the research and development and Foreign Direct investment on economic growth is still inadequate enough that motivated the researcher to conduct the study of research and development and Foreign Direct investment on economic growth.

2.6 Conceptual Framework

According to Kothari, (2004) conceptual framework refers to a group of concepts that are broadly defined and systematically organized to provide a foundation, a focus, and a tool for the integration and interpretation of information, usually expressed abstractly through word models. Independent variables and dependent variable are variables found in research work. Liu, (2012) defined a dependent variable as a variable that a researcher measure in the experiment and what is affected during the experiment while Independent Variable is the

variable that is stable and unaffected by the other variables. These variables are expressed in conceptual framework of this study.

Figure 2.1 Conceptual Framework R&D Spending and FDI on Economic Growth
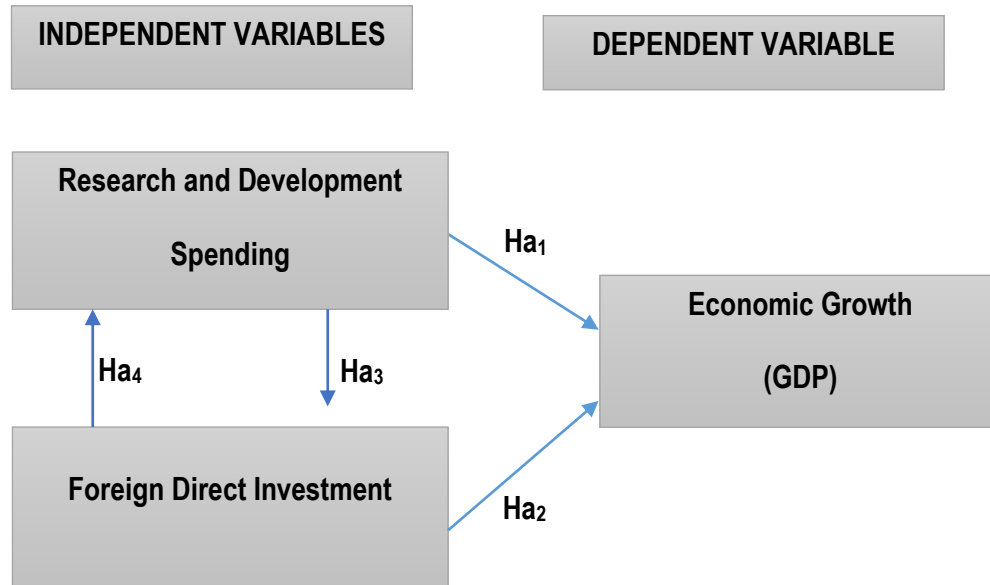
Source: Researcher (2021).

2.6.1 Hypotheses Development

Ha$_1$: Research and Development Spending has moderate relationship with economic growth

Ha$_2$: Foreign Direct Investment h as moderate relationship with economic growth

Ha$_3$: Research and Development Spending moderate relationship with Foreign Direct Investment

Ha$_4$: Foreign Direct Investment moderate the relationship between Research and Development Spending

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

According to Babbie, (2002) research methodology refers to the procedural plan that is embraced by the researcher to accurately, objectively, economically and validly answer the questions of the research. It is a detailed explanation of the techniques and processes that will be used while collecting, processing and analysing data. This chapter spells out the approach to be employed in the conduct of the research. It seeks to systematically find out the results from the research under study so as to answer the research questions and to achieve the objectives set in the research.

3.2 Research Design

Casual research design was employed in this research. This type of research design was used to measure what impact a specific change will have on existing assumptions and norms. It also tends to investigate an issue or a certain topic that looks at the effect of one thing or variable on another. Causal research helps identify if there is a causal relationship between two or more variables (Saundres et al. 2016).

3.3 Research Approach

The study sought to determine the influence of research and development and Foreign Direct investment on economic growth. This phenomenon adopted the quantitative research approach in order to be correctly examined. This is due to the fact that the relationship between research and development and Foreign Direct investment on economic growth needs

to be tested using various econometric tools as explained in the data analysis part. This study adopted positivism research paradigm. The post-positivist paradigm evolved from the positivist paradigm. It is concerned with the subjectivity of reality and moves away from the purely objective stance adopted by the logical positivists (Ryan, 2006).

3.4 Variables and their measurements

Under this area, the variables are explained in detail together with how to measurement them. The variables are categorized into two parts, these are dependent variable and the other one is independent variable.

Table 3.1: Variable Operationalization

Variable	Measurements
Research and Development	Research and Development Expenditure
FDI	FDI
Economic Growth	Gross Domestic Product

Source: Researcher (2020)

3.5 Population

According to McLeod (2014), target population refers to the group of people from which sample size is to be drawn. It is the part of the entire population which the researcher chooses to study in order to obtain the needed information as per developed research questions. The study population covered all countries around the globe.

3.6 Sampling methods and Sample size

For the purpose of this study, the sample was taken all countries in the globe for yearly range data of 1999 to 2018 before the emerging of Corona Virus, this period has been chosen because of its availability. The sample size 141 countries.

3.7 Data Collection Methods

The method of data collection was from secondary data. Secondary data was collected and analysis done from published material. Data on gross domestic product was collected from World Bank Indicators; FDI and Research and Development data shall be collected both from world bank library. The period of study was from the year 1999 to 2018.

3.8 Data Analysis

The data was collected, processed, analysed, interpreted and presented in a clear, precise and unambiguous manner. The moderation effect analysis was carried out using SPSS hierarchical multiple regression following. The hierarchical multiple regression has been advocated as more appropriate method for determining whether a quantitative variable has a moderating effect on the relationship between two other quantitative variables (Cramer & ebrary, 2003). In this method, the orders in which independent variables are entered into the regression equation are known, and are based on logical or theoretical considerations (Yiing & Ahmad, 2009). The following steps will be followed for moderation analysis; Correlation analysis was performed based on different level of moderating factors as a preliminary analysis, which as suggested by (Warner, 2008) would examine any difference in correlation between different level of the moderating variables and the dependent variable; In order to

perform the hierarchical multiple regression, the categorical moderating variables was coded

using dummy coding technique, which in turn, makes it is easy to implement, and makes the

interpretation of the results relatively straightforward (Aguinis, 2004).

CHAPTER FOUR

PRESENTATION AND DISCUSSION OF FINDINGS

4.1 Introduction

This chapter presents, analyses and discusses the research findings. The study findings were analysed and interpreted in relation to the purpose of the study. It presents the findings on the basis of the specific objectives. The study aimed focusing on the influence of Research and Development Spending and Foreign Direct investment on economic growth within the study period of year 1999-2018. More specifically this study sought to assess the interconnectedness between Research and Development Spending and Foreign Direct Investment, to ascertain the influence of Research and Development Spending on economic growth and to evaluate the influence of FDI on economic growth. The study population 141 countries around the globe. Tables and figure were used to present findings of this study.

4.2 Descriptive Statistics

The study's report carried out the descriptive statistics as seen below in table 4.1. The table shows the number of variables, minimum and average of each variable, the standard deviation, skewness and kurtosis of each variable

Table 4.1: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis
Research and Development Spending	141	.01	38.73	7.4457	8.89056	1.921	3.368
Foreign Direct Investment	141	-3.40	576.25	15.5156	61.17819	7.340	59.174
Economic Growth	141	-.94	123.90	11.3335	22.62079	3.182	9.993

Source: Field Data (2021).

The Research and Development Spending variable had minimum value of 0.1 and for the Maximum value was 38.78. Research and Development Spending had a mean of 7.4457, standard deviation of 8.89056, skewness of 1.921 and kurtosis of 3.368. Also, Foreign Direct Investment variable had minimum value of -3.40 and for the Maximum value was 576.25. Foreign Direct Investment had a mean of 15.5156, standard deviation of 61.17819, skewness of 7.340 and kurtosis of 59.176. Moreover, Economic Growth variable had minimum value of -0.94 and for the Maximum value was 5123.90. Economic Growth had a mean of 11.3335, standard deviation of 22.62079, skewness of 3.182 and kurtosis of 9.993.

4.7 Normality

The test for normality was undertaken so as to ensure that the study variables are normally distributed. The pictorial presentation in Figure 4.1 showed that Economic Growth was approximately normally distributed with a mean of 0 and standard deviation of 1.

Figure 4.1: Normality

Histogram
Dependent Variable: Economic Growth

Mean = -4.23E-16
Std. Dev. = 0.993
N = 141
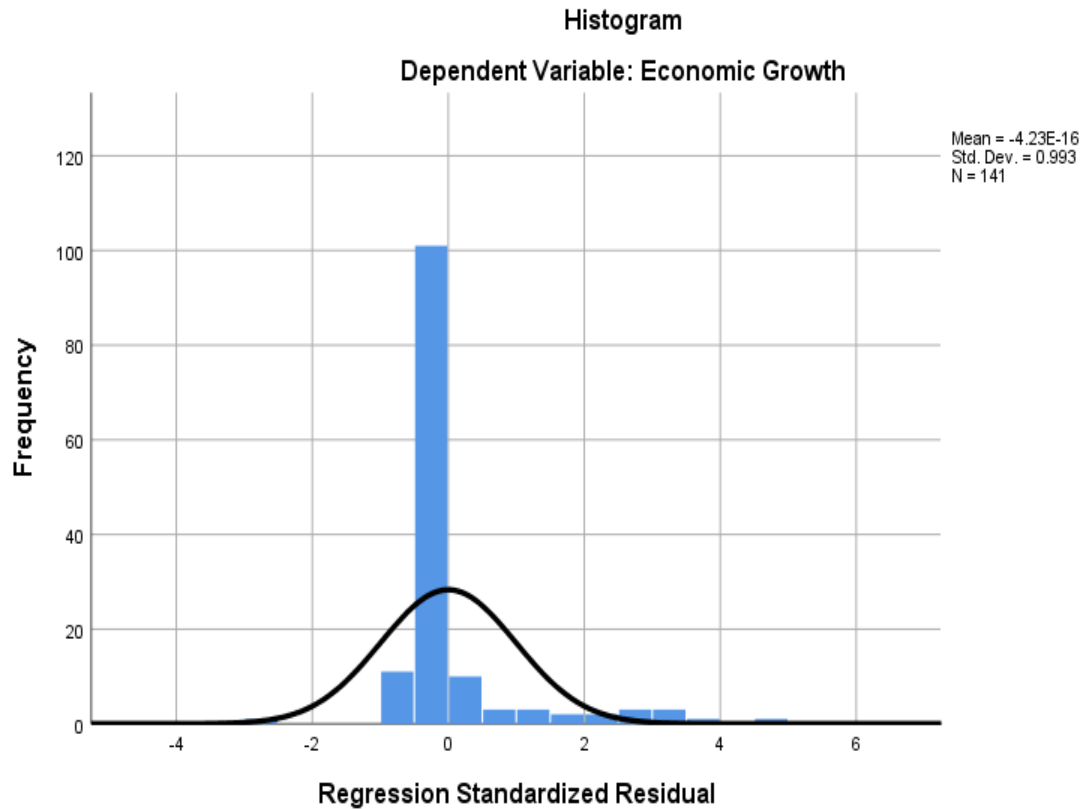
Source: Field Data (2021).

4.4 Correlation Analysis

Correlation analysis is carried out to examine the extent to which two factors shift or diverge from one event to another, and to determine the consequences of the association. This study produces a coefficient of correlation which shows how easily the two variables move together. The association coefficient shall be marked as (r) meaning spectrum (r) is 0 to ±1 (Wei et al, 2009). Zero (0) means no relation at all and for ±1 means the variables are either correlate positive for a positive sign and correlate negative for a negative sign. The table 4.2 below demonstrates the study of the correlation between independent variable and dependent variable.

Table 4.2: Correlations

		Research and Development Spending	Foreign Direct Investment	Economic Growth
Research and Development Spending	Pearson Correlation	1		
	Sig. (2-tailed)			
	N	141		
Foreign Direct Investment	Pearson Correlation	.169*	1	
	Sig. (2-tailed)	.046		
	N	141	141	
Economic Growth	Pearson Correlation	**-.104**	**.423****	**1**
	Sig. (2-tailed)	.221	.000	
	N	141	141	141

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Source: Field Data (2021).

The results summarized in a Pearson correlation matrix indicated that, there was negative correlation coefficient between Research and Development Spending and Economic Growth ($r = -0.452$, $p = 0.221$, N = 141). This implies that, the relationship between variables was negative and statistically insignificant at 0.05. Either, findings indicated that, there was positive correlation coefficient between Foreign Direct Investment and Economic Growth ($r = 0.423$, $p = 0.000$, N = 141). This implies that, the relationship between variables was positive and statistically significant at 0.05. Also, findings indicated that, there was positive correlation coefficient between Research and Development Spending and Foreign Direct Investment ($r = 0.169$, $p = 0.046$, N = 141). This implies that, the relationship between variables was positive and statistically significant at 0.05.

4.4 Univariate Analysis

The analysis attempted to investigate the extent to which each of the classes of the independent variables influences dependent variable. A regression model was developed between each of the predictor variables and the dependent variables

4.4.1. Research and Development Spending

The analysis was aimed at establishing the relationship between of Research and Development Spending and Foreign Direct Investment. The summary output of the regression is presented below;

Table 4.3: Research and Development Spending

Model Summary[b]					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.169[a]	.028	.021	60.51962	1.514
a. Predictors: (Constant), Research and Development					
b. Dependent Variable: Foreign Direct Investment					

ANOVA[a]						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	14883.050	1	14883.050	4.063	.046[b]
	Residual	509104.798	139	3662.624		
	Total	523987.848	140			
a. Dependent Variable: Foreign Direct Investment						
b. Predictors: (Constant), Research and Development						

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	6.881	6.658		1.033	.303
	Research and Development	1.160	.575	.169	2.016	.046
a. Dependent Variable: Foreign Direct Investment						

Source: Field Data (2021).

Coefficient of determination (r^2) in the model summary explain 0.28 of the independent variables. This implies that, for the 141 countries studied by the researcher, Research and Development Spending explains only 2.8% of the Foreign Direct Investment. The coefficient of determination is not significant because 98.9% of variations are brought about by characteristics not captured in the independent variable.

Also, the data from Durbin-Watson still range from 0 to 4. 0-2 values show positive autocorrelation, and 2-4 values reflect negative autocorrelation. The results showed that the statistic for Durbin Watson was found to be 1.514; this value comes within an accepted range. This suggests that there is no correlation with serial errors, and the model was thus adequately described.

Also, the goodness of fit results of the linear regression with Foreign Direct Investment as the dependent variable and Research and Development Spending as the predictor variables reveals a statistically significant relationship between the variables. The F-statistic and its p-value have been used to measure the overall goodness of fit of the model. The resulting p-value of the F-statistic is greater than 5%, implying that the variable explains Economic Growth levels and is not rejected at the 5% level of significance. Using the results above, we have the regression equation as:

Foreign Direct Investment = 6.881 + 0.1.160ResDevSpd+ 6.658……. (i)

According to the regression equation established, taking all factors into account with constant at zero, outcomes will be 13.3. Taking the independent variable at zero, Research and Development Spending increases Foreign Direct Investment by 1.160.

4.4.2 Foreign Direct Investment

The analysis was aimed at establishing the relationship between Foreign Direct Investment and Research and Development Spending. The summary output of the regression is presented below;

Table 4.4: Foreign Direct Investment

Model Summary[b]					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.169[a]	.028	.021	8.79486	1.855
a. Predictors: (Constant), Foreign Direct Investment					
b. Dependent Variable: Research and Development					
ANOVA[a]					
Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	314.309	1	314.309	4.063	.046[b]
Residual	10751.587	139	77.350		
Total	11065.897	140			
a. Dependent Variable: Research and Development					
b. Predictors: (Constant), Foreign Direct Investment					

Coefficients[a]					
Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1 (Constant)	7.066	.764		9.245	.000
Foreign Direct Investment	.024	.012	.169	2.016	.046
a. Dependent Variable: Research and Development					

Source: Field Data (2021).

Coefficient of determination (r^2) in the model summary explain 0.028 of the independent variable. This implies that, for the 141 countries studied by the researcher, Foreign Direct Investment explains only 2.8% of the Research and Development. The coefficient of

determination is not significant because 97.2% of variations are brought about by characteristics not captured in the independent variable.

Data from Durbin-Watson still range from 0 to 4. 0-2 values show positive autocorrelation, and 2-4 values reflect negative autocorrelation. The results showed that the statistic for Durbin Watson was found to be 01.855 this value comes within an accepted range. This suggests that there is no correlation with serial errors, and the model was thus adequately described.

Also, the goodness of fit results of the linear regression with Research and Development as the dependent variable and Research and Foreign Direct Investment as the predictor variables reveals a statistically significant relationship between the variables. The F-statistic and its p-value have been used to measure the overall goodness of fit of the model. The resulting p-value of the F-statistic is greater than 5% (p = 0.000), implying that the variable explains Research and Development and is not rejected at the 5% level of significance. Using the results above, we have the regression equation as:

<div align="center">Research and Development = 7.066 + 0.024FDI+ 0.764……. (ii)</div>

According to the regression equation established, taking all factors into account with constant at zero, outcomes will be 8.905. Taking the independent variable at zero, Research and Development Spending increases Research and Development by 0.024.

4.5 Multiple Regression Analysis

The analysis was aimed at establishing the Research and Development Spending and Foreign Direct Investment variation on Economic Growth. The summary output of the multiple regression is presented below;

Table 4.5: Multiple Regression Analysis

Model Summary[b]					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.459[a]	.211	.199	20.24033	.977
a. Predictors: (Constant), Foreign Direct Investment, Research and Development					
b. Dependent Variable: Economic Growth					

ANOVA[a]					
Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	15103.394	2	7551.697	18.434	.000[b]
Residual	56534.599	138	409.671		
Total	71637.993	140			
a. Dependent Variable: Economic Growth					
b. Predictors: (Constant), Foreign Direct Investment, Research and Development Spending					

Coefficients[a]					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	12.146	2.235		5.434	.000
Research and Development Spending	-.459	.195	-.180	-2.350	.020
Foreign Direct Investment	.168	.028	.454	5.915	.000
a. Dependent Variable: Economic Growth					

Source: Field Data (2021).

As can be observed in Table above, R was 0.459 and R Square was 0.211 at 0.05 level of significance for the 141 countries studied by the researcher. The coefficient of determination indicates that 21.1% of the variations on Economic Growth can be explained by Research and Development Spending and Foreign Direct Investment. The remaining 78.9% can be

explained by other variables not included in the study. R square and adjusted R is above average an implication that an above average variation can be explained by the model.

Data from Durbin-Watson still range from 0 to 4. 0-2 values show positive autocorrelation, and 2-4 values reflect negative autocorrelation. The results showed that the statistic for Durbin Watson was found to be 0. 959; this value comes within an accepted range. This suggests that there is no correlation with serial errors, and the model was thus adequately described.

Further analysis of ANOVA as shown in table 4.5 above showed that significance of F statistics is 0.000, which is less than 0.05 and the value of F (18.434) being significant at 0.00 confidence level. The study conducted a multiple regression analysis so as to determine the association between all the Research and Development Spending and Foreign Direct Investment on the dependent variable (Economic Growth). The multiple linear regression model was of the form:

Economic Growth = 12.146 – 0.459ResDevSpd + 0.168FDI + 2.235……. (iii)

According to the regression equation established, taking all factors into account with constant at zero, outcomes will be 12.146. Taking all other independent variables at zero, Research and Development Spending decrease Economic Growth by 0.459 while Foreign Direct Investment will result in 0.168 increase in Economic Growth.

4.6 Multicollinearity

Multicollinearity tests were conducted so as to avoid including any conclusions which were incorrect about how the dependent variables and the predictor variables are related. Multicollinearity occurs where the independent variables are strongly correlated and hence results of regression analysis are as a result of the correlation on independent variables. The presence was indicated by the use of Variance Inflation Factor (VIF) and tolerance degree and the findings obtained are presented below;

Table 4.6: Multicollinearity

Coefficients[a]			
Model		Collinearity Statistics	
		Tolerance	VIF
1	Research and Development Spending	.972	1.029
	Foreign Direct Investment	.972	1.029
a. Dependent Variable: Economic Growth			

Source: Field Data (2021).

The findings from the table above show that, Research and Development Spending had a Tolerance value of 0.972 and a VIF value of 1.029 and Foreign Direct Investment had a Tolerance value of 0.972 and a VIF value of 1.029. This shows that there was no multicollinearity problem as all the study variables had tolerance of greater than 0.1 and VIF less than 10.

4.8 Summary of Hierarchical Regression Analysis

To verify the moderation effect, hierarchical multiple regressions analysis was performed among these variables and the summary of the results are shown below;

Table 4.7: Summary of Hierarchical Regression Analysis

VARIABLES	Research and Development Spending		Foreign Direct Investment		Economic Growth	
	Std. β	Sig	Std. β	Sig	Std. β	Sig
Research and Development Spending			1.160	0.046	-0.459	0.020
Foreign Direct Investment	0.024	0.046			0.168	0.000
Fitness						
R	0.104		0.423		0.459	
R^2	0.011		0.179		0.211	
Adjusted R2	0.004		0.173		0.199	
Std. Error	22.57937		20.56692		20.24033	
Autocorrelation						
Durbin-Watson	1.514		1.855		0.977	
ANOVA						
F Statistic	1.514		30.358		18.434	

Source: Field Data (2021).

Results showed that (**Ha₁**) Research and Development Spending has moderate relationship with economic growth as resulted in a R of 0.459, R2 change of 0.211, $p < .05$. Results showed that (**Ha₂**) Foreign Direct Investment has moderate relationship with economic growth as resulted in a R of 0.459, R2 change of 0.000, $p < .05$. Also, findings showed that (**Ha₃**) Research and Development Spending moderate relationship with Foreign Direct Investment as resulted in a R of 0.423, R2 change of 0.179, $p < .05$. Similarly, findings indicated that (**Ha₃**) Foreign Direct Investment moderate the relationship between Research and Development Spending as resulted in a R of 0.104, R2 change of 0.011, $p < .05$.

4.8.1 Summary of Hypotheses

The summary of the hypotheses revealed that all the hypotheses were supported and proved.

Findings are shown in Table 4.8 below;

Table 4.8: Summary of Hierarchical Regression Analysis

No		Hypotheses	P-Value	Decision
Ha$_1$		Research and Development Spending has moderate relationship with economic growth	0.020	Accepted
Ha$_2$		Foreign Direct Investment has moderate relationship with economic growth	0.000	Accepted
Ha$_3$		Research and Development Spending moderate relationship with Foreign Direct Investment	0.046	Accepted
Ha$_4$		Foreign Direct Investment moderate the relationship between Research and Development Spending	0.046	Accepted

Source: Field Data (2021).

4.9 Discussion of Findings

Research and Development is one of the most important variables that lead to the increase in technology capabilities, enlargement of resource base and promoting in the capability of resource utilization. Results of this study showed that Research and Development Spending has moderate relationship with economic growth. These findings are supported by the theory on the impact of R&D which indicated that R&D is a central determinant of economic growth. These findings re also consistent with Griliches (2020), Bayoumi et al. (2017), Coe et al. (2018) who indicated that R&D expenditure has positive impact on productivity and growth on the specific region or country. Also, Ildırar et al. (2016) found that all of the R&D expenditures have positive and significant effect on economic growth in selected OECD countries but

magnitudes are various while Lichtenberg (2020) concluded that private sector R&D expenditures affect growth in a positive way but public sector R&D expenditures do not create any positive effect on economic growth and even sometimes they have a negative impact on it. In the same vein, Wang (2017) expressed that the countries which employ R&D expenditures effectively will achieve a better economic growth performance; Ram (2018) and Blanco et al. (2017) concluded that the relationship between economic growth and federal R&D expenditures is much stronger but Kue and Yang (2018) in China and emphasized that R&D capital and technology imports contribute significantly to economic growth. Similarly, findings of this study match with Samimi and Alerasoul (2019) findings which indicated that because of low R&D expenditures in these countries, economic growth and R&D expenditures do not exhibit a mutual causal relationship.

Results showed that Foreign Direct Investment has moderate relationship with economic growth. This supports notion of neoclassical theory that FDI influences economic growth of a country by increasing the amount of capital per person. Also, these findings are consistent with Blomstrom et al. (2016), Kyrkilis and Moudatsu (2019) who found that FDI exerts a positive effect on economic growth. Correspondingly, Li and Liu (2017), Ilhan (2017) and Lumbila (2016) found significant relationship between FDI and Gross Domestic Product (GDP). However, findings of this study are in disagreement with Feridun and Sissoko (2016) who revealed unidirectional causation running from FDI to economic growth.

Also, findings showed that Research and Development Spending moderate relationship with Foreign Direct Investment. Neoclassical theory noted that FID spurs long-run growth through such variables as research and development (R&D) and human capital. Findings of this study

showed that Foreign Direct Investment moderate the relationship between Research and Development Spending. According to De Gregorio (2017) in his contribution on FDI, he noted that FDI may allow a country to bring technologies and knowledge that are not readily available to domestic investors hence increase productivity growth throughout the economy. FDI may also bring expertise that the country does not possess and foreign investors may have access to global markets. Also, these findings are in line with Erdala (2018) who attempted to investigate the effects of FDI on R&D and innovation using the panel causality and cointegration methods and found that FDI inflows increase countries' R&D and innovation activities.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This study sought to determine the influence of research and development and Foreign Direct investment on economic growth. This chapter presents a summary of the study, its conclusion and its recommendations. The chapter provides a conclusion from the findings in chapter four, after which it draws the policy recommendations. The suggestions are based on the research objective, taking into consideration the limitations faced during the study in which the study recommends for further areas of study.

5.2 Summary of Findings

This study sought to determine the influence of research and development and Foreign Direct investment on economic growth. Specifically, this study assessed the interconnectedness between Research and Development Spending and Foreign Direct Investment, ascertained the influence of Research and Development Spending on economic growth and evaluated the influence of FDI on economic growth. Secondary data was collected for period of study was from the year 1999 to 2018and analysed. The moderation effect analysis was carried out using SPSS hierarchical multiple regression.

Findings on descriptive statistics showed that, Research and Development Spending variable had minimum value of 0.1 and for the Maximum value was 38.78. Research and Development Spending had a mean of 7.4457, standard deviation of 8.89056, skewness of 1.921 and kurtosis of 3.368. Also, Foreign Direct Investment variable had minimum value of -3.40 and

for the Maximum value was 576.25. Foreign Direct Investment had a mean of 15.5156, standard deviation of 61.17819, skewness of 7.340 and kurtosis of 59.176. Moreover, Economic Growth variable had minimum value of -0.94 and for the Maximum value was 5123.90. Economic Growth had a mean of 11.3335, standard deviation of 22.62079, skewness of 3.182 and kurtosis of 9.993.

The test for normality was undertaken so as to ensure that the study variables are normally distributed. Findings showed that Economic Growth was approximately normally distributed with a mean of 0 and standard deviation of 1. On the correlation analysis, findings indicated that there was negative and insignificant relationship between Research and Development Spending and Economic Growth. Findings indicated that, there was positive and significant relationship between Foreign Direct Investment and Economic Growth. Also, findings indicated that, there was positive and significant relationship between Research and Development Spending and Foreign Direct Investment.

On the Univariate Analysis for Research and Development Spending, Coefficient of determination (r^2) in the model summary explain 0.28 of the independent variable. This implies that, for the 141 countries studied by the researcher, Research and Development Spending explains only 2.8% of the Foreign Direct Investment. The coefficient of determination is not significant because 98.9% of variations are brought about by characteristics not captured in the independent variable. Also, the data from Durbin-Watson still range from 0 to 4. 0-2 values show positive autocorrelation, and 2-4 values reflect negative autocorrelation. The results showed that the statistic for Durbin Watson was found to be 1.514; this value comes within an accepted range. This suggests that there is no correlation with serial errors, and the model

was thus adequately described. Also, the goodness of fit results of the linear regression with Foreign Direct Investment as the dependent variable and Research and Development Spending as the predictor variables reveals a statistically significant relationship between the variables. The F-statistic and its p-value have been used to measure the overall goodness of fit of the model. The resulting p-value of the F-statistic is greater than 5%, implying that the variable explains Economic Growth levels and is not rejected at the 5% level of significance. According to the regression equation established, taking all factors into account with constant at zero, outcomes will be 13.3. Taking the independent variable at zero, Research and Development Spending increases Foreign Direct Investment by 1.160.

On the Univariate Analysis for Foreign Direct Investment, coefficient of determination (r^2) in the model summary explain 0.028 of the independent variable. This implies that, for the 141 countries studied by the researcher, Foreign Direct Investment explains only 2.8% of the Research and Development. The coefficient of determination is not significant because 97.2% of variations are brought about by characteristics not captured in the independent variable. Data from Durbin-Watson still range from 0 to 4. 0-2 values show positive autocorrelation, and 2-4 values reflect negative autocorrelation. The results showed that the statistic for Durbin Watson was found to be 01.855 this value comes within an accepted range. This suggests that there is no correlation with serial errors, and the model was thus adequately described. Also, the goodness of fit results of the linear regression with Research and Development as the dependent variable and Research and Foreign Direct Investment as the predictor variables reveals a statistically significant relationship between the variables. The F-statistic and its p-value have been used to measure the overall goodness of fit of the model. The resulting p-value of the F-statistic is greater than 5% (p = 0.000), implying that the variable

explains Research and Development and is not rejected at the 5% level of significance. According to the regression equation established, taking all factors into account with constant at zero, outcomes will be 8.905. Taking the independent variable at zero, Research and Development Spending increases Research and Development by 0.024.

On the multiple regression, findings unveiled that R was 0.459 and R Square was 0.211 at 0.05 level of significance for the 141 countries studied by the researcher. The coefficient of determination indicates that 21.1% of the variations on Economic Growth can be explained by Research and Development Spending and Foreign Direct Investment. The remaining 78.9% can be explained by other variables not included in the study. R square and adjusted R is above average an implication that an above average variation can be explained by the model. Further analysis of ANOVA showed that significance of F statistics is 0.000, which is less than 0.05 and the value of F (18.434) being significant at 0.00 confidence level. The study conducted a multiple regression analysis so as to determine the association between all the Research and Development Spending and Foreign Direct Investment on the dependent variable (Economic Growth). According to the regression equation established, taking all factors into account with constant at zero, outcomes will be 12.146. Taking all other independent variables at zero, Research and Development Spending decrease Economic Growth by 0.459 while Foreign Direct Investment will result in 0.168 increase in Economic Growth.

Multicollinearity tests were conducted so as to avoid including any conclusions which were incorrect about how the dependent variables and the predictor variables are related. The findings from the table above show that, Research and Development Spending had a

Tolerance value of 0.972 and a VIF value of 1.029 and Foreign Direct Investment had a Tolerance value of 0.972 and a VIF value of 1.029. This shows that there was no multicollinearity problem as all the study variables had tolerance of greater than 0.1 and VIF less than 10.

Results showed that Research and Development Spending has moderate relationship with economic growth as resulted in a R of 0.459, R2 change of 0.211, p < .05. Results showed that Foreign Direct Investment has moderate relationship with economic growth as resulted in a R of 0.459, R2 change of 0.000, p < .05. Also, findings showed that Research and Development Spending moderate relationship with Foreign Direct Investment as resulted in a R of 0.423, R2 change of 0.179, p < .05.Similarly, findings indicated that Foreign Direct Investment moderate the relationship between Research and Development Spending as resulted in a R of 0.104, R2 change of 0.011, p < .05. The summary of the hypotheses revealed that all the hypotheses were supported and proved.

5.3 Conclusion

This study concludes that Research and Development Spending has moderate relationship with economic growth. Countries around the globe should concentrate on Research and Development Spending to achieve the sustained economic growth. Results showed that Foreign Direct Investment has moderate relationship with economic growth.

This study concludes that Foreign Direct Investment is integral to the economy growth of countries. It should be known that the Foreign Direct Investment stimulate economic development by facilitating host countries' access to modern technologies, raising

employment as well as transferring physical capital from developed to developing countries. Also, findings showed that Research and Development Spending moderate relationship with Foreign Direct Investment.

This study concludes that if a country's Research and Development Spending is high, in that situation, the national competitiveness and investment of this country would be much higher than in other countries. Similarly, findings indicated that Foreign Direct Investment moderate the relationship between Research and Development Spending.

This study concludes that Foreign Direct Investment on R&D spending speed up their high-tech development and the R&D stock in the host country. After producing new technology, new products and production processes, they make patent applications which contribute to increase the total number of patents, and acceleration of innovation activities in the host country.

5.4 Policy Implications

Findings from the study will be used by the governments and policy makers in formulating policies on Research and Development Spending and Foreign Direct Investment with a view of ensuring sustainable economic growth of their countries. The study revealed that Research and Development Spending and Foreign Direct Investment have moderate relationship with economic growth. Based on the study findings, countries across the globe should therefore marshal all the effort to enhance them. Either, science and technology as a result of research and development spending and Foreign Direct Investment affects the countries' economic transformation and sustainable growth. It is important that countries control the technological

development arises from search and development spending and Foreign Direct Investment so as to stimulate economic growth. Further, the findings from the study will contribute to the existing literature on the influence of research and development and Foreign Direct investment on economic growth and can be used for future studies on areas of research and development, FDI and economic growth.

5.5 Recommendations

Based on the findings and conclusion of this study, the researcher recommends that;

i. To achieve sustainable economic growth, countries across the globe are recommended to transfer large amounts of resources to research and development activities and innovation.

ii. Also, countries should concentrate on formulating policies that will guide and motivate research and development activities so as achieve the sustained economic growth.

iii. Government across the globe should continue putting in place policies that foster an investor friendly environment that attracts and encourages FDI. This is because the findings of this study have shown that an increase in contribution of FDI in GDP has a positive effect on real GDP growth by the positive and statistically significant coefficient.

iv. At the same time, other than prioritizing the attraction of FDI, governments should look into policies on human capital, money supply, total domestic investment, and total credit for the private sector in order to enhance economic growth and absorb the maximum FDI benefits.

5.7 Areas for Future Research

Firstly, the period utilized in this study (1999 – 2018) may not be sufficient for an econometric study on a macroeconomic subject matter. Future studies should concentrate on longer period for instance 40 years. Future researchers may investigate the effect of omitted variables to establish their real impact on Research and Development Spending, Foreign Direct Investment and Economic growth for instance, the effect of inflation and institutional quality on economic growth. Additionally, assessment should be done to address the challenges that are faced by developing countries in their attempts to improve their economies.

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APPENDICES

APPENDIX I   DATA COLLECTION LETTER

I am **NEEMA RINGO**, currently a student at **INSTITUTE OF ACCOUNTANCY ARUSHA**, **ARUSHA TANZANIA** Pursuing a Master of Business Administration (MBA). The completion of the MBA program requires undertaking a research in the area of interest. Therefore, I intended to capture the research data from your organization. The title of my study is **'RESEARCH AND DEVELOPMENT SPENDING, FOREIGN DIRECT INVESTMENT AND ECONOMIC GROWTH: A MODERATION ANALYSIS'.** This research is purely for academic purposes; hence no part of the information sought will be used for non-academic purposes. Principles of anonymity and confidentiality are guaranteed during data collection.

Thank you for your cooperation

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NEEMA RINGO

Appendix II: Research Budget

The research work will use financial resources amounting to Tanzanian shillings (TZS) 2,000,000.00 in conducting the study. This cost will be financed by fiancé.

Table 1: Activities per estimated costs

S/N	Activities	Amount (TZS)
1	Proposal typesetting, printing and binding	100,000
2	Data collection cost	1,000,000
3	Stationaries	400,000
4	Data Analysis	500,000
	TOTAL AMOUNT	**2,000,000**

Source; Researcher (2021)

Appendix III: Work Schedule

Research schedule is a plan for carrying out a process or procedure, giving lists of intended events and times. The thesis schedule table is described below:

Table 1: Schedule of activities

Activities	Dates 2021					
	Jan	Feb	May	Jul	Sep	Nov
Formulating and refining Research Problem	■					
Reviewing Literatures	■	■				
Draft of Research Proposal Writing to Supervisor		■	■			
Research Proposal Defence			■			
To Submit Proposal and Data collection letter processing			■			
Data collection.				■		
Data Processing/Management					■	
Data analysis					■	
Draft Report Writing to Supervisor					■	
Final Report Defence						■
Final Report Corrections						■
Binding and Final Submission						■

Source; Researcher (2021)