UNIVERSITY OF EDUCATION, WINNEBA

QUALITY OF LIFE, ECONOMIC GROWTH, AND INCOME INEQUALITY AMONG WEST AFRICAN STATES

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DECLARATION

STUDENT'S DECLARATION

I, **Samuel Baabu Danso** declare that this thesis, with the exception of quotations and references contained in published works which have all been identified and duly acknowledged, is entirely my own original work, and it has not been submitted, either in part or whole, for another degree elsewhere.

Date: …….

Sign: ……..

SUPERVISOR DECLARATION

We hereby declare that the preparation and presentation of this work was supervised in accordance with the guidelines for supervision of thesis as laid down by the University of Education, Winneba.

Principal Supervisor: Dr. Richard Oduro

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Date: ……

Co-Supervisor: Emmanuel Atta Anaman

Signature: ……

Date: ……

DEDICATION

To my dear wife and in memory of my late father

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LIST OF ABBREVIATION

ADF	Augmented Dickey- Fuller
AfCTA	African Continental Free Trade Agreement
ARDL	Auto Regressive Distributed Lag
BCEAO	Central Bank of West Africa
CADF	Cross Sectional Augmented Dickey Fuller
CPI	Consumer Price Index
ECOWAS	Economic Community of West African States
EG	Economic Growth
EIC	Economic Intelligent Unit
EXCR	Exchange Rate
FAO	Food and Agriculture Organization
FDI	Foreign Direct Investment
GMM	Generalized Method of Moment
GNP	Gross Domestic Product
GRDP	Gross Regional Domestic Product
HDR	Human Development Report
IFS	International Financial Statistics
IHDI	Inequality Human Development Index
ILO	International Labor Organization
IMF	International Monetary Fund
INF	Inflation
INTR	Interest Rate
MG	Mean Group
MPI	Multidimensional Poverty Index
OECD	Organization for Economic CO-operation and Development
PMG	Pooled Mean Group

PP	Philip Peron
QOL	Quality of Life
SWL	Satisfaction with Life
UNCTAD	United Nations Conference on Trade and Development
UNICEF	United Nations Children Fund
UNP	Unemployment
WACB	West African Central Bank
WAEMU	West African Economic and Monetary Union
WAMZ	West African Monetary Zone
WB	World Bank
WDI	World Development Indicators
WHO	World Health Organization
WHR	World Happiness Report

ABSTRACT

Most West African countries have experienced economic growth in recent years, yet the effect on quality of life of the citizens is not being felt. The study therefore seeks to examine the effect of economic growth on quality of life and the role income inequality plays in this relationship. To achieve this, the study aims at examining the linkage between economic growth and quality of life among West Africa countries. It also seeks to determine the role income inequality plays in the linkage between quality of life and economic growth and finally, examine other macroeconomic variables that significantly affect quality of life in West Africa. A panel data of all the 15 West African countries were obtained from International Financial Statistics and World Development Indicators. Using Auto Regressive Distributed Lag model, the study finds that economic growth has a significant positive effect on quality of life. Also, income inequality does not moderate the linkage between economic growth and quality of life. However, variables such as interest rate and exchange rate have significant negative effect on quality of life whiles Foreign Direct Investment significantly influence quality of life positively. The study recommends that, government should invest in the productive sectors of the economy to boost economic growth. Also, government should strike a balance between limiting inflation, supporting economic growth, and maintaining access to affordable credit to help vulnerable people.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Human development is a major concern of any country be it developed or developing nation. In fact much has been written since late 1960s, around the world, on the theme quality of life with the majority of the literature related to human development. This is due to the cognizance which has been notified that human development goes beyond economic growth and is a multidimensional phenomenon covering all aspects of well-being (Berenger *et al.,* 2007). Therefore, the attention shifted from GDP per capita to quality of life.

However, GDP per capita has been long criticized for measuring only material well-being which alone cannot explain human welfare of a country from broader perspective. The Economist Intelligence Unit (2005), points-out that due to serious challenges in assigning monetary values to various factors and intangibles that comprise a broader measure of socio-economic well-being; in order to overcome the aforementioned challenges, various attempts were made to construct alternative, non-monetary indices of social and economic wellbeing by creating a single statistic with a number of factors that influence quality of life. However, the main problem associated with these measures is selection bias and arbitrariness in the factors that are chosen to assess quality of life (The Economist Intelligence Unit, 2005).

It is necessary to discuss the macroeconomic aspect of an economy in order to gain an understanding of the course and scope of economic development within a nation. Therefore, countries need to evaluate the more comprehensive approach, which measures

the level of human development of a nation based on factors such as its citizens' health, level of education, and basic standard of living (Banerjee, 2016). In order for nations to achieve satisfaction in life, they need to assess the quality of life enjoyed by their human capital and have a knowledge of how their citizen's feel about the standard of living they enjoy.

Quality of life refers to individual's perception of their position in life in relation to their objectives, expectations, standards, and concerns within the context of their culture and value systems (WHO, 2012). In recent years, the importance of quality of life has gained increasing recognition as a key determinant of social and economic development (UNDP, 2020). West Africa is a diverse and dynamic region that faces a range of challenges and opportunities in terms of quality of life (World Bank, 2020).

Factors affecting economic performance have increase rapidly globally over the past decade. Nevertheless, theories and empirical evidences, were still far from agreement in the literature. In the past studies, different findings relating to macro stability, trade openness and export strategy, central bank's monetary rules, foreign exchange policy, the extent of financial integration have played some important role in the performance of countries (Hooy *et al*., 2015; Ghosh *et al*., 2016; Chan, 2017) among others.

While Gross Domestic Product (GDP) is a very useful for measuring market production and providing an indicative snapshot of an economy at a given time, it does not provide a comprehensive picture of the wellbeing of the citizenry (MadiHa *et al.*, 2019). According to Fitoussi *et al*. (2018) many researches have criticized the GDP index as a measure of quality of life.

GDP disregards a number of components that do not involve monetary transactions (Kubiszewski *et al*., 2013), eliminating practically all non-monetary production, such as child care, volunteerism, and domestic labor. Despite the fact that nonmarket production is partially integrated in GDP, such as government defense, emergency housing, and healthcare expenditures, many economic activities are excluded from its measures, including donations, family unit production of services, and many of the determinants of wellbeing, such as the value of economic security, social relations, personal safety, and health (Anheier *et al*., 2002; Michaelson *et al*., 2009).

GDP does not assess changes in human capital (both social and organizational) and does not account for the circulation of income among individuals, which can improve personal and social well-being (Wilkinson *et al.*, 2009).

GDP considers all expenditures as positive and does not differentiate between welfare-enhancing and welfare-reducing activities (Cobb *et al*., 1995). For instance, defensive expenditures include both crime-related costs, such as police, and security and non-crime-related costs, such as insurance. These expenditures do not represent a net increase in progress because they are solely used to avert or repair social and environmental costs (Leipert, 1989)

GDP disregards diverse conceptions of the objectives of development, such as cultural differences (Henderson, 1996; Henderson, 2010), and overlooks the effects of expanding socioeconomic, political, and ecological inequalities. Because GDP does not address and frequently conceals social and economic injustices, it does not adequately provide societal insights into economic well-being due to rising crime, declining worker productivity, and declining investment (Bernasek, 2006). When growth is concentrated in

a single segment of the population, it does not contribute to global economic success since the social benefits of increases in consumption by the wealthy are less positive than increases in spending by the entire population (Talberth *et al*., 2007).; It excludes the environment, disregarding environmental costs and natural resource depletion rates, and, contradictorily, it considers environmental repair expenses as useful production. In addition, it disregards the longer-term detrimental effects of short-term exploitation of the ecosystem and its services, which diminish the system's capacity to function in a million different ways. (Giannetti, *et al.*, 2015).

The above criticism has led to the use of an index which provide a better measure of Quality of Life. Instead of using GDP as measure of wellbeing, UNDP introduces a measure that looks at quality of life of citizenry rather than production of goods and services hence the introduction of Human Development Index (HDI).

Comprehensive Measurement. The HDI takes into account not only economic but also social and health variables. It takes into account life expectancy, education, and income, giving a more complete picture of human well-being than GDP alone.

The HDI considers the distribution of well-being within a country by including education and life expectancy statistics that reflect the average achievements of the entire population. GDP, on the other hand, can be strongly influenced by the income of a small proportion of the population. The HDI includes metrics like life expectancy and education that show a population's long-term well-being. Since GDP is a measure of economic output, it may not always be a good indicator of human potential or general well-being.

HDI enables comparisons between nations whose human development levels may differ despite having comparable gross domestic products. This is particularly critical

when evaluating the general well-being of a populace, given that GDP in isolation might fail to account for variations in living standards.

The HDI serves as a foundation for developing policies that simultaneously target aspects like income, health, and education with the goal of enhancing the general well-being of a people. Since GDP is an economic metric, it might not lead decision-makers to adopt comprehensive development plans.

Higher education and healthcare, for instance, are non-market activities that make substantial contributions to human welfare but are not explicitly included in the gross domestic product (GDP). HDI contributes to a more precise depiction of the quality of life by incorporating these variables.

Human Development index (HDI) was first developed by a Pakistani economist Mahbub ul Haq in the year 1990, and has since been used by United Nations Development Program (UNDP) to measure quality of life. According to UNDP, Human Development Index is a summary measure of human development in three basic dimensions; long and healthy life, access to knowledge and decent standards of living. Thus, empirical studies carried out in relation to quality of life and its determinants are numerous. Notable among these studies focused on gross domestic product (GDP) and quality of life (Mohamad *et al*., 2015; Deb, 2015; Khodabakhshi, 2011; and Morote, 2010); health and quality of life (Zahran *et al*., 2005) and studies conducted on quality of life from specific perspective using questionnaire (Samson-Akpan *et al*., 2013; Bello and Bello, 2013 and Fajamileshin *et al*., 2011).The major gap common amid these studies is that they suffered from non-inclusion of many determinants of quality of life; they addressed quality

of life from specific perspective using cross sectional datasets rather than addressing quality of life from broader perspective.

Income inequality in economics refers to a considerable gap in income distribution among people, groups, communities, social classes, or countries. Income inequality is a significant component of social stratification and social class. (Britannica 2023)

Zouhier *et al*., (2012) investigated the empirical relationship between growth and income inequality in three North African nations from 1970 to 2004, and their findings show that the long-run growth elasticity of income inequality is negative and statistically significant. The results demonstrate a negative and highly significant link between growth and initial income per capita

Fosu (2010) analyzed data from 1981 to 2005 to investigate the transition of economic expansion into poverty reduction in emerging nations, with a focus on the influence of income disparity, the study discovered that, on average, income growth has been the primary driver of both poverty decreases and increases, and that high baseline levels of inequality restrict growth's effectiveness in poverty reduction.

This study therefore seeks to contribute to this growing literature and fill the aforementioned gaps by investigating the effects of macroeconomic variables on quality of life in West African countries and the role that income inequality plays in the linkage between economic growth and quality of life

1.2 Problem Statement

Quality of life (QOL) ranks in geriatrics, gerontology and nursing in gerontology as one of the most important indicators. Achieving the maximum possible quality of life is one of the most important objectives in care for the humans and, to some extent, an indicator of life expectancy (Farský et al., 2007). The WHO defines quality of life as "the individual's perception of their position in life in the context of cultural and value systems in which they live and in relation to their goals, expectations, standards and concerns. It is a broad term encompassing comprehensive physical health, psychological state, level of independence, social relationships, personal beliefs and relationship to the main features of the environment" (WHOQOL Group, 1995). Gurková (2011) defines QOL as a subjective perception and evaluation of individual living conditions, which is based on an internal standard (values, expectations, aspirations, etc.); QOL is considered to be a multidimensional, subjective, value-driven construct. In Africa, the most significant aspects of QOL assessment are autonomy, self-sufficiency, decision-making, absence of pain and suffering, the preservation of sensory abilities, the maintenance of a system of social support, a certain financial level, a sense of usefulness to others, and a certain degree of happiness (Gurková, 2011). In West Africa, QOL is affected by the many demanding situations and factors that are associated with poverty, poor health care, malnutrition and unavailable social support (Gurková, 2011).

Besides, demographic variables (age, gender, ethnicity), socio-economic characteristics (education, social status, income, social support...), cultural influences and values, health factors (health/medical condition, disease, functional status, health care services), and personal characteristics (e.g., coping mechanisms, self-efficacy...) can be

considered to be predictors of QOL (Dragomirecká *et al.,* 2009; Gurková, 2011; Bryła *et al*., 2013; Layte *et al*., 2013; Bilgili *et al*., 2014; Chin *et al.,* 2014; Forjaz *et al.,* 2015).

The Financial instability among West Africa countries have been one of the most important aspects that have effect on the people's quality of life (Bruckner *et al*., 2015). Individuals' and communities' levels of happiness are significantly influenced by macroeconomic factors such as inflation, unemployment, and limitations in gross domestic product (GDP) per capita (Stiglitz *et al*., 2010).

Despite the effort of policy makers and development organizations to improve the quality of life in West Africa, the Human Development Index (HDI), remains relatively low compared to other regions of the world according to UNDP 2020 HDI rankings. It is important to understand the factors that contribute to this low HDI in order to develop effective policies and interventions to improve the well-being of the population in West Africa**.** These may be due to the fact that income disparity exist in West Africa hence the need to investigate whether these income inequality contribute to the low HDI experienced by West African Countries. Meanwhile, various studies that have established a relationship between quality of life and other macro-economic variables where GDP was used as a proxy to measure quality of life. (Weimann *et al.*, 2015).However, this study uses HDI as a proxy for quality of life.

GDP has been widely used in economic studies, politics, and the media for a long time since it has been readily available in most nations in a standardized format. However, it has significant, well-documented flaws that make it a poor measure of social welfare, advancement, or progress (Costanza *et al*., 2014).

Additionally, well-being is a multidimensional concept that cannot be assessed solely by market production, theories of multidimensional development indicators like the

Human Development Index (HDI) have also proven to be more rational than the GDP growth indicator, which is one-dimensional in terms of revenue. (Deb, 2015). The HDI is better equipped to capture significant welfare features in developing countries, especially extremely impoverished countries like West African countries (UNDP, 2014).

The HDI has not been exempted from conceptual and methodological critiques as a development indicator (Srinivasan, 1994; Noorbakhsh 1998; Decanq *et al*., 2009; Ravallion, 2012). However, a large portion of the HDI methodology's criticism focused on the dimensions chosen and the mechanism used to aggregate them into a multi-dimensional indicator. (Deb, 2015).

It should be mentioned that the HDI values have been demonstrated to have a positive and statistically significant correlation with either the GDP or GNP per capita (McGillivray, 1991; McGillivray *et al*., 1993; Cahill, 2005; Deb, 2015). Hence the purpose of this study is to examine the link between economic growth and quality of life and the moderating role of income inequality. The study also examines the effect of other macroeconomics variables such as inflation, unemployment, exchange rate, interest rate and foreign direct investment on quality of life using HDI as a proxy for quality of life (QOL) among West Africa States. This addresses the problem of multidimensional method which delivers a more holistic and comprehensive picture of a population's overall well-being. GDP, as a single economic metric, does not account for these various dimensions of human life. The study also fills the gap in the literature where macro-economic variables have been examined on quality of life where GPD was used a proxy for quality of life instead of HDI in other jurisdiction but not in West Africa.

1.2 Research Objectives

The study is premised on the following objectives;

1. To examine the linkage between economic growth and quality of life.
2. To determine the moderating role of income inequality in the linkage between economic growth and quality of life.
3. To identify the other macroeconomic variables affecting quality of life in West Africa in the long run.

1.3 Research Questions

1. What is the linkage between economic growth and quality of life in West Africa?
2. What role does income inequality play in the linkage between economic growth and quality of life in West Africa?
3. What other macroeconomic variables have significant impact on quality of life in West Africa?

1.4 Justification of the Study

The findings of this study could have a number of important repercussions for researchers, policymakers, and other stakeholders. This study could provide insight into the elements that contribute to the well-being of individuals and communities in West Africa by analyzing the relationship between quality of life and human development indicators in that region. This information could be used to guide policies (World Bank) and initiatives in Africa (Africa Peer Review Mechanism) with the goal of improving the overall quality of life of the people. This study may also contribute to the larger body of knowledge and research on quality of life and macroeconomic variables, so informing the

course of research that will be conducted in the future on these subjects (Bruckner *et al*., 2015).

1.5 The Scope of the Study

The study is first delimited to determinants of quality of life among West African states. It focuses on the how macroeconomic variables such as gross domestic product, inflation, interest rate, exchange rate, unemployment and foreign direct investment affect quality of life in West Africa. The study sheds further light on how these variables affect quality of life and the role inequality plays using the Human Development Index (HDI) as a proxy for quality of life. The study uses the impact of these variables on the quality of life in the long run. Data from all the fifteen West African countries covering the period of 21 years from the year 2000 to 2020 is used.

1.6 Organization of the Study

This thesis is divided into five chapters. The first chapter introduces the topic by stating the background, problem statement, study objectives, and significance of the study, among other things. The second chapter presents a review of the literature, which provides theoretical, empirical and conceptual information about the study. The methodology and procedures that is used in this study is described in the third chapter. It includes sections on research design, population, sample and sampling procedure, instruments, data collection procedure, and data analysis procedure. This is followed by Chapter four, which presents the findings and discusses them. Chapter five provides a comprehensive summary of the study's results and conclusions, in addition to offering a few recommendations.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter examines theoretical and empirical literature that pertains to the quality of life and macroeconomic variables. It is organized into four main sections; theoretical review, empirical conceptual reviews and framework.

2.2 Theoretical Review

2.2.1 Human Development Theory

Human Development Theory is a framework that aims at explaining the development of individuals, communities, and societies over time. It was developed by economist Amartya Sen and other scholars in the 1980s and 1990s, and has since been widely applied in various fields, including economics, political science, sociology, and international development. At its core, Human Development Theory posits that development should be measured in terms of the capabilities and opportunities that individuals and communities have to lead fulfilling lives. This goes beyond traditional measures of economic growth, such as GDP, to encompass a broader range of factors that contribute to well-being, such as health, education, social inclusion, and political participation. The Human Development approach insists that the primary objective of development policy should be to expand people's opportunities to live meaningful lives. Economic expansion is a means to this aim, not the end itself (UNDP, 1990).

The Capability Approach is a central component of Sen (2000)'s Human Development Theory. According to Sen (2000), development should be seen as a process

of expanding people's capabilities - that is, their ability to achieve their goals and lead lives they value. Sen (2000), argues that people's capabilities are not only important in themselves, but also as means to other ends, such as improving health, increasing political participation, and enhancing social inclusion. Sen (2000), key works on the Capability Approach include "Development as Freedom in 1999 and "Equality of What" in 1980.

Sabina Alkire (2010), an economist and development scholar, has developed the Multidimensional Poverty Index (MPI), which is based on the principles of Human Development Theory. The MPI measures poverty across multiple dimensions, such as health, education, and living standards, and has been widely used as a tool for policy analysis and monitoring. Alkire's key work on the MPI is Multidimensional Poverty Measurement and Analysis in 2015.

Overall, these researchers and their work demonstrate the continued relevance and application of Human Development Theory in diverse fields of development research and practice. In accordance with these viewpoints, we pursue this issue further by taking into account macroeconomic variables and their impact on individual well-being, i.e. quality of life by looking at the linkage between quality of life proxied by HDI and economic growth proxied by GDP in the study objective one.

2.2.2 Poverty Trap Theory

The poverty trap theory is an economic theory positing that individuals or households can become caught in a cycle of poverty from which they find it difficult to escape. According to this theory, a number of interrelated factors contribute to the generational persistence of poverty.

Typically, the poverty trap theory emphasizes the interaction between poor income and various constraints that prevent individuals from bettering their economic circumstances. Lack of access to education, healthcare, credit, and other essential resources and opportunities can be among these obstacles. The theory contends that when people are mired in poverty, they frequently lack the resources to invest in their own growth or take advantage of opportunities to generate income. Consequently, they continue to live in abject destitution.

The "vicious circle" model, devised by economist Gunnar Myrdal in the 1950s, is a key component of poverty trap theory. Myrdal contended that low levels of education, restricted credit availability, and inadequate infrastructure might all contribute to a lack of economic progress, causing poverty and underdevelopment to become entrenched in society.

The economist Jeffrey Sachs, who has written extensively on the problems affecting the world's poorest nations, is a significant contributor to the poverty trap idea. According to Sachs (2004), poverty traps can be particularly challenging to escape in low-income nations, where conditions like sickness, armed conflict, and environmental degradation can make matters worse.

Sir W. Arthur Lewis is a well-known economist who investigated the poverty trap theory. Lewis (1955), explored the dualistic structure of growing economies in his landmark book "The Theory of Economic Growth," released in 1955, in which a traditional low-productivity sector coexists with a modern high-productivity sector. Individuals in the low-productivity sector, he claimed, are trapped in poverty because a lack of opportunity and resources prevents them from shifting into the high-productivity sector.

An investigation of the effects of poverty on education was carried out in Kenya by Banerjee *at al.* (2011). They discovered that poverty produces a poverty trap in which families are unable to pay for expenses like uniforms and textbooks that go along with sending their kids to school. Children are unable to acquire a proper education as a result, which limits their chances for the future.

Deaton (2008), investigated the poverty trap theory in terms of health outcomes. His studies revealed that poverty and poor health are mutually reinforcing, resulting in a vicious cycle of deprivation. Poverty-related illnesses, such as hunger and insufficient healthcare, result in poorer productivity and income, perpetuating poverty.

Collier *et al.,* (2004), an economist, examined the poverty trap theory in the context of conflict-affected nations. Poverty, limited economic development, and social and political factors, he argued, can create the conditions for conflict. In turn, the presence of conflict worsens poverty by disrupting economic activities, destroying infrastructure, and uprooting communities.

Jeffrey Sachs (2005), studied the causes and effects of poverty in Sub-Saharan Africa. His studies emphasized how geographic factors, such as being landlocked and the prevalence of sickness, contribute to poverty. He claimed that these elements, along with deficient infrastructure and restricted access to markets, are responsible for the region's ongoing poverty.

Beegle *et al.* (2019) investigated the dynamics of poverty in Africa and discovered evidence of poverty traps. It emphasized the significance of addressing multiple facets of poverty, such as education, health, and infrastructure, in order to break the cycle of poverty.

The above theory have established that poverty hinders economic growth and lack of economic growth also result in the cycle of poverty. The theory does help us to investigate the issue further by looking at the linkage between quality of life and economic growth and the moderating role of income inequality in West Africa in objective two of the study.

2.2.3 Endogenous Growth Theory

Endogenous growth theory is an economic theory that asserts economic growth is generated from within a system as a direct outcome of internal processes. Specifically, the theory states that the improvement of a nation's human capital will result in economic growth through the creation of new forms of technology and efficient and effective production methods. Unlike neoclassical growth theory, which emphasizes the role of exogenous factors such as capital accumulation and labor productivity, endogenous growth theory argues that growth is driven by endogenous factors such as research and development, human capital accumulation and knowledge spillovers.

Paul Romer developed endogenous growth theory, emphasizing that technological change is the result of efforts by researchers and entrepreneurs who respond to economic incentives. His 1990 paper "Endogenous Technological Change" he described endogenous growth theory as a type of growth model in which technological advancement is achieved by the deliberate actions of economic agents (Romer, 1990).

Philippe Aghion and Peter Howitt also prominent contributors to endogenous growth theory, and their 1992 book "A Model of Growth through Creative Destruction" is a classic in the field. In this book, they described endogenous growth theory as the investigation of how fresh ideas lead to economic growth (Aghion *et al.* 1992). They also

examines how innovation affects top income inequality in the long run. (Aghion *et al.* 2019).

Robert Barro is a well-known economist who has made significant contributions to both neoclassical and endogenous growth theory. In his 1997 paper "Determinants of Economic Growth: A Cross-Country Empirical Study," he described endogenous growth theory as a group of models that emphasize the importance of human capital, knowledge, and experiential learning in fostering economic growth (Barro, 1997).

Human capital is heavily emphasized in endogenous growth theories (e.g., Mankiw, Romer, and Weil 1992, and Lucas 1988). These models generally advocate that an economy invest in its educational system, combat poverty, offer greater chances for labor market participation and economic growth, and support socioeconomic development. The theory is that if a country spends more money on education, it will see long-term economic growth. Thus, investing in education would benefit both individual human capital and the overall economy by combating poverty, reducing the number of children who go to school hungry, addressing government-sponsored job fears, training, and open networking sections, creating more interdisciplinary opportunities in the economy, and promoting socioeconomic growth.

Human capital determines an economy's capacity to manage its other production factors and is essential for innovation. Adoption of existing technologies, technological progress, and catch-up processes all contribute to an economy's growth rate. According to (Amaghionyeodiwe, 2009; Chaudry *et al.,* 2009; Khembo *et al.,* 2013; and Akpolate, 2014), the level of physical and human capital influences the growth of any economy.

Consequently, no nation is capable of sustaining economic development without a substantial investment in human capital (Kanayo, 2013).

All the above researches using endogenous growth theory established a connection between investment in human resources and technology and economic growth. In view of their findings we peruse the issue further to by investigating the effect of macroeconomic variables on the quality of life in West Africa which is the objective three of the study.

2.3 Empirical Review

For instance, Keung *et al.* (2005) studied quality of life in Hong Kong with a view to assess and monitor quality of life as a composite index making use of both objective and subjective measures. Empirical evidences showed that there is improvement in quality of life of Hong Kong because scores of composite indices and the three (3) sub-indices on sectorial performance - socio-cultural, economic, and environmental - are higher than those of the previous years. Six (6) out of twenty-one (21) quality of life indicators demonstrated that Hong Kong improved like many economically advanced societies in the world.

In Indian study, Subramanian (2013) investigated the influence of economic growth on physical quality of life over the period of 1990 – 2004. Physical quality of life is proxied by HDI. The study revealed that growth of HDI is at faster rate than economic growth, owing to improvement in adult literacy rate, gross enrolment ratio, and infant mortality and maternal mortality rate and health. Similarly, Khodabakhshi (2011) investigated the relationship between GDP and human development indices in India adopting the Indices of UNDP, using GDP as the dependent variable and other indicators as independent variables including long life, health and education over the period 2005 - 2010. The findings disclosed that education index had greatest impact on Human Development Index

following by GDP per capita while life expectancy had lower impact on human development index.

Using panel dataset of eighty-one (81) indicators covering up to four (4) time period viz. 1960, 1970, 1980 and 1990 through seemingly unrelated regression (SUR) estimation in levels and fixed effect estimator Esterly (1999) examined the impact of economic growth on quality of life. The variables of choice are education, health, access to safe water etc. The empirical evidences from Seemingly Unrelated Regression (SUR) estimator revealed that GDP per capita has significant positive impact on quality of life for thirty-two (32) out of eighty-one (81) quality of life indicators; while fixed effect estimator discovers that growth has significant positive impact on the quality of life for six (6) out of sixty-nine (69) quality of life indicators. In similar study, Mohamad *et al.* (2015) investigated the relationship between Growth Domestic Products (GDP), Human Development Index (HDI) and poverty rate in Malaysia using Johansen Cointegration model and VECM over the period 1990 - 2012. The variables of choice were GDP and human development index. The results disclosed that, in the long-run, HDI and GDP had a significant negative relationship. While in the short-run, it indicated that HDI and GDP had no significant relationship.

In another study, Deb (2015) examined the gap between Gross Domestic Product and human development index in 140 countries during four periods of time, namely, 1990, 2000, 2010 and 2013 in order to observe whether the rich countries experience different from the poor using scatter plots, Spearman's rank correlation and logit and probit regression. The results revealed there was high positive relationship between per capita GDP and human development at the aggregate level of all countries during the four periods.

However, Morote (2010) studied the causality between human development, GDP and employment in Mexico and Peru. The study employed Walt test for Granger causality. The finds pointed out that causality runs from the higher education enrollments and employment to economic growth implying that it was the rapid higher education enrollments and employment that pave the way for changes in economic growth. In similar studies, Zahran, *et al.* (2005) assessed health and quality of life of U.S. residents in order to promote and monitor the progress in achieving two overall healthy people 2010 goals, viz. first to increase the quality and years of healthy life and second to eliminate health disparities. The empirical results revealed that the mean number of physically unhealthy days, mentally unhealthy days, overall unhealthy days and activity limitation days are higher after 1997 than before.

Using descriptive and inferential statistics, Fajamilehin *et al.* (2011) examined quality of life against the background of the health behavior and traditional life style practices of elderly persons in Osun State, Nigeria. The empirical evidences revealed that financial resources at the disposal of elderly have significant influence on health status, marital cohesion and ability to get social support and their behavior patterns. The effect of marital status on health is statistically significant. In another study, Bello and Bello (2013) assessed quality of life of one hundred and sixty (160) HIV/AIDS patients out of six hundred and sixteen (616) same patients in Sobi specialist hospital Ilorin The empirical results of descriptive statistics revealed that the mean age of HIV/AIDS patients was 38 year of which seventy per cent were females, fifty five per cent were literates, less than one-quarter were not married, and one-third were businessman/women. Better quality of life is found to be with those Patients who had longer duration of antiretroviral therapy,

marital status, and fewer pills. Also, Samson-Akpan*et al.* (2013) investigated the quality of life of 123 people living with HIV/AIDS participating in five support groups in Southern Cross River The study found that physical health championed the highest score which is an indication of ease of access of antiretroviral therapy; while the environmental indicator got the lowest scores which is also an indication of poverty. Additional evidences suggested that women have higher quality of life than men in all respects.

Using panel data, Ditta *et al*. (2017) examine how macroeconomic instability affects income inequality in emerging countries. They show a positive and statistically significant relationship between the macroeconomic instability index and income disparity in these regions. The association between the macroeconomic instability index and social progress in underdeveloped countries is found to be 615 by Ditta *at al*. (2018). The study substitutes the macroeconomic instability index with the public deficit to GNP ratio, the foreign debt to GNP ratio, the inflation rate, and the real exchange rate; the human development index, life expectancy, and income inequality were employed as proxies for social development. In the case of emerging countries, the relationship between the macroeconomic instability index and the human development index is statistically significant and favorable

Zahari *et al*. (2017) investigated how government spending on health and education affected the human development index in Jambi Province. Changes in the human development index and changes in government spending both have a significant impact because as government spending increases, so does the potential for human development. The study examined government spending data from 2001 to 2015 in the province of Jambi in the areas of public welfare, health, and education, as determined by the HDI. Then, they

used a conventional assumption analysis tool to see the relationship between independent factors and the dependent variable, as well as how the two variables affect one another, using a model of multiple regression equation. The results of the simultaneous statistical test (F) show that the independent variables (government spending on education and health care) have a significant positive influence on the dependent variable. (Human Development Index) in Jambi Province

According to Prasetyoningrum *et al.* (2018) HDI has a direct and adverse impact on the poverty rate. The level of poverty was not greatly decreased by economic expansion at the same time. The amount of poverty also seems to be positively impacted by unemployment. The study also showed that HDI and poverty could interact through unemployment. Moreover, unemployment might act as a buffer between poverty and economic growth.

Nabila (2021), investigating the effect of macroeconomic variables on the poverty rate in Indonesia, examines the relationship between economic growth, human quality, poverty, and global trade on the quality of the environment in Indonesia. His findings show that human development has an impact on environmental quality degradation. On the other hand, the level of GRDP and poverty have no significant impact on the quality of the environment in Indonesia.

Fitriady *et al.* (2022) investigate the Impact of Macroeconomic Factors on Indonesia's Real Economic Growth. Using panel data regression and data from 32 provinces in Indonesia, the results indicate that poverty has a negative but not significant effect on economic growth, while FDI and HDI have positive and substantial effects. Domestic investment, on the other hand, has a favorable but insignificant effect on GRDP.

Wang *et al.* (2018) used a simultaneous equation model to investigate renewable energy consumption, economic growth, and the human development index in Pakistan. They discovered, first, that economic growth has a significant negative impact on the human development index. In Pakistan, economic growth slows the process of human development. Second, CO2 emissions aid in the improvement of the human development index. Furthermore, increased renewable energy has no impact on Pakistan's human development process. More intriguingly, trade impedes the process of human development in Pakistan, and there is bidirectional causality between CO2 emissions and the human development index.

Between 2003 and 2017, Omodero (2019), examined the impact of general government spending on human development in Nigeria. The goal was to examine how government spending on recurring and capital projects affected the human development index. In order to accomplish this, the research variables were linked using a multiple linear regression model, and the performance of the model was evaluated using the ordinary least squares method. While government recurrent spending has a considerable and positive effect on HDI, government capital investment and inflation have a minor but relatively negative effect on HDI. Nigeria's human capital development necessitates a reduction in recurrent expenditures and an increase in funding for capital projects.

Ogege (2019), using least square method and data from 1981 to 2017 in Nigeria, examined the impact of inflation, interest rate and exchange rate on some macroeconomic indicators including Human Development Index (HDI) and found that inflation has negative but statistically insignificant effect on human development (HDI) in Nigeria.

Interest rate has positive but statistically insignificant effects on HDI. Exchange rate however has a positive and statistically significant impact on HDI

Sinaga (2020), investigates the impact of per capita GRDP (Gross Regional Domestic Product), income inequality, unemployment, and HDI on poverty. He concludes that per capita GDP, income distribution inequality, and HDI all have a negative but insignificant impact on poverty. Meanwhile, unemployment has a significant negative impact on poverty. Poverty is also influenced simultaneously by per capita GRDP, income inequality, unemployment, and HDI. (Prasetyoningrum *et al.*, 2018)

Soleman *et al*. (2022) investigated The Effect of HDI and Macroeconomic Variables on Economic Growth in Indonesia from 2015 to 2020 and discovered that the Human Development Index (HDI), inflation (CPI), and investment (INV) variables all have a significant positive effect on economic growth, while labor has no significant impact on economic growth.

The study How Macroeconomic Variables Affect Human Development Index by Palangda *et al.* (2022) concluded that government spending in both the education and health sectors has a positive effect on the HDI. He also discovered that economic growth has a significant and positive effect on the HDI. Meanwhile, poverty has a negative impact on the HDI in Indonesia, particularly in the province of South Sulawesi

Kadir *et al*. (2020) concluded that the variables of economic growth and poverty have no significant effect on Human Development, as represented by the Human Development Index, in their examination of macroeconomic indicators and Human Development Index in Ten Lowest Medium in Indonesia from an Islamic Perspective. Their results contradict those of Palangda *et al. (*2022). They also claimed that variable

GRDP per capita has a negative and significant effect on the Human Development Index (HDI), whereas variable minimum wage has a positive and significant effect on the HDI. According to their findings, economic growth and GRDP per capita are not always positively related to human development.

A study on the impact of macroeconomic factors, the processing sector, and educational services on economic growth in Indonesia was done by Prawoto *et al*. (2020). They discovered that HDI had a negative impact on 77economic expansion. Because education and healthcare are so expensive, the rising HDI actually slows down economic growth. Their results disagreed with those of (Fitriady *et al.,* 2022).

A study on the role of macroeconomic instability on Human Development in Selected Developing Countries was conducted by Ditta *et al.* (2021). The study's findings indicate that foreign direct investment, personal remittances, and exports of goods and services are more effective tools for improving the human development index in developing countries, whereas macroeconomic instability has a significant and negative impact on the index.

The lacuna identified in the literature, to the best of our knowledge, is that, there is no research specifically conducted in West Africa to determine how macroeconomic variables affect in quality of life West Africa except on what determine quality of life of people living with HIV\AIDS as well as elderly persons using cross sectional data as carried out by Samson-Akpan *et al.,* (2013); Bello and Bello (2013) and Fajamilehin *et al*. (2011). Similarly, numerous studies conducted on specific determinant of quality of life were centered on developed countries, emerging countries or on both developing and developed countries, instead of developing countries alone. Notable among these were

Mohamad *et al.,* (2015); Deb (2015); Khodabakhshi (2011); and Morote (2010); except Bahadur (2014). Unlike these studies, this study aimed to empirically investigate the impact of macroeconomic variables on quality of life in West Africa by applying Panel Autoregressive Distributed Lagged Model (ARDL) for a period of 21 years from year 2000 to 2020.

2.4 Conceptual Review

In this study, four broad concepts are crucial. The first is the concept of quality of life (QOL), the second concept human development index (HDI), which serves as the proxy for the first concept (QOL) study's criterion or dependent variable. The third concept is income inequality which serves as the moderating variable. The forth concept is gross domestic product (GDP) which serves as the independent variable or explanatory variable in this study. The other concept are unemployment, foreign direct investment, inflation, exchange rate, interest rate which also serves as independent variables.

2.4.1 The Concept of Quality of life

Academic interest in quality-of-life increased following World War II, when there was a greater awareness and recognition of social inequalities. This provided the impetus for research on social indicators and, later, research on subjective well-being and quality of life. Although the patient's impression of their own health had long been a factor in medical consultation, researchers did not start systematically gathering and publishing this data until the 1960s (Britannica 2022).

To measure quality of life in terms of level of satisfaction with life, Ferrans Carol and Powers introduced the idea of quality of life (QOL) in 1984. The study determined that an individual's state of happiness or dissatisfaction in relation to numerous areas of day-to-

day life is how their quality of life is portrayed. Therefore, the fundamental goal of human development and quality of life is to connect all those external factors that have an impact on how an individual perceives their level of happiness. In order to get their conclusions about the concept of human well-being, many studies had used various methods. The World Health Organization (WHO) defines quality of life as "an individual's perception of their position in life in the context of the culture and value systems in which they live, and in relation to their goals, expectations, standards, and concerns" (WHO, 2021).

The European Foundation for the Improvement of Living and Working Conditions (Eurofound) defines quality of life as "the degree to which people are able to satisfy their needs, to develop and maintain their abilities, and to have opportunities for social interaction with others" (Eurofound, 2021). Amartya Sen, an Indian economist and philosopher, defines quality of life as "the capability to lead a life that one has reason to value" (Sen, 1999).

The Organization for Economic Co-operation and Development (OECD) defines quality of life as "the general well-being of individuals and societies, encompassing both material wealth and social and environmental factors" (OECD, 2021). The United Nations Development Program (UNDP) defines quality of life as "the extent to which individuals are able to enjoy a fulfilling life, including access to essential services, opportunities for education and employment, and social and political freedoms" (UNDP, 2021).

Quality of life is multidimensional and dynamic because it involves both objective and subjective factors. Quality of life is the extent to which objective human needs are fulfilled in relation to personal or group perceptions of subjective well-being (Costanza *et al* 2008.) According to Rochovska (2007), quality of life is the result of the mutual

interaction of social, health, economic, and environmental conditions that are linked to human and social development. Quality of life is a broad concept that includes the concepts of a good life, a valued life, a satisfying life, and a happy life (McCrea, 2006). It is also referred to as the extent to which nations provide conditions deemed good for people, such as economic prosperity and political stability (Veenhoven, 2003).

Emerson (1985) defined quality of life as the fulfillment of a person's ideals, aspirations, and desires expressed through their actualization based on abilities or lifestyle. This definition is in line with the idea that happiness and wellbeing result from how well a person perceives their objective situation in relation to their wants or ambitions, as seen by (Felce *et al.,* 1995). Quality of life has many objective and subjective, global and micro, societal and individual factors that interact. The diversity of perceptions makes it difficult to simplify.

2.4.2 Measures of Quality of life (QOL)

A person's quality of life could be measured by the amount to which his or her life is satisfying, meaningful, and worthwhile. Although there is no common standard for measuring quality of life, five well-known composites of the determining factors for quality of life assessments are evaluated. These include the Economist Intelligence Unit (EIU) quality of life indicator, the Satisfaction with Life Index (SWL), the World Happiness Index (WHI), the Human Development Index (HDI), and the Inequality-Adjusted Human Development Index (IHDI)

2.4.2.1 ***Economist Intelligence Unit (EIU) Quality of Life Index:***

The Economist Intelligence Unit (EIU) Quality of Life Index is a global index that evaluates and compares the overall quality of life in various countries. The EIU is a well-

known research and analytical business that publishes a variety of studies and indices on economics, politics, and quality of life.

This index was created in 2005 using a methodology that connects the results of subjective life satisfaction surveys to the objective determinants of quality of life (healthiness, family life, community life, material well-being, political stability and security, climate and geography, job security, political freedom, and gender equality) across countries. To provide a thorough assessment of these issues, the EIU collects data from a variety of sources, including official government statistics, international organizations, and its own research. Each country receives a score in each category, which is then averaged to get an overall Quality of Life Index ranking. For 2005, the index was calculated for 111 countries, with Ghana and Nigeria ranking 95th and 108th with a score of 5.174 and 4.5 respectively in West Africa (EIU, 2005).

2.4.2.2 Satisfaction with Life Scale (SWL)

The Satisfaction with Life Scale (SWL) is a popular psychological evaluation tool used to assess a person's subjective well-being or life satisfaction. Ed Diener and colleagues created it in 1985, and it has since become one of the most widely used instruments for assessing overall life satisfaction.

The SWL consists of five assertions with which people score their agreement or disagreement. These statements are intended to capture different facets of a person's cognitive judgment of their own life and overall pleasure. The statements are mostly positive, and respondents rate how much each one applies to them on a scale of 1 (strongly disagree) to 7 (strongly agree).

In his 2007 meta-study on subjective well-being, analytic social psychologist Adrian G. White asserts that "something is excellent for a person if and only if that person enjoys that thing." According to his analysis, the relationships between subjective well-being and money, health, and access to a basic education are the strongest. Nigeria was rated 120th out of 178 nations in the SWL 2006 global ranking with a SWL point of 183.33. (SWL, 2006),

2.4.2.3 World Happiness Index (WHR)

The Sustainable Development Solutions Network (SDSN), a global project founded by the United Nations in 2012, produces the annual World Happiness Report (WHR). The World Happiness indicator, a composite indicator that measures happiness and well-being globally, is used to rank the nations in the study. The WHR seeks to advance policies that can raise general happiness and life satisfaction by offering insights into the elements that affect people's well-being.

The national happiness rankings are determined via a Cantril ladder survey. Respondents from nationally representative samples are asked to visualize a ladder, with the best conceivable life being a 10 (ten) and the worst possible life a 0. (zero). They are then asked to score their own life on a scale from 0 to 10. The variables are employed to indicate significant correlations as opposed to causal estimates. The data used to rank countries in each report comes from the Gallup World Poll. The core questions of the Gallup World Poll questionnaire measure 14 areas: Business & Economic, Citizen Engagement, Communications & Technology, Diversity (social issues), Education & Families, Emotions (well-being), Environment & Energy, Food & Shelter, Government and Politics, Law & Order (safety), Health, Religion & Ethics, Transportation, and Work.

Data for the 2020 report is collected from individuals in over 150 countries. The report also corresponds with other aspects of quality of life. Currently, these variables include real per capita GDP, social support, and healthy life expectancy, freedom to make life decisions, generosity, and views of corruption. Cote D'Ivoire, was ranked first in West Africa (85th in the world) with a score of 5.233, followed by Benin ranked 86th in the World but second in West Africa with a score of 5.216. The least ranked nation in West Africa was Sierra Leon, ranked 139 in the world with a score of 3.926. The report is a product of the Sustainable Development Solutions Network of the United Nations (WHR, 2020).

2.4.2.4 Human Development Index (HDI)

The HDI was created in 1990 by Mahbubul Haq and Amartya Sen, and it was published the same year by the United Nations Development Program (UNDP). Since 1990, the United Nations Development Program (UNDP) has commissioned the Human Development Report with the goal of encouraging governments, international organizations, and policymakers. This index helps to understand the need for human capital and the measures that must be taken to address the various statistical indicators of human development, thereby displaying the nation's relative socioeconomic progress. The dimensions of HDI reports have changed over time, but the three parameters of health, education, and living standard have always been the primary focus (Alkire,2002, 2010)

Human development results in the utilization and expansion of human capabilities in the process of commodity production and distribution. The emphasis is on decisions

about what people should do, have, and be in order to determine their own livelihood. Human development is concerned not only with the fulfillment of basic needs and the satisfaction derived from them, but also with human development as a participatory and dynamic process. There is no distinction between its application to developing and developed countries. This observation is echoed by the Sen-Fittousi commission and the OECD taxonomy on efforts to measure the progress of societies (Alkire,2010)

The Human Development Index (HDI) is a summary measure of average achievement in key dimensions of human development, including living a long and healthy life, being knowledgeable, and having a good standard of living. The HDI is the geometric mean of the normalized indices for each dimension.

The health dimension is measured by life expectancy at birth, while the education dimension is measured by the average number of years of schooling for adults aged 25 and up, as well as the expected number of years of schooling for school-age children. Gross national income per capita is used to calculate the standard of living. The HDI employs the logarithm of income to reflect the decreasing importance of income as GNP rises. The three HDI dimension indices' scores are then aggregated into a composite index using geometric mean

These indices are used to classify countries into four human development levels (i.e., very high, high, medium, and low levels of human development over a specific period). A longer lifespan, a higher level of education, and a higher per capita income GNI (PPP US$) place a country in a higher tier. In West Africa, apart from Cape Verde, Ghana and Cote d'Ivoire with HDI score of 0.662, 0.632 and 0.55 classified as lower-medium, all

the rest of West African countries were classified as low HDI according to Human Development Report 2021.

2.4.2.5 Inequality-adjusted Human Development Index (IHDI)

Mahbubul Haq developed the Inequality-adjusted Human Development Index (IHDI) on his own because "he believed that a simple composite measure of human development was needed to convince the public, academics, and politicians that they can and should evaluate development not only by economic advances but also by improvements in human well-being" (HDR, 2010). The IHDI was introduced in Human Development Report 2010 as a measure of the average level of human development of people in a society once inequality is taken into account. It is the actual human development level that accounts for inequality and relative quality of goods, but it does not account for net wealth per capita. The IHDI accounts for inequality in all three HDI dimensions by 'discounting' each dimension's average value based on its level of inequality. The IHDI is essentially the HDI with inequalities removed. According to the UNDP (2016) Report, the IHDI captures the HDI of the average person in society, which is lower than the aggregate HDI when health, education, and income are distributed unequally. The HDI and IHDI are equal under perfect equality; the greater the difference between the two, the greater the inequality.

2.4.3 Overview of Quality of Life (HDI) in West Africa

West Africa's quality of life varies greatly across the continent and is influenced by factors such as income, access to basic services, and levels of poverty and inequality. Despite the region's rich cultural heritage and natural resources, many people in West Africa face significant barriers to education, healthcare, and other essential services.

Poverty is widespread in many West African countries, according to the United Nations Development Program (UNDP), and is a major barrier to improving the quality of life for many people in the region. This can be compounded by limited access to education, which can limit economic mobility and future earning potential.

Healthcare access is also a major issue in many parts of West Africa, where many people lack access to basic medical services and essential medicines. This has serious implications for public health, especially in the context of ongoing health crises like the COVID-19 pandemic.

Many people in West Africa face infrastructure and housing challenges, including access to clean water and sanitation facilities, as well as reliable energy sources. This has the potential to have a significant impact on both health and well-being, as well as economic productivity. Improving the quality of life in West Africa will necessitate long-term effort and investment in critical areas such as education, healthcare, and infrastructure. Coordination among governments, the private sector, and international organizations will be required to ensure that resources are effectively targeted and leveraged to achieve meaningful and long-term change.

2.4.4 Gross Domestic Product and quality of life

The Organization for Economic Cooperation and Development (OECD) defines GDP as an aggregate measure of production equal to the sum of the gross values added of all resident, institutional units engaged in production (plus any taxes, and minus any subsidies, on products not included in the value of their outputs (OCED, 2008). The world Bank defines GDP as the sum of gross value added by all resident producers in the economy

plus any products taxes minus any subsidies not included in the value of the products" (World Bank, 2020)

The Unite Nations System of Accounts (SNA) defines GDP as "the value of all goods and service produced in a country during a given period of time, typically a year" (United Nations, 2009)

Economic growth on the other hand is defined as "the sustained increase in real GDP over time" (IMF, 2021). The Organization for Economic Co-operation and Development (OECD) defines economic growth as "an increase in the capacity of an economy to produce goods and services, compared from one period of time to another" (OECD, 2016). The World Bank defines economic growth as the increase in the inflation-adjusted market value of the goods and services produced by an economy over time (World Bank, 2020).

Todaro, (2006), defines economic growth as the process by which an economy's production capacity increases over time to produce a higher level of income. Arsyad (2004) defines economic growth as an increase in Gross Domestic Product / Gross National Product regardless of whether the increase is greater or smaller than the rate of population growth or whether changes in economic structure occur or not.

According to Prasetyo (2009), economic growth is one of the most frequently employed macroeconomic indicators, particularly in developing nations. Even though they have not been able to adequately explain, economic growth indicators are deemed suitable for determining a country's economic situation.

Economic growth is commonly defined as the expansion of economic activities that leads to an increase in the quantity and quality of products and services produced in society,

as well as an increase in societal affluence. Sukirno (2015). Economic growth is a long-term process of increasing per capita output.

Economic growth can be measured by an increase in Gross Domestic Product (GDP) or Gross Regional Domestic Product (GRDP), where an increase in GDP or GRDP is considered a measure of economic growth regardless of whether the increase is greater or less than the population growth rate or whether or not changes in the structure of the economy occur (Suriani *et al*., 2019). The GDP used in this study is a measure of economic growth. Gross Domestic Product (GDP) is an important measure of economic activity and reflects the size of a country's economy. In West Africa, the GDP varies significantly from country to country, with some countries having larger and more diversified economies than others.

Nigeria is the largest economy in West Africa, with a GDP of $440.83 billion in 2021, according to the World Bank. Nigeria's economy is largely driven by the oil and gas industry, which accounts for around 90% of the country's export revenue. However, the country is also working to diversify its economy by developing its non-oil sectors, such as agriculture, manufacturing, and services. Despite being the largest in terms of GDP, the HDI (proxy for quality of life) score of Nigeria is 0.535 ranked 5th in West Africa

Ghana is the second-largest economy in West Africa, with a GDP of $77.59 billion in 2021, according to the World Bank. The country's economy is also largely driven by the production of natural resources such as gold, oil, and cocoa. However, the country is also working to diversify its economy by developing its manufacturing and services sectors. The country's HDI score is 0.632 according to HDI report 2021 which is ranked 2nd in West Africa.

Côte d'Ivoire is the third-largest economy in West Africa, with a GDP of $70.4 billion in 2021, followed by Senegal, $27.63; Mali, $19.41 with Guinea Bissau $1.64 billion being the country with the least GDP in 2021 according to the World Bank. (World Bank 2022)

According to the African Development Bank, economic growth in West Africa averaged 3.3% in 2019 and was projected to reach 3.8% in 2020, before the COVID-19 pandemic had an impact. However, it's important to note that the region has faced challenges such as low productivity, vulnerability to fluctuations in commodity prices, and limited diversification.

Some countries in West Africa have experienced robust economic growth. Côte d'Ivoire, for instance, has one of the fastest-growing economies in the region, as a result of investments in infrastructure, agriculture, and services. Oil production, mining, and the services sector have all contributed to Ghana's relatively robust economic growth. However, other nations have experienced economic difficulties, such as Nigeria, which has struggled with fluctuating crude prices and security issues that have hindered its growth.

West African economic growth is propelled by a variety of sectors. Agriculture plays a crucial role in a number of nations, employing a large proportion of the population and contributing to both domestic consumption and exports. The industrial sector, which includes manufacturing, mining, and construction, has also contributed to economic expansion, especially in countries with abundant natural resources. Additionally, the significance of the services sector, which includes commerce, finance, and tourism, has grown.

The goal of regional integration in West Africa has been to foster greater economic development and regional cooperation. Regional cooperation, increased commerce, and more opportunities for cross-border investment have all benefited from the efforts of ECOWAS, the Economic Community of West African States. It is anticipated that initiatives like the creation of a single currency (ECO) and the free movement of products and persons throughout the region will contribute to economic prosperity.

2.4.5 Unemployment and quality of life

In general, unemployment is described as a condition in which a person is ready and able to work at a specified wage rate during a given period, but was unable to find job. It is the involuntary inactivity of those who are able and willing to work at the prevailing wage rate but did not find paid employment. According to the globally accepted definition of unemployment, a person is unemployed if he or she is available for work, eager to work, and has sought employment within the past four weeks (Parkin *et al.*, 2012). Blanchard *et al.* (2013) define unemployment as the number of unemployed individuals who are actively seeking employment. McConnell *et al.* (2009) describe unemployment as the position a person is in if he or she is willing to work and actively seeking employment but cannot find a job.

Simply speaking, unemployment is a condition in which the community underutilizes its labor force. It is a detrimental occurrence in all human societies since it has a negative impact on multiple dimensions and orientations. In addition, it refers to an economic flaw influencing the structure of the community (Mahmoud *et al.*, 2012). Unemployment diminishes human dignity, exacerbates poverty, inequality, and life-cycle disadvantages, and reduces national production.

Underemployment occurs when there is a mismatch between the skill acquired by the laborer and the task for which he is hired. Underemployment occurs when labor is paid less than the average wage. Being able to secure a part-time or low-paying job can allow an individual to eat, but not enough to provide better health or shelter, both of which are essential for a good quality of life.

The unemployment rate is defined as the percentage of the labor force that is unemployed (Baumol *et al.*, 2011). It is also the percentage of the workforce that is unemployed at any given time. As a result, the unemployment rate is defined as the percentage of unemployed people (numerator) to the economically active population or labor force (denominator).

West African nations have a wide range of unemployment rates, with some experiencing higher rates of unemployment than others. The average unemployment rate in West Africa was estimated by the World Bank to be around 7% in 2019, albeit this number can vary significantly based on the particular country and the data that are available

The informal sector is a significant source of employment in some countries, providing opportunities for self-employment and micro-enterprise development. This sector, however, is frequently characterized by low wages and limited social protections, making it a less secure type of employment.

Addressing unemployment in West Africa is a complex challenge that necessitates a multifaceted approach. This may include encouraging economic growth and job creation, improving access to education and skill training, and encouraging self-employment and entrepreneurship.

In general, high levels of unemployment in West Africa can have serious social and economic consequences, such as poverty, inequality, and limited opportunities for economic mobility. Efforts to reduce regional unemployment are critical for promoting inclusive economic growth and raising the region's standard of living.

Runtunuwu (2020) found that unemployment significantly and negatively affects the Human Development Index in his study, of macroeconomic indicators and their effects on the Human Development Index (HDI). He came to the conclusion that Ternate City's Human Development Index (HDI) is significantly impacted by unemployment, per capita income, and inflation.

2.4.6 Inflation and quality of life

Inflation in general can be defined as "a rise in prices, which can be translated as the decline of purchasing power over time" (Investopedia 2022). It also the "collective increases in the supply of money, in money incomes, or in prices" (Britannica 2022). The above definitions are summed up as follows:

i. **Rise in the general price level**: Inflation is often defined as a sustained increase in the general price level of goods and services in an economy over a period of time. This definition is most commonly used in macroeconomic analysis

ii. **Loss of purchasing power**: Inflation can also be defined as a decrease in the purchasing power of money, meaning that as prices rise, each unit of currency buys fewer goods and services

iii. **Expansion of the money supply**: Inflation can also be seen as an increase in the quantity of money in circulation, leading to an increase in prices. One

barometer instrument used to assess the state of an economy is inflation. Social wellbeing will decline as a result of excessive inflation. In contrast, too little inflation shows that the economy is not operating at its full potential, which has an effect on sluggish economic growth, stalled job creation, and increased poverty in the society. On the basis of that, inflation is a macroeconomic issue that is crucial, and its fluctuating rate makes it harder for businesses to plan, discourages individuals from saving, and has a number of other detrimental effects on the economy as a whole (Yolanda, 2017).

In recent years, West African countries have experienced varying levels of inflation, with some, such as Nigeria and Ghana, experiencing high rates of inflation and others, such as Senegal and Cape Verde experiencing lower rates. According to the World Bank data, inflation in Ghana and Nigeria in 2021 were 9.97% and 16.95% respectively whiles that of Cape Verde and Cote D'Ivoire were 1.86% and 4.09% respectively.

Ogege (2019), using least square method and data from 1981 to 2017 in Nigeria, examined the impact of inflation, interest rate and exchange rate on some macroeconomic indicators including Human Development Index (HDI) and found that inflation has negative but statistically insignificant effect on human development (HDI), a proxy for QOL in Nigeria.

2.4.7 Interest Rate and quality of life

Interest is the cost of borrowing money for a specific period, typically expressed as a percentage of the principal loan per year, or the amount of money paid in exchange for the use of the borrowed money (Samuelson *et al.*, 1993; Fabozzi, 1999). Devereux et al,

(2002), also defined interest as the cost a borrower incurs for the use of money that he does not own and must repay to the lender, who obtains it in exchange for deferring his own consumption in order to lend to the borrower.

These definitions from researchers all emphasize the idea that an interest rate is a price for borrowing money, reflecting the time preference of individuals, the level of investment risk, and the supply and demand for funds.

Interest rates in West Africa differ by country and are influenced by a variety of factors including inflation, economic growth, and monetary policy. In general, West African countries have higher interest rates than developed countries. The Central Bank of West African States (BCEAO) sets interest rates for the eight West African Economic and Monetary Union (WAEMU) countries, and other countries in the region have their own central banks that make interest rate decisions. Because of higher levels of inflation and lower levels of economic development, interest rates in West Africa are generally higher than those in developed countries.

Ogege (2019), using least square method and data from 1981 to 2017 in Nigeria, examined the impact of inflation, interest rate and exchange rate on some macroeconomic indicators including Human Development Index (HDI) and found that interest rate has positive but statistically insignificant effect on HDI in Nigeria.

2.4.8 Exchange Rate and quality of life

The amount of one currency that can be exchanged for one unit of another currency, also known as the price of one currency in relation to another currency, is referred to as the exchange rate, according to (Fabozzi *et al.*, 2001; Krugman *et al.*, 1996). According to

Dominick (1995), the foreign exchange rate is the cost of a home currency relative to a foreign currency.

The value of one country's currency in relation to another country's currency is referred to as the exchange rate. In West Africa, interest rates, inflation, political stability, and economic growth can all have an impact on the exchange rate. The exchange rate between countries in West Africa varies and is generally determined by market forces such as supply and demand for each currency. Some countries in the region, such as Nigeria and Ghana, have floating exchange rate systems, which means that market forces determine the value of their currency. Other countries, such as those in the West African Economic and Monetary Union (WAEMU), use a fixed exchange rate system in which the value of their national currency is tied to the value of another, usually a more expensive one like the euro.

It is important to note that exchange rates can fluctuate significantly, depending on changes in the economy and global financial markets. This has the potential to have a significant impact on regional trade, investment, and travel.

The impact of exchange rates on exports and human development in developing nations is examined by Nilsson *et al*. (2000). The study's findings show that, in developing nations, exports and human development are negatively and statistically and significantly impacted by exchange rates.

2.4.9 Income Inequality and quality of life

The Organization for Economic Co-operation and Development (OECD) defines income inequality as "the extent to which household income is unevenly distributed among a population" (OECD, 2021) Thomas Piketty, a French economist, defines income inequality as "the unequal distribution of primary income (that is, income from labor and

capital before taxes and transfers) across individuals or households" (Piketty, 2014). Branko Milanovic, a Serbian-American economist, defines income inequality as "the difference in the distribution of income among all individuals in an economy" (Milanovic, 2016). The World Economic Forum (WEF) defines income inequality as "the gap between the incomes of the richest and poorest people in a country" (WEF, 2021). Amartya Sen, an Indian economist and philosopher, defines income inequality as "the uneven distribution of opportunities, freedoms, and rights, which result in differences in income, wealth, and other dimensions of human well-being" (Sen, 1999).

These definitions highlight the different aspects of income inequality, including the distribution of income among individuals or households, the sources of income, and the broader implications for social and economic well-being.

This means that some people or groups have significantly higher incomes than others, creating a gap between the rich and poor. Income inequality is usually measured using the Gini coefficient, a statistical measure that ranges from 0 to 1, where 0 represents perfect equality (i.e., everyone has the same income) and 1 represents perfect inequality (i.e., one person has all the income).

Income inequality is a significant issue in West Africa, where many people face economic and social challenges due to a wide range of factors, including inadequate access to education, healthcare, and economic opportunities. Here is an overview of income inequality in West Africa:

High levels of income inequality: According to the World Bank, West Africa has some of the highest levels of income inequality in the world, with a Gini coefficient of 0.43 in 2018, which is significantly higher than the global average of 0.38 (World Bank, 2021).

Rural-urban divide: Income inequality is higher in rural areas than in urban areas, where access to basic services such as healthcare, education, and water is limited (UNDP, 2020).

Gender disparities: Women and girls are disproportionately affected by income inequality in West Africa, with lower access to education, healthcare, and economic opportunities than men.

Informal economy: The informal economy is a significant source of income for many people in West Africa, particularly in rural areas. However, informal work is often low-paid and lacks social protection, contributing to income inequality.

Natural resource dependence: The dependence on natural resources, such as oil, minerals, and agriculture, can contribute to income inequality in West Africa, as the benefits of resource extraction are often concentrated in the hands of a few.

2.4.10 Foreign Direct Investment (FDI) and quality of life

The World Bank defines foreign direct investment as "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, 2023).

According to the Organization for Economic Cooperation and Development (OECD), FDI is the investment made by a company or individual in a foreign country, typically by establishing business operations, acquiring assets, or participating in joint ventures with local companies.

Foreign direct investment (FDI) according to Rajneesh (2017) is as an investment made by a company or individual from one country into a business located in another

country with the intention of establishing a long-term interest in the management and operations of the foreign business.

These definitions from researchers all convey the idea that foreign direct investment involves a long-term investment in a foreign business with the aim of acquiring a lasting interest in its management and operations

Foreign direct investment (FDI) in West Africa has increased in recent years, but it still lags behind other African regions. According to the United Nations Conference on Trade and Development (UNCTAD), FDI inflows to West Africa reached $11.4 billion in 2020, up 10% from the previous year.

Nigeria is West Africa's largest FDI recipient, accounting for more than half of total FDI inflows in 2020. Ghana, Cote d'Ivoire, Senegal, and Mali are among the other countries in the region that have seen significant FDI inflows.

In West Africa, foreign direct investment is concentrated in a few key sectors, including extractive industries, manufacturing, and services. The oil and gas industry, in particular, has been a major driver of FDI in the region, with Nigeria and Ghana being major producers and exporters of crude oil.

The COVID-19 pandemic, on the other hand, has had a significant impact on FDI inflows to West Africa, with many companies delaying or canceling investment plans due to the pandemic's economic uncertainties. Furthermore, political unrest and security concerns in some countries, such as Burkina Faso and Mali, have discouraged foreign investors.

West African countries have implemented various policies and incentives to attract more FDI, such as tax breaks, streamlined business registration processes, and investment

promotion agencies. The African Continental Free Trade Agreement (AfCFTA), which took effect in 2021, is also expected to increase FDI in the region by creating a larger market and facilitating cross-border trade and investment.

While FDI in West Africa has increased in recent years, there is still room for improvement in terms of creating a more favorable investment climate and diversifying the FDI base beyond extractive industries.

Ditta *et al*. (2021) did a study on the impact of macroeconomic instability on Human Development in selected developing countries. According to the study's findings, foreign direct investment, personal remittances, and exports of goods and services are more effective instruments for enhancing developing nations' human development indexes.

2.5 Conceptual Framework

The conceptual framework depicts how macroeconomic variables affects the Quality of life measured by Human Development Index (HDI). The HDI consist of three component ie Health, Education and Standard of Living. The health component is measured by life expectancy, Education is measured by mean years of Schooling and expected number of years of schooling. Standard of living is measured by Gross National income per capita

The macroeconomic variables of interest which serves as independent variables consist of gross domestic product (GDP), unemployment (UNP), inflation (INF) measured by consumer price index, interest rate (INTR) measured by the central Bank lending rate, exchange rate (EXCR) and foreign direct investment (FDI). These will be moderated by income inequality measured by gini coefficient.

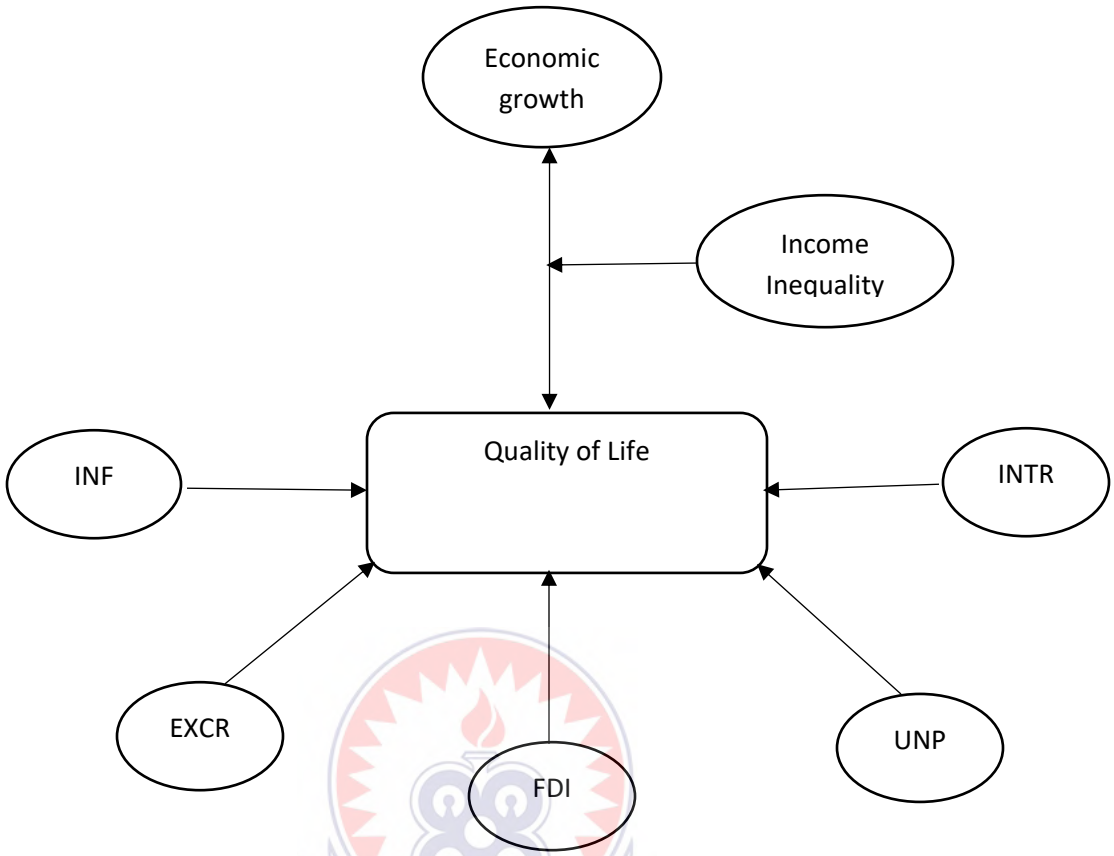


Figure 1: Conceptual Framework

Source: Author's own construction, 2023

From Figure 1, the study argues that there is bidirectional relationship and HDI and GDP which means that both can influence each other. The dependent variable, quality of life which is proxied by HDI, consist of three component; Health, Education and Standard of Living. The health component is measured by life expectancy, Education is measured by mean years of Schooling and expected number of years of schooling. Standard of living is measured by Gross National income per capita

The macroeconomic variables of interest which serves as independent variables consist of gross domestic product (GDP), unemployment (UNP), inflation (INF) measured by consumer price index, interest rate (INTR) measured by the central Bank lending rate,

exchange rate (EXCR) and foreign direct investment (FDI). These will be moderated by income inequality measured by GINI coefficient.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

The chapter describes the methodology and procedures that is used in this study. It contains data and variable description, estimation methods, model specification, and data analysis technique.

3.2 Research Philosophy (Paradigm)

This study analyzes the relationship between quality of life and macroeconomic factors (such as GDP, inflation, interest rate, exchange rate, unemployment, and foreign direct investment) in a more objective and generic manner. The study analyzes statistical correlations among variables using quantitative research methodologies and existing data from the International Financial Statistics (IFS) and World Development Indicators (WDI). The fundamental premise is that the relationship between quality of life and macroeconomic variables is measurable and observable. Thus study uses the positive approach to the research because it allows the test of the hypothesis. By testing hypothesis, we are using scientific approach on positivism- a philosophy, which adheres to the view that only factual knowledge gained through observation, including measurement, is trustworthy.

3.3 Research Design

The selection and explanation of a suitable methodology to investigate a certain problem is widely recognized as a primary concern for researchers in the field of academic inquiry. Specifically, the research design, data collection methods, and analytical tools or

processes to be utilized should be considered (Borg & Gall, 1993). The study design describes the methodology for gathering and analyzing data pertaining to a certain subject. This document outlines the protocols for carrying out an investigation. Gay (1996), asserts that research designs serve to outline the fundamental framework of a study, encompassing the research questions and the variables under investigation.

3.3.1 Correlation Research Design

The objective of this study is to ascertain the presence of a statistical association between two or more variables. Burke and Larry (2008), assert that the correlational study design aims to establish the association between a single quantitative dependent variable and other quantitative independent variables. The chosen design is deemed suitable for this research endeavor as it aims to investigate the potential correlation between quality of life and macroeconomic variables. This study examines the relationship between macroeconomic variables as the independent variable and Human Development Index (proxy for quality of life) as dependent variable. Given the objectives of the study, the researcher has chosen to employ a correlational design as it is seen the most suitable approach for deriving significant results.

3.4 Data and Variable

With a panel data set of 15 ECOWAS countries, this study examines the relationship between quality of life, macroeconomic variables such as gross domestic product (GDP per capita), unemployment, inflation, interest rate, exchange rate, and Foreign Direct Investment and the moderating role of income inequality in West Africa. All West African countries or ECOWAS member states were included in this analysis, and data on the relevant variables were employed based on their availability. They are Benin,

Burkina Faso, Cape Verde, Cote D'Ivoire, Ghana, Gambia, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Nigeria, Sierra Leon, Senegal and Togo. This is purposeful sampling technique and the reason for selecting this ECOWAS states is due their common characteristics in the form of geographical location, colonial history, cultural diversity, economic challenges, regional organization, transactional issues, linguistic similarities, interconnected economies and shared music and cultural expression.

It is essential to recognize that, despite their similarities, West African countries are diverse, with their own distinct characteristics, histories, and challenges. The degree of similarity between various aspects may vary, and individual nations within the region have distinct cultures, languages, and sociopolitical contexts.

The GDP per capita is used to measure economic growth, The Consumer Price Index (CPI) is used to measure inflation, the lending rate is used to measure interest rates, and the exchange rate and FDI are obtained from the International Monetary Fund Financial Statistics (IFS). The International Labor Organization provided the unemployment rate (ILO). The standardized human development index developed by the United Nations Development Program (UNDP, 2021) is used to assess quality of life (HDI). The HDI was chosen for its suitability in measuring quality of life, as it has been used in previous studies to measure human development and wellbeing (Bilbao, 2013; Davis, 2017; Wang *et al.*, 2018; Kadir *et al.,* 2020; Sarpong *et al.*, 2021; Ditta *et al.*, 2021). The index is a very important social indicator that quantitatively provides vital information to stakeholders to guide policy decisions and identifies contributions to total human wellbeing, directing deliberation on the importance of improved living conditions (Lind, 2019).

Table 1 shows the various variables for the study, their definitions, their measurement and sources of which they were obtained.

Table 1: Definition of Variables

Variable	Definition	Proxy	Measurement	Source
HDI	Measure of Human development index including life expectancy at birth, expected years of schooling and average years of schooling and gross national income	Quality of life	Index	UNDP Human development Report
GDP	Measure of economic growth. GDP per capita	Economic growth	GDP per capita(US Dollars)	International Monetary Fund(IFS)
INF	Inflation, Annual percentage change of price of basket of goods and services measured by consumer price index(CPI)	Macroeconomic Variable	Consumer price index (CPI)	International Monetary Fund (IFS)
UNP	Unemployment. Percentage of labor force looking for job bur are unable to find one	Macroeconomic Variable	Percentage	World Bank WDI
FDI	Foreign Direct Investment.	Economic Policy	Percentage of GDP	World Bank WDI

	Investment made by individual or companies in a foreign country			
EXCR	Exchange rate. The amount one of currency that can be exchange for one unit of another currency	Macroeconomic Variable	US Dollar per domestic currency	International Monetary Fund (IFS)
GINI	Gini coefficient. Measures the income inequality	Moderating Variable	index	World Bank WDI
INTR	Interest Rate. Cost of borrowed fund	Monetary Policy	Percentage	International Monetary Fund (IFS)

3.5 Estimation Method

This study uses the PMG/MG-ARDL estimation method. Pesaran *et al*, (1999) proposed the PMG estimator, which combines the aggregating and averaging of coefficients across cross-sectional units. MG, on the other hand, involves estimating each unit separately and aggregating the estimated coefficient across the cross-sectional units. (Pesaran & Shin, 1995).

In light of the structure and scope of this investigation, the Panel ARDL is employed. This is justified by the fact that the methodology provides reliable, non-spurious, and precise estimates when a larger number of observations and small cross-sections are utilized compared to the generalized method of moments (GMM) estimator (Pesaran, Shin, & Smith, 2001; Kutu *et al*, 2016). In addition, the methodology can produce estimates of both short-run and long-run dynamics, and it is compatible with a mixed order of integration, such as I(0), I(1), I(1), and I(0), but not I(2) (Shin, Yu, & Greenwood-Nimmo, 2014) unlike VAR estimates. We estimate two different panel ARDL approaches: Mean Group (MG), Pooled Mean Group (PMG). Appropriate method is then selected using Hausman test.

3.6 Model Specification

The dynamic panel regression model of the dependent variable HDI is given as a function of the independent variable in Equation 1

$HDI_{it} = f(\text{HDI}_{it-1}, \text{GPD}_{it}, \text{GINI}, \text{GDP*GINI}, \text{INF}_{it}, \text{UNP}_{it}, \text{FDI}_{it}, \text{EXCR}_{it}, \text{INTR}_{it})$ **(1)**

Where, HDI is Human development index, GDP is the gross domestic product per capita, GINI is Gini coefficient a proxy for income inequality, INF is the inflation measured by

consumer price index, UNP is the unemployment rate, FDI is the foreign direct investment as a percentage of GDP, EXCR is the exchange rate in US Dollar per domestic currency, INTR is the interest rate measured by lending rate (percentage per annum), GDP*GINI is the interaction between GPD and income inequality, ***i*** is for country and ***t*** is for time period. Linear model has been assumed for the association between dependent as well as independent variables. Linear form of the model is presented as

$$HDI_{it} = \beta_0 + \beta_1 HDI_{it-1} + \beta_2 \text{GDP} + \beta_3 \text{GINI} + \beta_4 (\text{GDP*GINI}) + \beta_5 INF_{it} + \beta_6 UNP_{it} + \beta_7 FDI_{it} + \beta_8 EXCR_{it} + \beta_9 INTR_{it} + \mu_i + \omega_{it} \quad \textbf{(2)}$$

Where

HDI_{it} = Human Development Index (dependent variable measured for country *i* at time *t)*

$\boldsymbol{\beta_0}$ = intercept

β_1= slope coefficient (short run effect) of lagged HDI_{it-1}

$\beta_2, \beta_3, \beta_4, \beta_5 \beta_6 \beta_7 \beta_8$ = the slope coefficients of Gross domestic product, income inequality, interaction between income inequality and gross domestic product, inflation, unemployment rate, FDI, exchange rate and Interest rate respectively to be estimated.

μ_i = country specific effects

ω_{it} = error term for country *i* at time t

The study includes 15 cross-sections and 21-year time series, which are relatively minor for the majority of panel studies but can be accommodated by ARDL models. Finally, it depicts the short- and long-term dynamics of the variable of interest. Consequently, both PMG and MG estimations are conducted in this investigation. Equation (1) can be written in Pesaran and Smith's (1999) panel ARDL form as:

$$HDI_{it} = \sum_{j=1}^{p} \lambda ij HDI_{i,t-1} + \sum_{j=0}^{q} \beta ij X_{i,t-1} + \phi_i + \varepsilon_{it} \quad \textbf{(3)}$$

Where

HDI_{it} is Humana Development Index, the dependent variable, X_{it} is the (k x1) vector of the explanatory variables consisting of gross domestic product per capita (GDP), income inequality (GINI), (INF), Unemployment rate (UNP), exchange rate (EXCR), interest rate (INTR) and foreign direct investment (FDI), that are allowed to be purely I(0) or I(1), $\boldsymbol{\phi_i}$ represents the fixed effects, $\boldsymbol{\lambda_{ij}}$ the coefficient of the lagged dependent variable: $\boldsymbol{\beta_{ij}}$ are kx1 vector coefficient of the independent variables; $\boldsymbol{\varepsilon_{it}}$ are the error terms: i (1,2,….N) is the number of cross section , t (1,2,….T) represent the time; p,q are the optimal lag orders. The re-parameterized ARDL (p,q,q,…q) error correction model is specified as

$$HDI_{it} = \theta[HDI_{it} - \delta X_{it}] + \sum_{j=1}^{p-1} \xi_{it} HDI_{i,t-1} + \sum_{j=0}^{q-1} \beta' \Delta X_{i,t-1} + \phi_i + \varepsilon_{it} \quad \textbf{(4)}$$

Where

$\boldsymbol{\theta_i}$ = -(1- λi) group – specific speed of adjustment (θi < 0)

δi = the coefficient of the vector of long run relationship

ECT = denotes the error correction term

ξ represent the short term coefficient of the lagged dependent variable and β′ the short term coefficient of the lagged independent variables.

3.7 Pre Estimation Techniques

Pre estimation techniques such Unit Root test, Cointegration text, Hausman test are conducted before the actual estimation technique after which post estimation technique such as Granger causality test and goodness of fit is applied.

3.7.1 Unit Root test

The approach used to estimate the slope coefficients for this panel ARDL is mostly determined by the unit root test findings, which determine the stationarity (mean, variance, and covariance) of the variables and help to avoid false results caused by using the incorrect estimator. The unit root test begins by examining the trend (to gain a sense of stationarity) and then statistically confirming it for the ultimate judgment.

A panel stationarity test, also known as a panel unit root test, is a statistical test used to establish the stationarity of a panel dataset. Panel datasets, such as cross-country or panel data from different areas or companies, are made up of observations on several entities or persons throughout time.

Stationarity refers to a time series' statistical features, such as mean and variance, remaining constant over time. Whether the variables in a panel data analysis are stationary or non-stationary, it is critical since it affects the validity of the statistical analysis and the interpretation of the results. Several panel stationarity tests exist, and they are typically extensions of the unit root tests used to evaluate stationarity in individual time series. Some commonly used panel unit root tests include:

- Levin-Lin-Chu (LLC) Test: Based on the augmented Dickey-Fuller (ADF) unit root test, the LLC test allows for cross-sectional dependence among individual units in the panel dataset.

- Im-Pesaran-Shin (IPS) Test: The IPS test is an extension of the ADF test that accounts for common characteristics in the panel to determine the presence of cross-sectional dependence.
- Panel Unit Root Tests of the Fisher Type: These tests, which include the Fisher ADF and Fisher PP tests, combine information from individual unit root tests to offer a panel-level inference on stationarity.
- CADF (Cross-Sectionally Augmented Dickey-Fuller) Test: The CADF test takes cross-sectional dependence into account by incorporating cross-sectional averages of the variables in the panel dataset into the unit root regression.
- Breitung panel unit root test: This test determines whether there is a unit root in the average of individual series across the panel and is based on the augmented Dickey-Fuller (ADF) test.

As previously established, the null hypothesis for the stationary test is the presence of a unit root. If the hypothesis is rejected for all variables (that is, the variables are stationary), Ordinary Least Square (OLS) or Vector Autoregressive (VAR) estimation can be employed to produce an unbiased estimate. It is worth noting that the stationarity is at level, implying that it is integrated at level I(0). Furthermore, if the presence of a unit root is not rejected (i.e., the variables are non-stationary) at the level I(0), the variables should be differenced at 'first difference,' that is, integrated at first order I(1). If the null hypothesis is rejected for all variables by taking the difference and testing stationarity, then the Johansen Test (Cointegration) is the best option to use for variable estimation. The variables of interest, however, can be stationary at the level and non-stationary (yet stationary

when differenced). Bound Co-integration Technique or Autoregressive Distributed Lag (ARDL) technique should be used in this circumstance of mixed order of integration of variables (some are I(0) and some are I(1)).

3.7.2 Cointegration test

In panel ARDL (Autoregressive Distributed Lag) estimation, the cointegration test is used to determine whether a long-term link exists among the variables included in the panel ARDL model. Cointegration implies that the variables have a stable long-run relationship, which means they move together in the long run despite short-term deviations.

The panel ARDL model combines the benefits of both panel and time series data by allowing for heterogeneous individual effects and capturing variable dynamics. It is widely employed when studying panel data, which involves observing many cross-sectional units (such as countries, firms, or individuals) over time. The following steps are typically taken to perform the cointegration test in panel ARDL estimation: First, the panel ARDL is estimated by including the variables of interest's lagged levels and first-differenced variables. The model's specific form is determined by the nature of the variables and the research question. After estimating the panel ARDL model, the bounds test is used to determine the presence or absence of cointegration. The bounds test involves estimating the F-statistic using the critical values from the bounds testing approach developed by Pesaran *et al* (2001). The null hypothesis of no cointegration is weighed against the alternative hypothesis of cointegration in this approach. If the estimated F-statistic exceeds the upper critical value, cointegration is present. If the F-statistic goes below the lower critical value, it indicates that there is no cointegration. The results are inconclusive if the F-statistic falls between the crucial thresholds. If cointegration exists, it

indicates that the variables have a long-term relationship, indicating that they are not coincidental and follow a common trend. If no cointegration is found, it indicates that the variables do not have a stable long-run relationship.

3.7.3 The Hausman test

The Hausman, (1978) test is used in the PMG and MG Panel ARDL models to determine whether the parameter estimates generated from the PMG and MG techniques are consistent and efficient. The test helps determine which approach is more appropriate for analyzing the panel data. It investigates the null hypothesis, which asserts that the MG model is consistent and efficient, as opposed to the alternative hypothesis, which states that the PMG model is consistent and efficient. The PMG model computes the average across entities after estimating the coefficients for each unique entity in the panel. It enables individual-specific effects. The MG model, on the other hand, estimates the coefficients for each unique item in the panel separately. It assumes no individual-specific effects.

The test statistic is based on the difference in estimates from the PMG and MG models, taking into consideration each estimator's efficiency features. The test statistic follows a chi-square distribution with degrees of freedom equal to the difference in the number of estimated parameters between the PMG and MG models under the null hypothesis. The generated test statistic is compared to critical values from the chi-square distribution at a chosen significance level (e.g., 5%). The null hypothesis is rejected if the estimated test statistic exceeds the critical value. This suggests that the MG model is inconsistent and inefficient, and that the PMG model is preferable. If the calculated test statistic is less than the critical value, there is insufficient evidence to reject the null hypothesis, implying that the MG model is consistent and efficient.

3.8 Post Estimation Techniques

3.8.1 Stability Test

Stability tests are performed in regression analysis to determine whether the relationship between the dependent variable and one or more independent variables remains constant over time or across subsets of the data. The objective is to assess the overall performance of the model and the dependability and consistency of the estimated regression coefficients across various subsets, time periods, or other pertinent divisions of the data.

CHAPTER FOUR

FINDINGS AND DISCUSSIONS

4.1 Introduction

This chapter focuses on the presentation, description, analysis, and interpretation of the estimations. It is intended to answer the aforementioned research questions and provide an overview of the study's principal findings. The data presentation, estimation, and analysis is be based on the model given in the preceding chapter.

4.2 Descriptive Statistics and Correlation Analysis

The presentation of descriptive statistics seeks to provide a summary of research data in the form of mean, median, maximum, minimum, and standard deviation, skewness, and Kurtosis. Table 2 shows the results of descriptive analysis for variable data on HDI, GDPPC, INTR, EXR INTR UNP GINI and FDI in 15 West African countries from 2000 to 2020, with a total of 315 observations. The sub-region is further grouped into two i.e The Francophone (French and Portuguese Speaking) Countries and Anglophone (English Speaking) countries. The Francophone countries are made up of made of eight French speaking countries namely, Cote D'Ivoire, Benin, Burkina Faso, Guinea, Mali, Niger, Senegal, Togo and two Portuguese speaking countries namely Cape Verde and Guinea Bissau. The Anglophone countries are made up of Ghana, Gambia, Nigeria, Liberia and Sierra Leone.

The divide of West African countries into Francophone (French-speaking) and Anglophone (English-speaking) countries is a historical and linguistic distinction that arises mostly from European colonial legacies in the region. These classifications are based

on West Africa's colonial history and the languages of the colonizing nations. The language distinctions persistently exert impact on diverse facets of these nations, encompassing governance, education, and international relations. The linguistic divide has cultural and political implication. It affects diplomatic relations, trade agreement and regional organization. For example, countries with the same linguistics ties may have closer political and economic relationships due to shared language and legal systems.

Tables 3 and 4 shows the various statistics for Francophone and Anglophone countries respectively.

Table 2: **Descriptive Statistics**

Statistics	**HDI**	**GDPPC**	**INTR**	**INF**	**EXCR**	**UNP**	**FDI**	**GINI**
Mean	0.4603	1000.2500	12.1054	5.9232	0.0555	4.4283	4.6882	39.8409
Median	0.4580	727.5202	6.7633	3.8182	0.0020	3.7700	2.4811	40.0000
Maximum	0.6760	3740.3740	46.7225	41.5095	1.8351	14.8780	103.3374	52.5000
Minimum	0.2620	138.6987	4.7367	-3.5026	0.0001	0.3200	-2.5445	29.6000
Std Dev	0.0818	778.3136	8.7937	6.7237	0.2216	2.8982	10.2217	4.4157
Skewness	0.3426	1.7148	1.1245	1.8155	5.0814	1.1446	6.9007	0.2230
Kurtosis	3.4129	5.5312	3.4028	8.2118	30.1499	3.6966	56.8134	2.6778
Jarque-Bera	8.4006	238.4610	68.5176	529.5607	11030.23	75.1458	40508.5400	4.9856
Probability	0.0149	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1363
Observation	315	315	315	315	315	315	315	315

Source: Computed by author using Eviews12, 2023

Table 3: Descriptive Statistics for Francophone Countries

Statistics	HDI	GDPPC	INTR	INF	EXCR	FDI	UNP	GINI
Mean	0.4512	1017.8410	6.9426	3.2757	0.0026	2.8206	4.2818	40.5467
Std Dev	0.0883	797.0492	3.7582	5.2083	0.0029	3.1317	3.1738	5.2962
Minimum	0.262	197.8327	4.73667	-3.5026	0.0001	-2.5445	0.3200	28.2333
Maximum	0.676	3740.3740	25.5000	34.6953	0.0133	18.8200	14.8780	62.1501
Observation	210	210	210	210	210	210	210	210

Computation by the Author using Stata 14, 2023

Table 4 Descriptive Statistics for Anglophone Countries

Statistics	HDI	GDPPC	INTR	INF	EXCR	FDI	UNP	GINI
Mean	0.478514	965.0666	22.4309	11.2182	0.1615	8.4234	4.7214	38.7367
Std Dev	0.0632	741.8948	6.6051	6.2866	0.3623	16.5717	2.2339	4.3454
Minimum	0.3180	138.6987	13.2502	0.8497	0.0001	0.1838	2.0800	28.2001
Maximum	0.6320	3098.9860	46.7225	41.5096	1.8351	103.3374	10.4600	48.0000
Observation	105	105	105	105	105	105	105	105

Computation by the Author using Stata 14, 2023

The HDI has a minimum value of 0.262 and the maximum value of 0.676 with a mean value of 0.46027 and a spread of 0.081757 indicating that the mean value is more than the standard deviation value. Thus the distribution is evenly distributed. The average quality of life in West Africa is 0.46027 which fall in the category of middle low income

by the global standard. However the average quality of life in the Anglophone countries is slightly higher than that of the Francophone countries. The average GDPPP in the sub-region is $1000.25 with a minimum of $138.70 and a maximum of $3,740.37 and the spread of $778.31. However, it is observed that the average GDPPC ($1017.84) in the Francophone countries is higher than that of Anglophone countries ($965.06) indicating that the standard of living among the Francophone Countries is higher compared to that of Anglophone countries in the region.

The average inflation rate in the sub-region is 5.92% with the minimum being -3.5% and the maximum being 41.51% with a spread of 6.72%. The average inflation, which is lower than the deviation shows that the inflation rate across the sub-region is less evenly distributed. The average inflation rate in the francophone countries is 3.28% as shown in table 2 with a minimum inflation of -3.5% and the maximum of 34.7%, that of Anglophone countries is 11.22% with minimum and maximum being 0.85% and 41.51% as shown in table 4 indicating that rate of inflation is higher with a wider spread in the Anglophone countries than that of the Francophone countries. Several historical factors may have contributed to higher inflation rates in Anglophone West Africa, including: Structure of the Economy and Dependence on Imports: Many economies in Anglophone West Africa rely extensively on imports of goods and services, including essentials such as food and fuel. Fluctuations in global prices, such as rising oil prices, can result in cost-push inflation, in which the increased cost of imported products causes domestic prices to rise; exchange rate volatility and currency depreciation; monetary policy and central Bank Independence among others.

The average interest rate (lending rate) is 12.11% in the sub-region with a spread of 8.79% with minimum and maximum interest rate being 4.74% and 46.72%. However the average lending rate in the francophone countries is 6.94% compared to 22.43% in the Anglophone countries. Whiles maximum lending rate was 25.5% in the Francophone Countries that of Anglophone is 46.72%. The disparity in the interest rate in these two sub-grouping in west Africa may be due to the fact that the Anglophone countries such as Nigeria and Ghana have their own central banks responsible for formulating and implementing their monetary policies including controlling interest rate. In contrast, Francophone West African nations share a common monetary framework known as the West African Economic and Monetary Union (WAEMU). The Central Bank of West African States (BCEAO), which oversees the single currency and monetary stability within the WAEMU, sets the monetary policy for these nations.

The average foreign direct investment as a percentage of gross domestic product is 4.69% across the sub-region with the spread of 10.22% indicating that foreign direct investment in West Africa is unevenly distributed. Whiles the minimum is -2.54% the highest is 103.33%. In the francophone countries the average FDI is 2.82% compared to 8.42% in the Anglophone countries indicating that the Anglophone countries receive more foreign direct investment compared to the counterpart in the francophone countries.

The average exchange rate in the sub-region per $1000 is 0.0555 with a spread of 0.221599. Whereas the minimum is 0.0001, the maximum is 1.8351 indicating a high volatility in the currency across the sub-region. However, the exchange rate seems more stable in the Francophone countries than in the Anglophone countries. The average

exchange rate in the Francophone is 0.0026 with a spread of 0.0029 compared to 0.1615 and 0.3623 respectively in the Anglophone countries.

The average unemployment rate in the sub-region is 4.43% with a spread of 2.9%. The highest unemployment rate during the period under consideration was 14.88% with the lowest being 0.32%. The average unemployment rate in the Anglophone countries (4.72%) is higher than their counterpart in the Francophone countries (4.28%). However, the spread is wider in the Francophone countries than that of the Anglophone countries. All the variables HDI, GDPPC, INF, EXCR INTR, FDI UNP and GINI are positively skewed. The Jarque-Bera statistic surpasses the significance threshold of 0.05 percent for all series. At this significance level, the null hypothesis of normal distribution for the series is rejected. The lack of normal distribution can be attributed to the cross-sectional and heterogeneous character of the data utilized in this study. In panel data analysis, such heterogeneities are typically corrected during estimation.

Table 5: Correlation matrix

	HDI	GDPPC	INF	EXCR	INTR	FDI	UNP	GINI
HDI	1.0000							
GDPPC	0.7743	1.0000						
INF	0.0358	-0.1166	1.0000					
EXCR	0.2400	-0.0274	0.4761	1.000				
INTR	0.1851	-0.0388	0.6879	0.5305	1.0000			
FDI	0.0772	-0.0311	0.0805	-0.0027	0.1191	1.0000		
UNP	0.5013	0.5003	0.0641	0.1714	0.2915	-0.036	1.000	
GINI	0.1006	0.0999	-0.1246	0.1377	-0.0208	-0.1717	0.3157	1.0000

Computation by Author using Stata 14, 2023

From Table 5 there is no multicollinearity among the variables. It however, shows a very strong and positive relationship between human development index (proxy for quality of life) and gross domestic product (proxy for economic growth). All the other explanatory variables show positive but very weak relationship with HDI. There is a weak and positive correlation value of 0.0358, 0.1851, 0.0772 and 0.1006 between HDI and inflation, interest rate, foreign direct investment and income inequality respectively. There is however a strong and positive correlation value of 0.7743 between quality of life (HDI) and economic growth (GDPPC) while a moderate positive correlation value of 0.5013 and 0.24 is found between HDI, unemployment and exchange rate respectively

4.3 Unit Root Test

The presence of unit roots in our data was examined using the Levin–Lin–Chu (2002) (LLC), Im–Pesaran–Shin (2003) (IPS), Augmented Dicky Fuller (1979) and Philip-Perron (PP, 1988) methodologies. The use of these multiple units root test is to demonstrate the consistency in the selection criteria. Table 6 displays the results of the various unit root tests. The unit root analyses for four-generation panels demonstrated that the all the variables are stationary. However, the regression results indicated a varied order of integration, indicating that the panel ARDL cointegration test is suitable for this study. Table 6 shows the various unit root test and their order of integration.

Table 6: Result of Various Unit Root Test

	Levin Lin Chu (LLC)		Im Pesaran Shin (IPS)		Aug. Dickey Fuller		Philip Peron	
	Statistic	Order	Statistic	Order	Statistic	Order	Statistics	Order
HDI	-4.1961***	I(0)	-1.8487***	I(1)	48.2622**	I(1)	51..8164***	I(0)
LNGDPPC	-7.0921***	I(0)	-2.6137***	I(0)	50.7600***	I(0)	121.290***	I(0)
INF	-6.6928***	I(0)	-6.8963***	I(0)	106.073***	I(0)	137.450***	I(0)
INTR	-6.14617***	I(0)	-5.3329***	I(0)	86.8885***	I(0)	104.541***	I(0)
EXCR	-3.1545***	I(0)	-2.1295**	I(0)	47.4439**	I(0)	44.8670**	I(0)
LNGDPPC_GINI	-3.2399***	I(0)	-4.3038***	I(1)	68.1731***	I(1)	99.5782***	I(1)
FDI	-2.8592***	I(1)	-6.6266***	I(1)	109.266***	I(1)	522.517***	I(1)
UNP	0.08980	-	-1.54300*	I(1)	56.2116**	I(1)	66.4469***	I(1)
GINI	-6.9351***	I(0)	-3.4644***	I(0)	61.6623***	I(0)	20.9562**	I(1)

Source: Author's own computation using Eviews12 statistical software, 2023. Notes, Robust standard errors in parenthesis and ***, ** and * indicate 1%, 5% and 10% significant levels.

4.4 Panel Cointegration Tests

Using Pedroni (1999) panel co-integration tests, we looked at the co-integrating connection between the variables after the panel unit root test confirmed that the variables had mixed stationary status. In dynamic panels where both the short-run dynamics and the long-run slope coefficients are allowed to be heterogeneous across individual members of the panel, Pedroni examines the properties of residual-based tests for the null hypothesis of no co-integration. Both group mean within dimension tests and group mean between dimension tests with individual intercept are taken into account by the Pedroni test. Table 7 result of Pedroni panel cointegration test shows that three out of the seven statistics significantly reject the null hypothesis of no cointegration at 5% level

Table 7: Panel Cointegration Test

Test Statistics	Panel	Group
v-Statistics	0.4774	
Rho-Statistics	3.142	4.569
t-Statistics	-0.2149	-0.198
Adf-Statistics	1.744	4.345

Source: Author's own computations using Eviews12, 2023

4.5 Optimal Lag Selection

Prior to running the Panel ARDL regression, the number of lags must be determined using relevant information criteria. All four model selection criteria have been shown in Table 8 with the test results on the indicated number of lag. The AIC, FPE, HQC, and SC all recommend fitting one lag.

Table 8. Optimal Lag selection Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-5063.1240	NA	20104.82	32.6116	32.7079	32.6502
1	-3236.7840	3546.976	0.2406*	21.2784*	22.1442*	21.6244*
2	-3174.3250	118.0901*	0.2432	21.2883	22.9237	21.9419
3	-3133.4850	75.1147	0.2828	21.43720	23.8422	22.3985
4	-3099.0570	61.5487	0.3433	21.6273	24.8019	22.8963

* Indicates lag order selected by the criterion. LR: sequential modified, LR test statistic (each test at 5% level) FPE: Final predictor error, AIC: Akaike information criterion, SC: Schwarz information criterion. HQ: Hannan-Quin information criterion.

Source: Author's own computations using Eviews12, 2023

4.6 Cross Sectional Dependency Text

Prior to estimating consistent coefficients, it is necessary to conduct tests of cross-sectional dependence on our data to ensure that the cross section in the panel data analysis is independent (Pesaran, 2004). We adopt the cross section dependence (CD) model that is compatible with fewer cross sections (N) and larger time series (T) in accordance with this study's N=15 < T=21 data. The test for cross-sectional dependence in Table 9 cannot be rejected at a significance level of 0.01%. This suggests that cross-sectional dependence is present in our data and that validate the choice estimate PMG ARDL panel model.

Table 9 Cross Section Dependency Test

Test	Statistic	d.f	Prob
Breusch-Pagan LM	937.0352	105	0.0000
Pesaran scaled LM	57.41588		0.0000
Pesaran CD	27.2772		0.0000

Source: Author's own computations using Eviews12, 2023

4.7 Empirical Result and Discussion

This study evaluated the ideal lag lengths of the panel and the variables before performing the cointegration tests. Following the Akaike information criterion (AIC), maximum lag of one as shown in Table 8, is selected for both the PMG and MG estimations. The Hausman test was then used to choose between the Mean Group (MG) and Pooled Mean Group (PMG) estimators. Overall, the results of the tests indicated the existence of long-run cointegration, albeit with modest variation among the estimator outputs. The regression results for the two estimators are shown in Table 10.

Table 10: Result of MG and PMG

Dependent Variable (HDI)	Mean Group (MG)	Pooled Mean Group (PMG)
Long Run Coefficients		
LNGDPPC	0.4227 (0.0297)	0.0456*** (0.0131)
INF	0.00010 (0.0008)	0.0008 (0.0009)
INTR	0.0054** (0.0023)	-0.0002 (0.0013)
EXCR	-22.655 (18.4369)	-16.9369*** (4.9908)
LNGDPPC_GINI	0.0008 (0.0009)	0.0004*** (0.0001)
FDI	-0.0005 (0.0025)	0.0082*** (0.0018)
Short Run Coefficient		
ECT	-0.3522** (0.1357)	-0.0491** (0.0169)
LNGDPPC	-0.0128 (0.0269)	0.0324** (0.0130)
INF	-0.0001 (0.0002)	$2.2e^{-07}$ (0.0001)
INTR	-0.0006 (0.0004)	0.0003 (0.0003)
EXCR	-45.0881 (44.3027)	-10.4289** (3.7895)
LNGDPPC_GINI	0.0005 (0.0007)	-0.0000 (0.0002)
FDI	0.0008 (0.0007)	0.0003 (0.0003)
CONS	-0.0246 (0.0562)	0.0081*** (0.0020)
Number of Observations	315	315
Number of Groups	15	15
Hausman Prob > chi2		0.7191

Source: Author's construction using Stata 14 statistical software and ***, ** and * indicate 1%, 5% and 10% significant level

Table 11: Result of the PMG estimator

Dependent Variable (HDI)	Standard Error	Coefficients
Long Run Coefficient		
LNGDPPC	0.0442	0.1191***
INF	0.0007	-0.0000
INTR	0.0013	-0.0035***
EXCR	0.0364	-0.0632*
GINI	0.0084	0.0095
LNGDPPC_GINI	0.0012	-0.0014
UNP	0.0029	0.0116***
FDI	0.0018	0.0082***
Short Run Coefficients		
COINTEQ (ECT)	0.0291	-0.0574**
D(LNGDPPC)	0.0661	0.0581
D(INF)	0.0001	0.0000
D(INTR)	0.0003	0.0002
D(EXCR)	5.5682	-14.4745***
D(GINI)	0.0114	0.0037
D(LNGDPPC_GINI)	0.0016	-0.0007
D(UNP)	0.0014	-0.0022
D(FDI)	0.0002	0.0001
C	0.0010	-0.0156

Source: Author's own computation using Eviews12 statistical software. Notes, ***, ** and * indicating 1%, 5% and 10% significant levels.

The Hausman test, which determines whether there is a statistically significant difference between the MG and PMG estimators, confirmed that the PMG is more efficient and consistent than the MG (Hausman, 1978) as indicated in table 10. At the 5% level of significance, the output of the pooled mean group (PMG) estimator indicates long-run cointegration between the variables. In addition, the error correction (ECT) or the Cointegration Equation (COINTEQ) term and the short-run and long-run coefficients are statistically significant at 5%, indicating a strong cointegration between human development index (a proxy for quality of life) macroeconomic variables, and any deviation from equilibrium in the short run is corrected at an adjustment speed of approximately 5.7% as shown in Table 11.

The result shows that economic growth had a positive and significant effect on quality of life in long run but not in the short run. It means that when GDP per capita increases, it cause increase in the quality of life. A unit increase in economic growth will result in 1.3% increase in quality of life in West Africa. This study's findings are consistent with those of (Remirez *et al.*, 1998; Zahari *et al.,* 2017; 2019; Hakim *et al.,* 2021; Runtunuwu, 2020; Palangda *et al.*, 2022), who found that a high GDP growth will lead to a rise in societal consumption patterns and purchasing power. The high level of purchasing power in the community will influence the increase in the human development index, as purchasing power is one of the composite indicators used to calculate the HDI from an income perspective. Therefore, it can be concluded that the human development index will increase as economic growth increases. The findings, however, contradicts the findings of Kadir *et al.* (2020) who found that GDP has a negative effect on HDI from Islamic Perspective and Wang *et al*. (2018) who used a simultaneous equation model to investigate

renewable energy consumption, economic growth, and the human development index and discovered that economic growth has negative impact on HDI in Pakistan. The study also discovered that GDP has positive and statistically significant effect on HDI in both Francophone and Anglophone at 1% level of significant in the long run as shown Table 12 The study showed cointegration among the variables in the Francophone countries and that any deviation from the equilibrium is corrected at the speed of adjustment of 14.8%. There is, however, no cointegration among the variables in the Anglophone countries and therefore the model is explosive in the Anglophone countries.

The study found that inflation has no impact on quality of life in West Africa both in the short run and long run which agrees with the findings of (Runtumuwu, 2020; Ogege, 2019) but contradict the findings of (Gilama *et al.*, 2003; Bhattacharya *et al.*, 2001; Heylen *et al.*, 2007). However, in the sub panel, inflation has a negative and significant effect on quality of life in the Anglophone West Africa in the long run at 10% significant level which agrees with the findings of (Gilama *et al.*, 2003; Bhattacharya *et al.*, 2001; Heylen *et al.*, 2007) but has no effect in the Francophone West Africa. Inflation however has no effect on the quality of life both in the Anglophone and Francophone countries in the short run. Historically, several factors may have contributed to higher inflation rates in Anglophone West Africa, including import dependence; that is, many economies in the region rely significantly on imports for goods and services, including essentials such as food and fuel. Fluctuations in global prices, such as rising oil prices, can result in cost-push inflation, in which the increased cost of imported products causes domestic prices to rise. Due to exchange rate volatility which is a common occurrence in the Anglophone countries such as Ghana and Nigeria, currency depreciation can also contribute to higher inflation levels.

In addition, Excessive money supply growth can lead to demand-pull inflation if central banks lack independence or have accommodating monetary policies. Similarly, if fiscal policies lead to an increase in government expenditure without a corresponding increase in revenue, this can contribute to inflationary pressures.

The study reveals that interest rate has a negative and statistically significant effect on quality of life in West Africa at 1% significant level. A percentage increase in the lending rates results in 0.35% decrease in the Quality of life West Africa. This however contradicts the findings of Ogege, (2019) who found that interest rate positive but statistically insignificant effect on HDI in Nigeria. It however has no statically significant effect on the quality of life in the Francophone countries but has a negative statistically significant effect on the quality of life in the Anglophone country. A percentage increase in the lending rates results in 0.24% decrease in the Quality of life in Anglophone West Africa. This may be due to the fact that the interest rates in Anglophone countries are set by their respective central banks and is one of the monetary tools the central Banks in Anglophone countries use to either control inflation and or money supply which has implication on well-being of the citizenry. On the other hand, the interest rates in Francophone countries are set by The Central Bank of West African States (BCEAO), which sets interest rates for the eight West African Economic and Monetary Union (WAEMU) countries hence cannot be used as monetary control tool for one member country.

The result also shows that exchange rate fluctuation negatively affect quality of life in West Africa at 1% significant level in the short run and 10% significance level in the long run. This agrees with the findings of Nilson *et a*l (2000), but contradicts the findings

of Ogege S. (2019) who found that exchange rate has a positive and statistically significant effect on HDI in Nigeria. However it should be noted that exchange rate fluctuation has no effect on Quality of life in the Anglophone countries but has statistically significant effect on quality of life in the Francophone countries at 5% and 1% significant level in the short run and the long run respectively.

Income inequality has no significant effect on quality of life in West Africa both in the short run and long run. It however has a positive and significant effect at 10 significant level on the quality of life in Anglophone West Africa

The interaction of income inequality and economic growth have no significant impact on the quality of life in West Africa. It is further observed it has negative and statistically significant effect on the Anglophone Countries but has no significant effect on the quality of life in the Francophone countries.

The study also showed that unemployment has a positive and statistically significant effect on the quality of life in West Africa at 1% significant level in the long run. Whilst it has positive and statistically significant effect in the Francophone Countries it impacts on the Anglophone countries is negative and significant.

We discovered that FDI has a positive and significant effect on quality of life in West Africa in the long run at 1% level of significant but not in the short run. 1% increase in the foreign direct investment will result in 0.8% increase in the quality of life in West Africa in the long run. This aggress with the findings of (Slaughter, 2002; Ditta *et al.,* 2021). In the sub-panel, FDI has a positive and statistically significant effect in the Francophone countries but negative and statistically significant effect on the Anglophone countries

Table 12: Result of PMG for sub-panel

Dependent Variable (HDI)	**Francophone Countries**	**Anglophone Countries**
Long Run Coefficients		
LNGDPPC	0.1067***	0.2386***
	(0.0322)	(0.0129)
INF	0.0005	-0.0007*
	(0.0006)	(0.0004)
INTR	-0.0011	-0.0024**
	(0.0010)	(0.0008)
EXCR	-29.3420***	-0.0919
	(6.5978)	(0.1272)
GINI	0.0023	0.0142*
	(0.0056)	(0.0079)
LNGDPPC_GINI	-0.0002	-0.0056***
	(0.0008)	(0.0014)
UNP	0.0110***	-0.0408***
	(0.0247)	(0.0036)
FDI	0.0021***	-0.0009***
	(0.0006)	(0.0004)
Short Run Coefficient		
ECT	-0.1489***	-0.2138
	(0.0515)	(0.1936)
D(LNGDPPC)	0.0399	0.1020
	(0.0508)	(0.1492)
D(INF)	-0.0001	0.0001
	(0.0001)	(0.0003)
D(INTR)	0.0003	0.0010**
	(0.0003)	(0.0004)
D(EXCR)	-12.6433**	43.8999
	(5.04282)	(42.4410)
D(GINI)	0.0013	0.0156
	(0.0096)	(0.0261)
D(LNGDPPC_GINI)	-0.0003	-0.0022
	(0.0014)	(0.0037)
D(UNP)	-0.0035	0.0055
	(0.0023)	(0.0053)
D(FDI)	0.0003	0.0003
	(0.0003)	(0.0004)
CONS	-0.0310**	-0.0129
	(0.0129)	(0.0189)

Source: Author's computation using Eviews 12. Robust standard errors in parenthesis, ***, ** and * indicating 1%, 5% and 10% significant levels.

Table 13: Result PMG ARDL Short Run Coefficient for Individual Countries

VARIABLES	COINTEQ	LNGDPPC	INF	INTR	EXCR	GINI	LNGDPPC_GINI	UNP	FDI
COUNTRIES									
BENIN	-0.5228***	0.0231***	-0.0003***	0.0004***	8.2657	0.0076***	-0.0014***	-0.0038***	-0.0001***
BURKINA FASO	-0.2208***	0.2518***	-0.0001***	0.0001***	-28.5870	0.0392***	-0.0055***	0.0109***	0.0001***
CAPE VERDE	-0.1362***	0.3749***	0.0005***	0.0020***	2.92515	0.0532***	-0.0082***	-0.0041***	0.0000***
COTE D'IVOIRE	0.05278***	-0.1331**	-0.0006***	0.0005***	-46.1333	-0.0442***	0.0053***	0.0010***	0.0023***
GAMBIA	-0.0007***	0.1058***	0.0001***	-0.0004***	-0.3066***	0.0120***	-0.0019***	-0.0007***	-0.0007***
GHANA	-0.0281***	0.5577***	-0.0003***	0.0011***	0.0315***	0.0914***	-0.0130***	-0.0001***	0.0015***
GUINEA	0.0101***	-0.0226***	0.0001***	0.0002***	-1.7940	0.0027***	0.0007***	-0.0099***	0.0000***
GUINEA BISSAU	-0.1503***	-0.0402***	-0.0000***	-0.0011***	-6.6121	-0.0065***	0.0009***	-0.0167***	0.0005***
LIBERIA	0.0078***	0.1102**	-0.0004***	0.0019***	-1.7444***	0.0102***	-0.0014***	0.0035***	-0.0000***
MALI	-0.1339***	-0.1452***	-0.0003***	-0.0001***	-32.6099	-0.0406***	0.0063***	-0.0028***	-0.0001***
NIGER	-0.0661***	0.0217***	0.0001***	-0.0006***	-10.7765	0.0029***	-0.0003***	-0.0008***	0.0008***
NIGERIA	-0.0614***	-0.3851***	0.0000***	0.0007***	7.9921	-0.0709***	0.0098***	-0.0017***	0.0006***
SENEGAL	-0.0606***	0.0386**	0.0002***	0.0003***	7.2701	0.0107***	-0.0011***	-0.0007***	-0.0012***
SIERRA LEON	-0.9868***	0.1215***	0.0012***	0.0016***	213.5270	0.0352***	-0.0045***	0.0264***	0.0003***
TOGO	-0.2606***	0.0309	-0.0004***	-0.0002***	-18.38075	-0.0068**	-0.0002***	-0.0076***	0.0002***

Source: Author's computation using Eviews 12. Robust standard errors in parenthesis, ***, ** and * indicating 1%, 5% and 10% significant levels

4.8 Discussion on the Individual Countries

Table 12 shows the diverse effects of macroeconomic variables on the quality of life in different countries. Except for Guinea and Liberia which have positive cointegration coefficients, the rest of the countries have cointegration among the variables indicating a long run relationship among the variables and any deviation from the short run coefficient are corrected by the various speed of adjustment. The model is therefore explosive in Guinea and Liberia.

Economic growth represented by gross domestic product per capita has a positive and significant effect in quality of life in the short run in Benin, Cape Verde, Burkina Faso, Niger, Senegal, Ghana, Gambia Liberia and Sierra Leon and this is in agreement with the findings of (Zahari *et al.,* 2017; 2019; Hakim *et al.*, 2021; Runtunuwu, 2020; Palagda *et al.*, 2022). It however has a negative but statistically significant effect quality of life in Cote D'Ivoire, Guinea, Guinea Bissau Mali and Nigeria. It has no statistically significant effect on the quality of life in Togo.

On the other hand, the impact of inflation on the quality of life in Cape Verde, Guinea, Niger, Senegal, Gambia, Nigeria, and Sierra Leone is positive and statistically significant at a 1% level and agrees with the findings of Heylen *et al*. (2007). It has a negative but statistically significant impact on the quality of life in Benin, Burkina Faso, Cote d'Ivoire, Guinea Bissau, Mali, Togo, Ghana, and Liberia, with a 1% level of significance and this is consistence with the findings of (Gilama *et al.*, 2003; Bhattacharya *et al.*, 2001)

In Benin, Côte d'Ivoire, Guinea, Senegal, Ghana, Liberia, Nigeria, and Sierra Leone, the impact of the interest rate on the quality of life is positive and statistically

significant at the 1% level. Burkina Faso, Guinea-Bissau, Mali, Niger, Togo, and Gambia, however, experience a negative effect that is statistically significant at the 1% level.

With the exception of Ghana, Gambia, and Liberia, exchange rate has no impact on the quality of life in any of the individual countries in the short run. It has a statistically significant and positive effect at 1% level of significance on Ghana's quality of life, but a negative impact on Gambia and Liberia.

Income inequality has a positive and statistically significant effect on the quality of life in Benin, Cape Verde, Burkina Faso, Niger, Senegal, Ghana, Gambia, Liberia and Sierra Leon but has negative and statistically significant effect in Cote D'Ivoire, Guinea, Guinea Bissau, Mali Togo and Nigeria. It interaction with gross domestic product has a positive and statistically significant effect on quality of life in Cote D'Ivoire, Guinea, Guinea Bissau, Mali and Nigeria but negative and statistically significant effect on quality of life in Benin, Cape Verde, Burkina Faso, Niger, Senegal, Togo, Ghana, Gambia, Liberia and Sierra Leon.

Unemployment has a negative and statistically significant effect on the quality of life in Benin, Cape Verde, Gambia, Ghana, Guinea, Guinea Bissau, Mali, Niger, Nigeria, Senegal and Togo and this agrees with the findings Runtunuwu, (2020). However it has positive and statistically significant effect in Burkina Faso, Cote D'Ivoire Liberia and Sierra Leon.

FDI has a positive and statistically significant effect on the quality of life in Cape Verde, Burkina Faso, Cote D'Ivoire, Guinea, Guinea Bissau, Niger, Togo, Ghana, Nigeria and Sierra Leon and these findings agrees with that of (Slaughter, 2002; Ditta *et al.,* 2021).

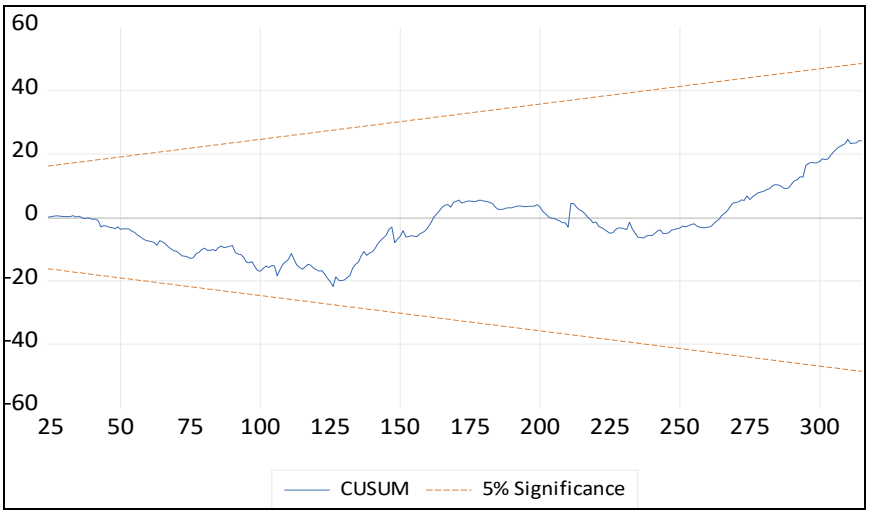
It however has a negative and statistically significant effect on the quality of life in Benin, Mali, Niger, Senegal and Liberia.

4.9 Stability Test

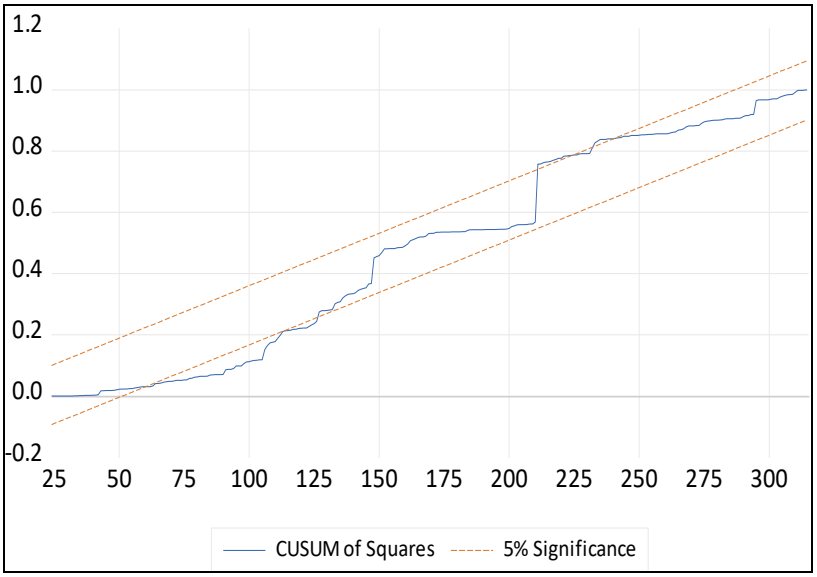
To assess parameter stability, the cumulative sum (CUSUM) of recursive residuals and the cumulative sum of squares (CUSUMSQ) tests are used (Pesaran & Pesaran, 1997). The cumulative sum test reveals regular changes in regression coefficients, whereas the cumulative sum of squares test detects sudden changes in regression coefficient constancy. Figure 2 depicts the CUSUM and CUSUMSQ test results. The results show that the coefficients are not unstable because the plots of the CUSUM and CUSUMSQ statistics lie inside the critical bands of the 5% confidence intervals for parameter stability. As a result, the coefficients of variables for West African countries are stable during the study period.

Figure 2. CUSUM and CUSUMSQ tests for Parameter Stability

Plot of Cumulative Sum of Recursive Residuals



Plot of Cumulative Sum of Squares of Recursive Residuals



The straight lines represent critical bounds at 5% significance level

Source: Author's own computations using Eviews12

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter includes a summary, findings, and set of suggested policies. The summary of chapters one to four is presented first followed by the summary of the main findings, then the study's contributions are discussed, followed by policy implications that may be inferred from the study's findings. Finally, the study makes some recommendations for potential lines of inquiry for related future research.

5.2 Summary

The study examined the effects of macroeconomic variables on the quality of life in West Africa using Human Development index as a proxy for quality of life. This research is divided into five chapters. The first chapter focused on the study's introduction and background, motivation for the investigation, problem statement, major aim and particular research objectives, research questions, hypotheses, and justification for the study.

The existing literature relating to the subject matter especially with the emphasis on Human Development Index was reviewed. First it reviewed the theories behind human development economic growth and poverty. It went further to review the empirical focusing on the effect of HDI and GDP proxy for economic growth on other macroeconomic variables. The review provided insight into how quality of life have been measured over the years using economic growth, as a proxy for quality of life and how the emergence of HDI is changing or shifting the narrative which is the focus of this study. The chapter also provided insight into the concept relating to the subject matter through

various definition and overviews of those concept especially in the context of West Africa. The concept include GDP a proxy for economic growth, inflation (INF) measured by consumer price index, interest rate (INTR) measured by the lending rate, unemployment (UNP), foreign direct investment (FDI) exchange rate (EXCR), income inequality (GINI) were all reviewed in this chapter.

The methodology used to execute the study's three objectives was discussed. The study employs the Panel ARDL model for both short-run and long-run relationships to achieve its three aims. Variable definitions, estimation method, model specification, and data analysis techniques were discussed. Pre estimation techniques such as the unit root test, cointegration test, and Hausman test were discussed alongside post estimation techniques.

The study employed the techniques to find out the link between quality of life and economic growth and the role of income inequality plays between the link. The effect of other macroeconomic variables on quality of life were also investigated. The Panel ARDL is used because, compared to the generalized method of moments (GMM) estimator, it provides reliable, non-spurious, and precise estimates when a larger number of observations and small cross-sections are used (Pesaran, Shin, & Smith, 2001; Kutu *et al*., 2016). Additionally, the methodology can produce estimates of both short-run and long-run dynamics, and it can be used to estimate both the short-run and long-run

5.3 Findings

The effects of microeconomic variables on the quality of life in West Africa from the year 2000 to 2020 were investigated in this study over a period of 21 years from 2000 to 2020. The study estimated both the Mean Group and Pooled Mean Group Auto

Regressive Distributed Lag models but settled on the PMG for our analysis after the Hausman selected the PMG as the best estimator for the model. The findings shows favorable and some contradictory to the previous studies indicating how macroeconomic variables effect quality of life in West Africa compared to other regions

The first objective investigates the link between quality of life and economic growth in West Africa. Following the establishment of cointegration among the variables, the estimated results established that there is a link between quality of life and economic growth, and that economic growth significantly affect the quality of life in West Africa in the long run. These findings are consistent with those of (Remirez *et al.*, 1998; Zahari *et al.,* 2017; 2019; Hakim *et al.,* 2021; Runtunuwu, 2020; Palagda *et al.*, 2022), who found that a high GDP growth will lead to a rise in societal consumption patterns and purchasing power and hence improvement human development. The findings, however, contradicts the findings of Kadir *et al.* (2020) who found that GDP has a negative effect on HDI from Islamic Perspective and Wang, Z *et al*, (2018) who used a simultaneous equation model to investigate renewable energy consumption, economic growth, and the human development index and discovered that economic growth has negative impact on HDI in Pakistan. There is also bi-causal relationship between economic growth and quality of life. Economic growth enhances quality of life and quality of life also promote economic growth in West Africa

The study however established that income inequality as well as it interaction with gross domestic product per capita has negative but not statistically significant impact on the quality of life in West Africa. The second objective seeks to find the role of income inequality in linkage between economic growth and quality of life in West Africa. The

finding is that income inequality do not play any significant role in the linkage between economic growth and quality of life in West Africa. It however has a negative and statistically significant effect on the quality of life in the Anglophone West Africa at 1% significant level.

The third objective seek to find out which of the macroeconomic variables has significant impact on the quality of life and the study showed that interest rate , exchange rate, unemployment and foreign direct investment (FDI) were found to have significant effect on the quality of life in West Africa.

Interest rate was found to have negative and significant effect on the quality of life in West Africa at 1% significance level. These may be due to a number of factors including access to credit, housing affordability, financial stability, access to education and health among others. High interest rates can reduce the affordability and accessibility of credit, especially for those with lower incomes. This can restrict investment opportunities in education, housing, and entrepreneurship. High mortgage rates can make homeownership more expensive, especially for first-time buyers. This can have an impact on housing options and the quality of homes accessible to individuals and families. The financial system's stability may be impacted by interest rates. Borrowers may experience financial strain as a result of rapidly rising interest rates, which could eventually cause defaults and financial crises that could have an effect on the entire economy. Interest rates have an indirect impact on government spending plans, which can affect access to healthcare and education. High debt payment expenses brought on by high interest rates can restrict government spending on social programs, which has an impact on the accessibility and standard of education and healthcare.

The result also shows that exchange rate fluctuation negatively affect the quality of life in the West African countries both in the short run and long run. The effect include purchasing power, cost of living, foreign debt, foreign aid, investor confidence, investment in education and health care among others. The value of a country's currency relative to other currencies is determined by its exchange rate. A weaker local currency can reduce the purchasing power of individuals and households, increasing the price of imported products and possibly diminishing their quality of life. Exchange rate fluctuations can have an impact on the overall cost of living. A significant depreciation of the local currency can raise the cost of imported products such as food, fuel, and medications, putting strain on household budgets. The cost of servicing foreign debt might vary depending on the currency rate. The real cost of servicing foreign debt might rise due to a devaluation of the local currency, which can have financial repercussions and reduce government spending on social programs. Moreover, a volatile exchange rate can deter foreign investment, while a stable currency can attract foreign capital, which can contribute to economic growth and job creation. Exchange rates can impact government budgets, which in turn can impact education and healthcare expenditures. Stable exchange rates can aid in securing consistent funding for these essential sectors.

The study found that unemployment has a positive and statistically significant effect on the quality of life in West Africa. It however has a negative and statistically significant effect on quality of life in Anglophone West Africa but positive and statistically significant effect on quality of life in Francophone West Africa.

Foreign Direct Investment has a positive and significant effect on quality of life in West Africa in the long run but not in the short run. These may result in economic growth,

job creation, skills transfer industrial development and access to global market. Foreign direct investment can contribute to economic growth by attracting capital, technology, and expertise from abroad. When FDI results in increased production and job creation, it can increase incomes and enhance the standard of living for certain segments of the population. Investments in infrastructure, such as ports, energy facilities, and highways, are sometimes a part of FDI projects. A more efficient transportation system and increased economic activity are two benefits of improved infrastructure. Through partnerships and supply chain integration with international corporations, FDI can offer West African businesses with access to global markets. This has the ability to improve export prospects and boost economic development.

Inflation however was not found to have any significant effect on quality of life in West Africa and this findings agrees with that of (Runtunuwu, 2020; Ogege, 2019). However, in the sub panel, inflation was found to have a negative and significant effect on the quality of life in the Anglophone West Africa at 10% significant level and that agrees with the findings of (Gilama *et al.*, 2003; Bhattacharya *et al.*, 2001).

5.4 Limitations of the study

Data on macroeconomic variables and of quality of life in West Africa can be limited and of poor quality, thus making a robust analysis difficult. Also, because the relationship between macroeconomic variables and quality of life is complex and multifaceted, identifying causal relationships is difficult. In addition, because West Africa is a large region with many different cultures, languages, and economic systems, generalizing findings across the region could be difficult.

Political and social factors, such as corruption and conflict, could have an impact on the quality of life in West Africa, but they are a very sensitive areas of study and therefore they were not included in the study.

Other factors such as demographic changes, technological advancements, and climate change may have influence on determinant on quality of quality of life.

There were other challenges with the study. The main obstacle was the lack of data across all of West Africa. Data gathered are national statistics taken from each nation's yearly report. The study had additional difficulties as well. For example, not all West African nations had the necessary data available for the entire 21-year study period. Data on the Gini coefficient, an indicator measuring income inequality, was lacking in some years across all 15 West African countries. As a result, the extrapolation approach was utilized to fill in the missing data.

5.4 Conclusion

The term quality of life refers to people and societies' general happiness and contentment. Quality of life is increasingly recognized as a critical factor in determining both social and economic progress in recent years (UNDP, 2010). The quality of life in West Africa is dynamic and multifaceted, with a wide range of challenges and opportunities (World Bank, 2020). The study investigated the connection between macroeconomic variables and quality of life in West Africa. Human Development Index was used as proxy for quality of life as opposed to gross domestic product (GDP) which has popularly been used as a proxy for quality of life in the literature. The study therefore examined the effects of these macroeconomic variables on the quality of life in West Africa. The conclusion of the study was derived from the analysis of the numerous

objectives investigated in this study. The study employed panel ARDL model to investigate both the short run and the long run effect of macroeconomic variables on the quality of life. Macroeconomic variables selected for the study were gross domestic product (GDP), inflation (INF), interest rate (INTR), exchange rate (EXCR), unemployment (UNP) and foreign direct investment (FDI). A test for unit root ware carried out on all the variables to establish their stationarity. The test showed a mix order of integration some being level and some being level in their first difference.

The findings of the study showed that there is linkage between quality of life and economic growth and that economic growth positively affect the quality of life and that income inequality do not play any role in the linkage between quality of life and economic growth in West Africa. Interest rate and exchange rate fluctuation have negative effect on quality whereas foreign direct investment positively affect quality of life in West Africa. Inflation and income inequality were however found not to have any significant effect on quality of life in West Africa both in the short and the long run.

5.5 Recommendations

The findings of this study has generated important policy implication and recommendation for the sub-region. In the first place the study has revealed a link between economic growth and quality of life meaning that an improvement economic growth that is, gross domestics product will eventually result in the improvement of quality of life of the citizen in West Africa. Investment should therefore be made in the productive sectors of the economy that is, education and job creation among others to bring the needed improvement in the quality of life.

Interest rates have a multidimensional impact on economic and financial conditions, which can affect West Africa's quality of life. To improve the overall well-being of the population, policymakers must strike a balance between limiting inflation, supporting economic growth, and maintaining access to affordable credit. Additionally, government initiatives and regulations can help vulnerable people by reducing the negative effects of interest rate changes.

The effect of exchange rates on the quality of life in West Africa, as in any other region, depends on a complex interaction of economic factors, such as inflation, trade dynamics, government policies, and global economic conditions. The policies and interventions of governments and central banks can mitigate the negative effects of exchange rate fluctuations on individuals and households, thereby enhancing their quality of life.

5.6 Areas for Further Research

The study was conducted for 15 West African Countries for a period of 21 years. Further studies can be conducted for the Sub Saharan Countries that may include other countries not in the West African Block. Moreover other economic variables such as trade openness, financial market development and others may further be investigated in the future studies. Moreover because the study focuses on West Africa it may have a generalized result that may have a misleading implication since West African is dynamic with different political socio economic dynamics. Future studies may be extended to other regions of the world

In addition future studies could also look at other non-economic factors such environmental degradation, pollution and their effect on quality of life.

5.7 Policy Implication

On the basis of the findings, the study makes the following policy recommendations. First investment should be made in the productive sectors of the economy such as education, health and needed infrastructure to improve the quality of life of the citizens. Moreover, West African countries especially the Anglophone countries should strengthen their currencies to reduce the negative effects the exchange rate fluctuation has on the living standard of the people. In this case the formation of WAMZ (West Africa Monetary Zone) and the expected formation of a common currency ECO is long overdue since this will go a long way to encourage trade among member countries and also strengthen the local currency against the foreign currencies.

Finally establishment of a common West African Central Bank (WACB) will go a long way to stabilize the interest rate (lending rates) in the region especially in the Anglophone countries who experience high interest rate due to their individual central bank's policy.

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